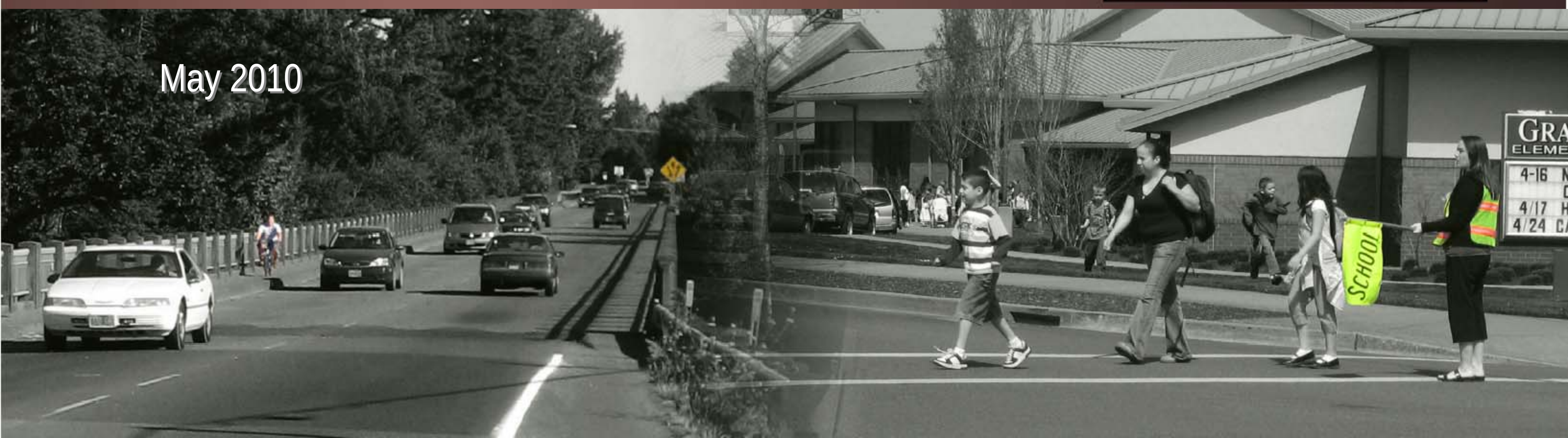
City of McMinnville

Transportation System Plan

May 2010



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McMinnville TSP Update - Adopted by City Council: May 25, 2010

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Transportation System Plan

Chapter 1
Executive Summary

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1 Executive Summary

For the past decade, McMinnville policy-makers, staff and citizen volunteers have been preparing the City's long-range plan for growth. When originally drafted in 2003, the Growth Management and Urbanization Plan helped establish the City's ***vision*** for McMinnville:

a compact and livable community.

In support of the vision, stakeholders in the planning process also confirmed certain urban design principles to guide development through the City's land use and transportation plans. These core urban design principles include:

- preserving open space,
- preventing commercial strip development along arterials,
- promoting transit and pedestrian-oriented development,
- providing for economic growth and housing opportunities,
- strengthening the City's historic downtown, and
- connecting neighborhoods and land uses.

McMinnville initiated its Transportation System Plan (TSP) effort in 2005 to address statewide planning requirements. The purpose of the TSP is to identify a multi-modal plan that serve's the City's long-range land use plan for growth. The TSP is for the 2003-2023 planning period[1].

A dozen citizens were invited by the City Council to serve on the Plan's Transportation Advisory Committee to ensure that the TSP reflects the needs of the community. At the Committee's first meeting in November, 2006, the question was posed:

"What transportation issues do you feel need to be addressed in the TSP?"

Their response was telling, remarkably poignant and certainly aspirational:

- *Livability* – keep McMinnville's "Home Town" feel for generations to come
- Retain McMinnville's *sense of place*
- *Funding* - "How do we pay for it?"
- Impacts of proposed Newberg-Dundee Bypass and affect on local growth
- Accommodate growth differently – "let's not become another *[insert offending city name here]* "
- *Bicycle* lanes and a connected *system* are needed
- Travel in McMinnville to be an "experience" - with pleasant visual amenities
- McMinnville should be *pedestrian-focused* - facilities and network for safety and circulation
- *Transit will become more important* and help link activity centers, also pedestrian-focused,
- *Better linkages* between Downtown and neighborhoods
- The idea of passenger rail service to Portland should be explored
- Concern over City's major arterials, to, through and from McMinnville
- Desire a comprehensive transportation plan that *accommodates growth, keeps traffic moving, conserves energy and reduces pollution,* and
- Concern for public safety

How Was The TSP Prepared?

The City of McMinnville has undertaken a study of the city-wide transportation system to address the combined impacts of urban development and major transportation improvements. The TSP study effort began in September 2005 with the inventory and assessment of the City's current transportation system.

In 2006 and 2007 the City worked with the Oregon Department of Transportation (ODOT) to prepare a travel demand model for the McMinnville urban area. The Model now enables the City to test the impact of future scenarios in a more detailed examination of future traffic demand on McMinnville's major streets. The TSP study also included a comprehensive evaluation of all aspects of the transportation system, including street, transit, pedestrian, bicycle and freight mobility (trucking and rail). The study is culminated in the McMinnville TSP.

The McMinnville TSP was prepared with input from technical, policy, and community based sources. Inter-jurisdictional coordination and technical input in the study and review of the draft TSP was conducted through meetings with ODOT, the Department of Land Conservation and Development (DLCD) and Yamhill County.

A Transportation Advisory Committee (TAC) was formed, consisting of twelve citizens, appointed by the City Council, representing various neighborhood, bicycle, pedestrian and commercial/industrial interests. The TAC met four times to review and discuss incremental findings and recommendations of the TSP components, helping refine the ultimate TSP recommendations.

Public hearings were held with the McMinnville Planning Commission and City Council to discuss, revise and adopt the TSP findings and recommendations.

McMinnville's TSP is an integrated compilation of a number of sections, including guiding goal and policies (Chapter 2), individual modal plans (Chapters 4-8), a funding plan (Chapter 9), and an implementation plan (Chapter 10).

In addition to local citizen concerns, McMinnville prepared its Plan to meet statewide planning requirements. As one of the states' growing urban areas, McMinnville is tackling a variety of issues that can really be boiled down to one question: "How do you manage transportation growth to meet the City's vision?"

As is reflected in the next nine chapters, McMinnville's answer is essentially:

Complete Streets

The historic layout and development of McMinnville's major land use and street system, combined with other natural geographic constraints, is limiting the city's ability to identify new street routes to address the impacts of growth. From a city-wide perspective there are too few east-west arterial connections spanning McMinnville. An example, Baker Creek Road and the combination of West 2nd Street and Wallace Road (major east-west routes) help frame the northwest corner of McMinnville. In between are the Michelbrook Country Club golf course and the city's park, and on the edges are well-established residential neighborhoods. Realistically, there are no options to align a new arterial through existing neighborhoods and the Michelbrook Country Club. Given these constraints, the TSP development process naturally evolved with measures to optimize use of existing corridors, and ways to manage traffic conditions and enhance multi-modal access and safety along existing routes.

The McMinnville TSP was purposefully designed to address aforementioned stakeholder issues and statewide planning requirements. Given the city's limited transportation network options, the TSP process and outcomes aligned neatly with the emerging *Complete Street*[2] paradigm shift in transportation planning.

McMinnville's TSP recommends the *completion* of several of the City's major arteries and other *streets* by means of additional bicycle facilities, sidewalks and curb ramps and traffic turn lanes so that all travelers have a safe means to move about the City. The City's main arteries have already been laid out. Options for new routes are severely limited, given the many natural and man-made constraints in and around the McMinnville Urban Growth Boundary (UGB) area. Addressing McMinnville's TSP from a *Complete Street* perspective is not only natural, but uniquely local. Essentially, a *Complete Streets* policy ensures that the entire right of way is routinely designed and operated to enable safe access for all users.

In this Executive Summary are the highlights of McMinnville's TSP - a summary of the TSP development process, an outline of McMinnville's Complete Street Plan (with reference and guide to the individual TSP chapters), and a summary of major project recommendations, policies and implementation strategies.

McMinnville's TSP: "Complete Streets" Plan

The McMinnville TSP is a multi-modal plan that includes recommended projects and strategies to manage growth and meet the City's transportation needs over the next twenty years and beyond. The Plan identifies "complete street" projects to improve safety and add important bicycle and pedestrian facilities along key routes, and promotes utilization and enhancement of the existing transportation system through better management techniques.

The TSP documentation is formatted for a range of readers. The interests of policy-maker and citizen stakeholders will vary. Technicians will require access to detailed data and TSP findings that others may not. In addition to the Executive Summary, the resultant document includes nine chapters by topic for readability, referencing technical appendices for detailed policy and analytical findings. The TSP is organized in such a manner to give readers quick reference to specific areas of interest. Key features include:

Chapter

2 Guiding Goals and Policies
Summary goals and policies to guide the overall TSP and individual Plan components (e.g. Bicycle System Plan, Pedestrian System Plan, etc.), including *Complete Street* Design Guidelines.

3 Evaluation of McMinnville's Transportation System
Summary of 20-year land use and traffic growth (2003 – 2023). Inventory of street, pedestrian and bicycle system, and impact of travel growth on the City's major street system, the basis by which the street, bicycle, pedestrian and transit plan recommendations are made.

4 Street System Plan
Existing and future traffic safety conditions and volumes and performance measures at key intersections, and street maintenance (pavement) and bridge conditions. Short and long-range capital improvement projects – e.g., Complete Streets, new traffic signals and new central traffic signal system to better manage McMinnville's streets.

5 Pedestrian System Plan
Summary of walking survey of existing and missing sidewalks and curb ramps and prioritization of recommended sidewalk improvements and curb ramp program. Emphasis on school access and safety and improved pedestrian crossings in downtown McMinnville (3^{rd}, 2^{nd} and 1^{st} Streets) and along Adams and Baker Streets.

6 Bicycle System Plan
Summary of bicycle system inventory, recommended street re-striping program to add bike lanes and shared-lane facilities called "sharrow." Recommendations include bicycle facility design guidelines.

7 Transit and Transportation Demand Management Plan
Summary of historic and current city and inter-city commuter transit ridership on Yamhill County Transit Area (YCTA) system. Summary of short-term transit system route changes and facilities that the City can help develop to encourage transit use and service. Summary of policy and programs City can support to encourage a reduction in drive-alone travel during the peak periods.

8 Freight Mobility, Air, Rail and Pipeline Plans
Summary of recommended projects to support local truck route development, railroad service and important railroad crossing improvements, and coordination with McMinnville's Airport Layout Plan.

9 Funding Plan and Capital Improvement Plan
General assessment of City transportation revenue, and summary of transportation project costs and local measures to help fund the TSP.

10 TSP Implementation Plan
Recommended steps and measures to implement McMinnville's plan.

For more technical background, the TSP Appendix is organized into several sections (cited within the TSP chapters):

A Glossary of Terms
B Summary of Federal, State and Regional Policy and Plans
C Transportation Analyses, Bridge Ratings and Traffic Signal Warrants
D TSP Project Summaries and Cost Estimates
E Comprehensive Plan Policies
F Recommended Access Management Policy
G Recommended Changes to City Street Design Standards
H Transportation Planning Rule Compliance
I Neighborhood Traffic Calming Program
J Walk-to-School Route Mapping

Recommended Transportation Improvements

To safely and efficiently accommodate the future movement of all users and modes in the McMinnville planning area, a series of improvements to the existing transportation system are identified.

Complete Street Projects

Complete Street system improvements are identified as part of the McMinnville TSP effort, as summarized in **Exhibit 1-1**. The analysis of growth and development over the planning period indicates that the transportation system will require several major street corridor and intersection enhancements. *Complete Street* projects add important bicycle and pedestrian system enhancements to better separate travel modes for overall traveler safety. Other street projects include new and important urban design features to better accommodate the volume and mix of multi-modal travelers in McMinnville. Following are some of the key TSP recommendations as examples of **Complete Street** improvement priorities:

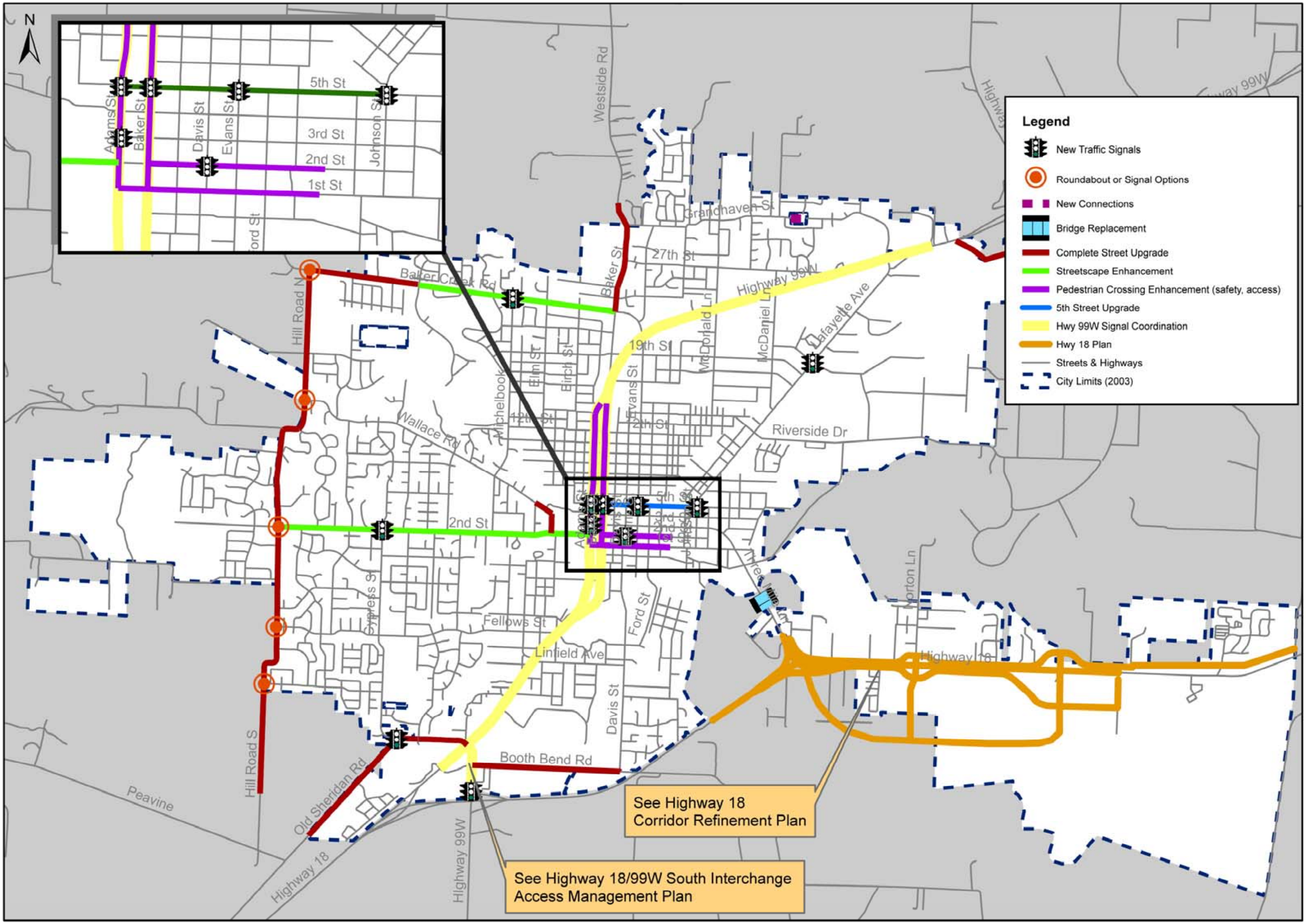
- Hill Road
- Booth Bend Road
- North Baker Street, and
- Old Sheridan Road


Old Sheridan Road

These streets are currently under Yamhill County's jurisdiction, and were originally constructed as rural connectors when McMinnville was much smaller. New urban neighborhoods are growing around these important arteries; they no longer serve rural traffic demand, and are now in need of urban upgrades in the form of new vehicle turn-lanes, bicycle lanes and especially sidewalks.

The TSP also identifies key intersection improvements to reduce traffic congestion and emissions and enhance vehicular and pedestrian safety. To make more efficient use of existing infrastructure, the TSP identifies several transportation system management (TSM) programs and projects, including a new city-wide traffic signal system to reduce traffic delay and emissions, and improve operations and enhance traveler safety. Twelve new and upgraded traffic signals are identified in the TSP to help reduce motorist delay and emission, and improve pedestrian access and safety. New traffic signals on 5th Street at Adams, Baker and Lafayette will greatly reduce the level of current congestion on 2nd Street.


Traffic Delays on 2nd Street



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TSP Projects and Programs

McMinnville TSP

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Exhibit 1-1

In all, the TSP identifies an assortment of Complete Street upgrades, new traffic signals, and new signal systems.

Pedestrian and Bicycle Projects

Sidewalk and bicycle system improvements are identified in the Pedestrian and Bicycle System Plan chapters of the TSP. The projects are defined to encourage walking and biking, better link McMinnville's neighborhoods and centers, and better integrate all travel modes (including access to transit).

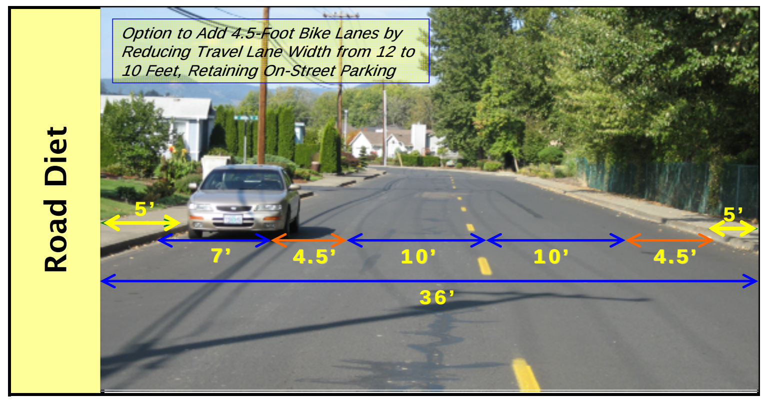
In addition, the *complete street* projects identified in the Street System Plan (a sub element of the TSP) also include new sidewalks, curb ramps and in many cases bicycle lanes. There remains, however, gaps in the current sidewalk network along several arterial and collector streets that are not subject to full street improvements. Some of the significant stand-alone pedestrian project recommendations, as summarized in **Exhibit 1-2**, include:

- NE McMinnville - construction of missing sidewalks and curb ramps along 27th Street, 19th Street, McDaniel and McDonald Streets.
- Memorial School area - construction of missing sidewalks and curb ramps along 12th, 14th 16th, Birch and Elm Streets
- Downtown McMinnville – completing sidewalks along 5th and Macy Streets
- South McMinnville - construction of missing sidewalks and curb ramps along Adams, Davis and Ford Streets

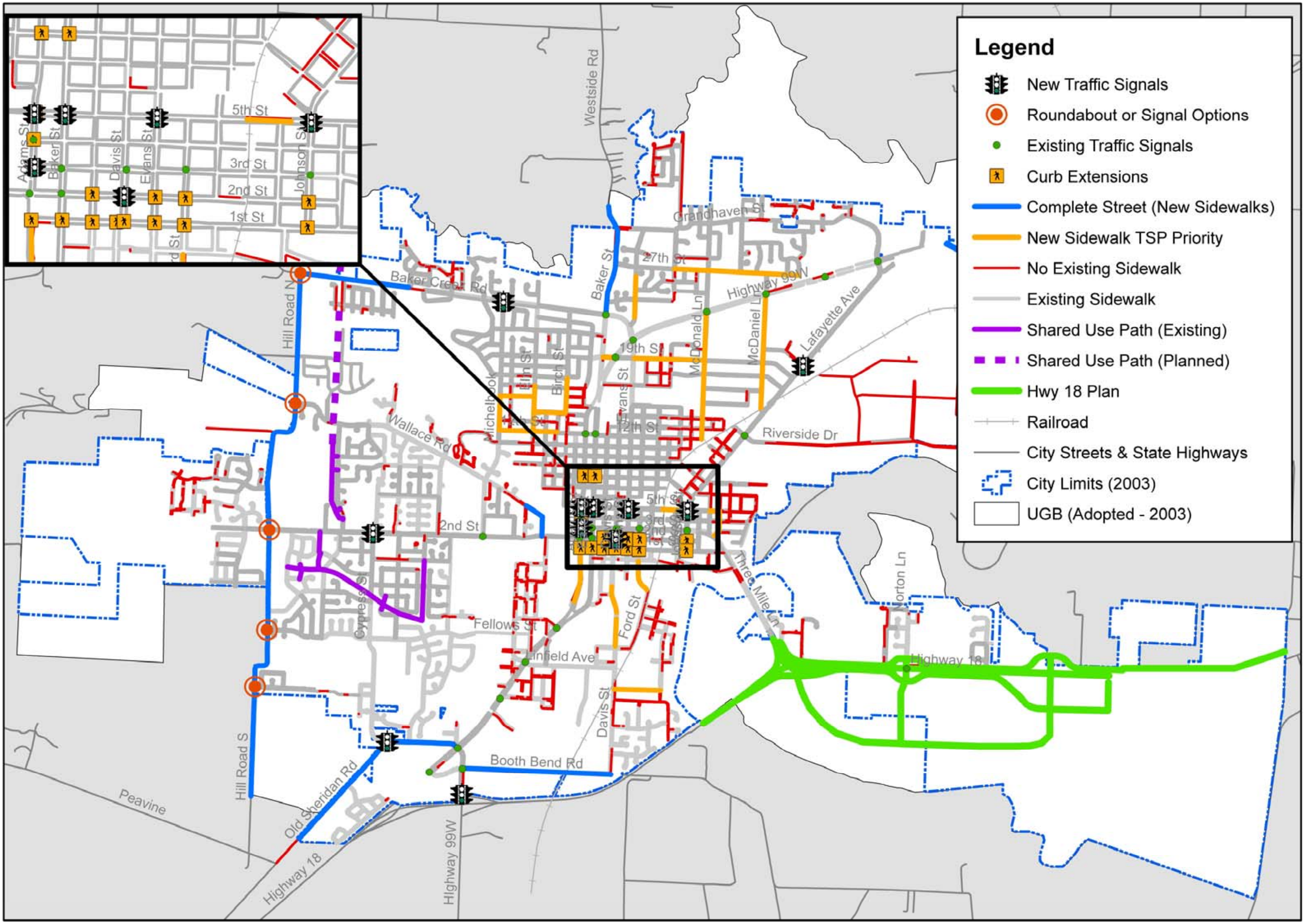
There are also gaps in McMinnville's bicycle system. As shown in **Exhibit 1-3**, bicycle system improvements are identified along many of McMinnville's arterial streets, with the intent to improve cycling safety and fill system gaps to enhance the efficiency of the City's bicycle system. Some routes can easily be re-striped with bicycle lanes, including portions of Michelbook and Davis Streets.

Some of McMinnville's older arterial and collector streets were constructed within limited rights-of-way, without on-street bicycle lanes, making it difficult to add bicycle lanes without removing needed travel lanes or other street features. In these cases the TSP recommends bike route designations as "shared-lane" facilities. As examples, the TSP recommends signing and striping portions of 1st, 2nd, 3rd, 5th, and Evans Streets, completing critical bicycle connections in downtown McMinnville.

Also, the Bicycle System Plan recommends measures to re-stripe a number of City arterial and collector streets with relatively inexpensive, on-street bicycle lanes through "road diet" enhancements. Road diets typically involve re-striping existing travel lanes with reduced width to accommodate the striping of new bicycle lanes. Recommended road diets projects include portions of Baker Creek Road, Wallace Road and even Adams and Bakers Streets (Highway 99W) along the one-way couplet.



Example Road Diet on Wallace Road



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Pedestrian System Plan

McMinnville TSP

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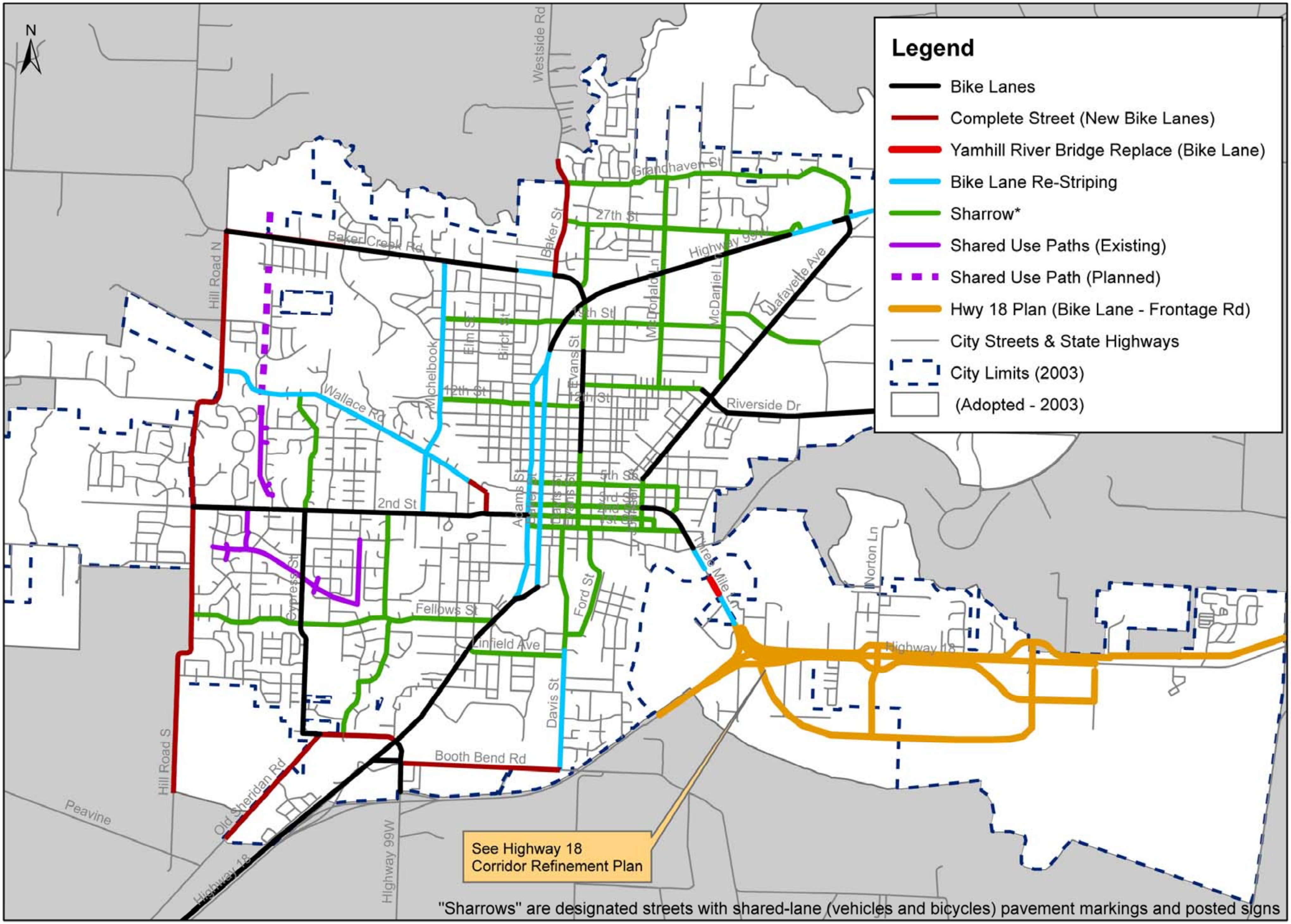
Exhibit 1-2



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Bicycle System Plan

McMinnville TSP

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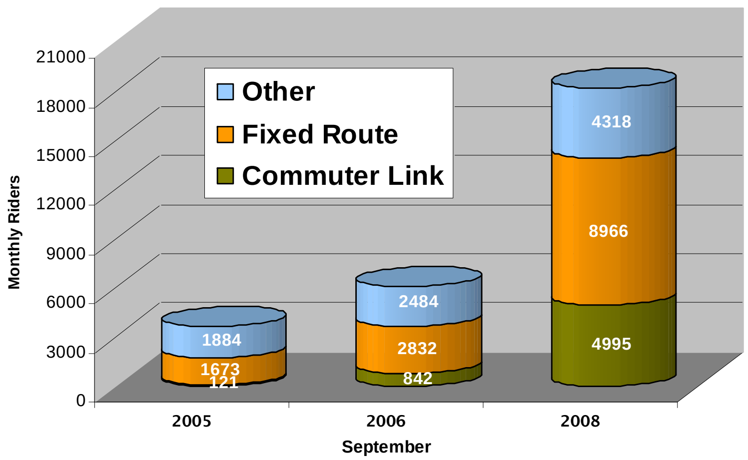
Exhibit 1-3

Transit and Transportation Demand Management

As shown in **Exhibit 1-4,** YCTA ridership has risen steadily over the past 4-5 years, as a result of additional service improvements and the impact of higher gasoline prices.

Exhibit 1-4 YCTA Transit Ridership



In April 2009 YCAP will be revising its fixed-route bus service in McMinnville, modifying two of its three looping routes to bi-directional, direct service. Compared to the current "loop" routes, the bi-directional routing along 2nd Street and Highway 99W will significantly reduce transit trip travel times, and should help to attract additional commuters in the future.

Along the new bi-directional routes, YCAP and the City can begin an assessment of the type and location of designated bus stops and other important pedestrian and bicycle access features. Amenities that would make transit a more attractive travel option include: shelters, benches, shade trees, and adequate sidewalks.
Other elements of McMinnville's TSP supplement the City's support of public transportation, mainly:

- Complete Street improvements (see Chapter 4) with space to incorporate transit stops and amenities, and
- Enhance non-motorized mode travel systems with improved linkages to transit by walking (see Chapter 5) and bicycle (see Chapter 6).

McMinnville's transportation options are more limited today than they were decades ago. As noted earlier, the option to build more arterial streets and lanes is simply not available or desirable from a neighborhood impact environmental impact perspective. As McMinnville continues to grow, like other larger cities, it will need to look more toward travel management programs and measures to help alleviate traffic congestion.

Local Truck Route Improvements

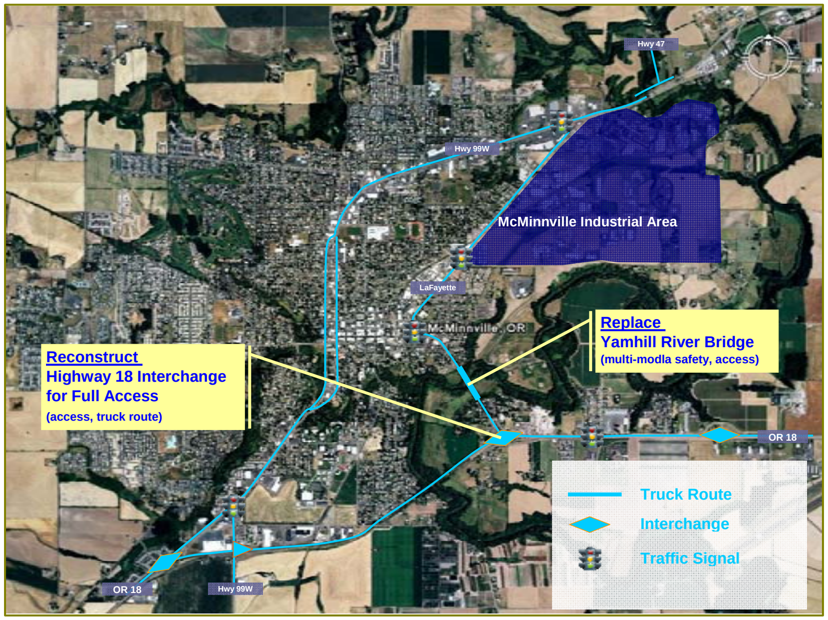
The safe and efficient movement of freight and goods is vital to the economy of McMinnville and the larger Yamhill County area. McMinnville is central to a major source of agricultural and timber commodities which are shipped by truck and in some cases rail. Cascade Steel ships both raw material and finished steel products by truck and rail. Trucking also services other industrial uses within McMinnville's Industrial areas. The roadways that provide access to these facilities are vitally important to the successful movement of freight.

Historically, McMinnville has had difficulty designating a local truck route linking Highway 99W and Highway 18 from the southwest, through the central city to its industrial area east of Lafayette Avenue. Downtown McMinnville streets were built in a compact grid street system, with small intersection corner radii. Longer and multi-unit trucks have a very difficult time negotiating the downtown grid, and can easily cause significant traffic back-ups as a result.

The TSP identifies new local truck routing via Three Mile Lane and Lafayette Avenue for improved truck access to the McMinnville industrial area. This truck routing system will require Highway 18 interchange improvements, sooner than the phasing plan from the Highway 18 Corridor Plan proposes, and replacement of the Yamhill

River Bridge. Each of these improvements are recommended in the Street System Plan and shown in **Exhibit 1-5.**

Exhibit 1-5 Recommended Truck Route Improvements



Recommended Policies

The McMinnville TSP contains a ***Guiding Goal and Policies*** section, including the TSP goal statement and a comprehensive set of policies to address broader issues of multi-modal connectivity, safety, and livability, but also to guide the individual modal sections for a complete TSP. Each modal section of the McMinnville TSP contains specific goals and a number of *policies* by which the plan findings and recommendations are generally guided. A representative sample of key policies exemplifying the breadth and scope of the TSP include the following:

- "Complete Streets" – a broad but important policy statement whereby the safety and convenience of all users of McMinnville's transportation system are accommodated and balanced in all types of transportation and development projects (Chapter 2).
- Mobility standards to evaluate transportation impacts of long-term growth and human scale street widths to guide project development (Chapter 4).
- Emphasis on pedestrian system connectivity, focused attention to pedestrian system development that complements access to schools and transit (Chapter 5).
- Connecting the network for bicyclists and encouraging programs that support bicycle systems and promote cycling activity by completing important connectors (Chapter 6).
- Consideration of transit-supportive street system and urban design measures to promote connectivity and access to transit, and supportive policy to help reduce drive-alone commuting (Chapter 7).
- Identifying truck route enhancements with better linkage to the McMinnville industrial areas (Chapter 8).
- Consider and pursue appropriate local funding measures to support maintenance and capital improvement programs (Chapter 9).
- The McMinnville TSP is to be the legal basis and policy foundation for actions by decision-makers, advisory bodies and staff on transportation issues (Chapter 9).

Recommended Implementation Strategies

The McMinnville TSP recommends a number of implementation strategies, including:

- Coordinate with Yamhill County in the study of where to place the public transit center in McMinnville.
- Conduct additional assessment and analysis of possible funding measures, including (1) feasibility and public support of for a Complete Street bond levy, (2) full-cost recovery assessment of systems development charge project eligibility, and (3) feasibility and cost analysis of a possible street utility fee to supplement the City's maintenance and operations program and existing funding.
- Monitor existing public and private parking utility and determine if there is a need to conduct a study of downtown McMinnville parking.
- Coordinate with Yamhill County to determine the appropriate transfer of rights-of-way, ownership, maintenance and funding responsibilities for those streets within the McMinnville UGB under current County ownership.
- Coordinate with ODOT to define and prioritize TSP projects for inclusion in the Oregon Statewide Transportation Improvement Program (STIP). This effort will require the City's direct participation in the Mid-Willamette Valley Area Commission on Transportation, who advises ODOT in the development and annual updates of the STIP. Projects include:
    - New signals on Adams and Baker Streets at 5th Street and 3rd Street as part of a downtown signal system, and replacement of existing signals to reduce traffic delay, improve pedestrian and bicycle mobility, and reduce vehicle emissions.
    - Design, fund, and construct the Yamhill River Bridge replacement.
    - Design and coordinate State/City/private funding and construction to replace the Highway 18 interchange at Three Mile Lane, including new frontage street connection south of Highway 18.
    - Street, intersection and Highway 18 interchange improvements on Highway 99W from Old Sheridan Road to Highway 18.
    - Reconstruction of Adams and Baker Street one-way couplet, including curb bulb-outs at critical intersections to improve pedestrian safety and mobility.
    - Possible integration of downtown and Highway 99W traffic signals into a city-wide traffic signal control system to reduce traffic delay vehicle emissions.

Transportation Funding Plan

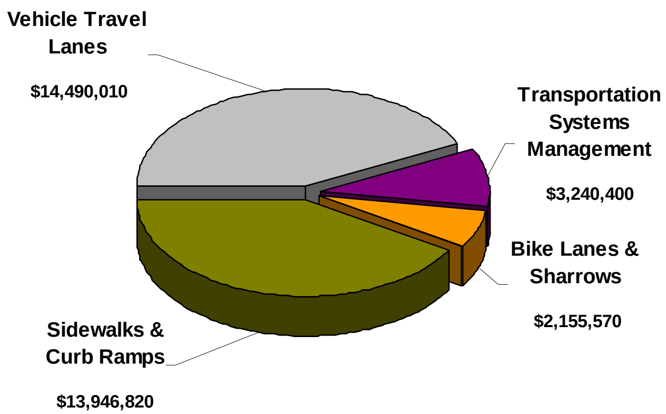
The transportation Funding Plan for the McMinnville TSP includes three major sections:

- A summarization of planning-level cost estimates for the transportation facilities and major investments identified in the TSP (intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan(s) and allow McMinnville to assess the adequacy of existing and possible alternative funding mechanisms),
- A list and general estimate of the timing for planned transportation facilities and major improvements – termed the Capital Improvement Plan, and
- A discussion of existing and potential funding sources to fund the development of each transportation facility and major improvement (which can be described in terms of general guidelines or local policies).

The Funding Plan in the McMinnville TSP is aimed at providing the City with information to begin assessing what transportation improvement projects it can and should afford to build during the planning period.

Exhibit 1-6 summarizes the McMinnville TSP capital improvement project costs (in 2008 dollars). As shown, the portion attributable to vehicle travel lanes is almost $14.5 million, of the overall $33.8 million in estimated TSP costs. Taken on the whole, almost half of the TSP project costs are helping improve the non-motorized system, or enhancing the existing street system through improved traffic signals and signal management systems.

Exhibit 1-6 McMinnville TSP Funding Plan Summary (2008 $'s)



Oregon per capita revenues are in decline. Transportation construction costs are growing at significantly higher rates than statewide revenue. Simply put, McMinnville's purchasing power for transportation capital and maintenance programming is severely diminished. In 2008, McMinnville's State Highway Fund allocation was roughly $1,213,000. Over the 20-year period, the recommended TSP projects would cost approximately $1.74 million annually, well more than it currently receives in state gas tax, vehicle license fee and weight-mile tax revenues. The TSP also notes that the full impact of the City's long-range street maintenance program is yet unknown.

It is critical to note that the TSP is not intended as the singular plan of funding and does not require the City to commit to a specific funding plan. Instead, it is meant to provide information so that the City's policy makers are able to make informed decisions regarding the balance between building necessary transportation infrastructure and the opportunities and efforts required in raising the revenue needed to pay for and maintain it.

The TSP recommends that McMinnville *consider* the following funding options: (a) enhancement to the City's transportation systems development charge (SDC) to help fund city-wide growth-related capital improvements, (b) additional local street bonds to help fund important complete street projects, and (c) a street utility fee to supplement funding of the City's Maintenance and Operations programs.

ODOT's and Yamhill County's contribution towards transportation improvements in McMinnville are also needed within the planning period Five significant projects include partnering with ODOT to:

(1) Coordinate, implement and administer the city-wide traffic signal system control program,
(2) Replace the Yamhill River Bridge,
(3) Replace the Highway 18/Three-Mile Lane Interchange,
(4) Reconstruct Highway 99W along the Adams-Baker one-way couplet, and
(5) Complete the Highway 18/99W South Interchange Access Management Plan.

As an example, the Three Mile Lane bridge over the Yamhill River is one of the most poorly rated bridges in the state by ODOT. It has insufficient width for two-way pedestrian travel, and no space for bicycle lanes. The bridge replacement is needed for both longevity and non-motorized capacity, but also to serve as an important truck route. The bridge is a vital link (one of only two direct links) between McMinnville neighborhoods and the Willamette Valley Medical Center.

Yamhill County retains authority and jurisdiction of several minor arterial road sections within the McMinnville UGB area. These road sections are identified in the plan for significant urban street upgrades to meet growth needs, with important bicycle and pedestrian improvements on Hill Road, Old Sheridan Road and North Baker Street.

Recommended Local Funding Strategy and Sources

The range of alternative transportation funding mechanisms was reviewed to determine the most feasible methods available to meet the identified funding needs. A funding package combining current State revenues, System Development Charges (SDCs), general obligation bond financing and local street utility fees appears to represent the most feasible funding strategy available to the City to meet expected, long-range capital and maintenance funding needs. **Table 1-1** summarizes the recommended strategy to enhance local funding options in support of the McMinnville TSP.

Table 1-1 Recommended Funding Strategy

Local Funding Source	Targeted TSP Projects
Transportation SDC Update	Capital Improvements that Add Capacity to meet Growth Demand
City-Wide Street Bond	Complete Street Projects of City-wide Benefit
Street Utility Fee	Supplement Funding of Maintenance and Operations Programs, Enables Redirection of City's State Highway Funds to CIP

Summary

McMinnville will experience significant growth during the planning period. The increasingly complex interaction of transportation and land use, and the need to find new and creative ways to fund public projects, and the ability to maintain them over the long term, creates a challenge for policy-makers as they determine public infrastructure investments. The McMinnville TSP is intended to guide transportation investment decisions in a comprehensive and coordinated manner, and provide the standards and policies by which McMinnville's future transportation system will be improved to meet the community's *vision* for a *compact and livable community*.

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 a total of over $33 million in needed city transportation system improvements, the City must develop a strategy for funding its share of the need.

The need is great. McMinnville's Plan is well-defined. The ability to fund both transportation system maintenance and capital improvements will be a major challenge for the City to *complete* its *streets* in the years to come.

[1] The 2003 – 2023 TSP planning period was agreed to by the City and DLCD staff, as necessary to coordinate with the Growth Management and Urbanization Plan.

[2] For more detailed description of the Complete Streets program, see http://www.completestreets.org/

CITY OF McMinnville OREGON

Transportation System Plan

Chapter 2
Guiding Goal and Policies

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2 Guiding Goal and Policies

The McMinnville TSP is an integrated compilation of a number of sections, including the guiding goal and policies, individual modal plans, a financial plan, and an implementation plan. This ***Guiding Goal and Policies*** section includes the existing transportation related *goal* and *policies* from the McMinnville Comprehensive Plan, and supplemental TSP policies to guide the individual modal sections for a complete TSP. This chapter also summarizes policy guidance through recommended street functional classification and complete street design guidelines, recommended performance standards and access management policies, and coordination with state plans and policies.

McMinnville's major street corridors are largely well-established by historical development. In anticipation of growing vehicular travel, there are very limited opportunities for new arterial and collector street routing or significant street widening with additional travel lanes. As noted in Chapter 1, McMinnville citizens certainly seek transportation efficiency, but not as a sacrifice to its small town atmosphere or its desire to "keep McMinnville *Livable*."

As the City prepared its Growth Management and Urbanization Plan[1] (MGMUP), local stakeholders participated in forming the future **vision** for McMinnville: a **compact and livable community**. In support of the vision, stakeholders also expressed supportive urban design principles, including:

- strong direction for preserving open space,
- preventing commercial strip development along McMinnville's arterials,
- promoting transit and pedestrian-oriented development,
- providing for economic growth and housing opportunities,
- strengthening its historic downtown, and
- connecting neighborhoods and varied land uses.

The MGMUP includes several guiding principles, some of which point to transportation plan and design elements that helps guide development of the McMinnville TSP. Specific sub-elements of the MGMUP, UGB expansion guiding principle include:

- as many activities as possible should be located within easy walking distance of transit stops,
- the location and character of the community should be consistent with a larger transit network,
- streets, pedestrian paths and bike paths should contribute to a system of fully connected, interesting routes to all destinations. Their design should encourage pedestrian and bicycle use by being small and spatially defined by buildings, trees and lighting; and by discouraging high speed traffic,
- the community design should help conserve resources and minimize waste, and,
- the street orientation, the placement of buildings and the use of shading should contribute to the energy efficiency of the community.

The drafting of the TSP, with thoughtful direction from its citizen Transportation Advisory Committee (TAC), evolved into one emphasizing ***Complete Streets*** by (a) filling in the non-motorized facility gaps; (b) upgrading rural roadways within the Urban Growth Boundary to multi-modal, urban streets; and, (c) better managing of McMinnville's existing street system rather than major and costly capital improvements.

The TAC also sought a TSP that reflected locally-desired initiatives to focus on moving people not just cars with complete streets, and keeping the city livable. McMinnville's TSP requires a comprehensive set of goals, policies and plan proposals to help ensure the City grows toward a compact and livable community.

In the past four to five decades the private automobile has been the predominant mode of transportation in McMinnville. A complete transportation system must also consider the needs of other modes of travel. Sidewalks for pedestrian travel, bicycles, public transit, school busses, commercial vehicles, emergency vehicles, air, and rail services are also part of McMinnville's transportation system.

With regard to system connectivity, many of McMinnville's existing streets already include sidewalk and bicycle facilities, but there remain significant gaps in the system (see Chapters 5 and 6) that make walking and bicycling difficult and inconvenient.

Goal and Policy Guidance

The original transportation policies developed for McMinnville's Comprehensive Plan in the early 1980's are an excellent baseline for the TSP. The current transportation Goal and Policies of McMinnville's Comprehensive Plan are found within Chapter VI of the City's *Goals and Policies* document (Volume II of the McMinnville Comprehensive Plan). **Appendix E** includes the original Comprehensive Plan policies and some minor recommended revisions to reflect findings of the TSP.

McMinnville Comprehensive Plan Goal

McMinnville's Comprehensive Plan includes the following goal:

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

Supplemental TSP Policies

Additional policies are needed for the City to address emergent challenges in the 21st century and fully support the concepts of *Complete Streets*. Supplemental policies for the successful adoption and implementation of McMinnville's TSP as an integrated, multi-modal plan are recommended in this section. Furthermore, the individual modal chapters of the McMinnville TSP set forth additional policies specific to each mode or plan chapter, which supplement this chapter.

Transportation System Plan

- The McMinnville Transportation System Plan incorporates the goals, objectives, policies, implementation strategies, plan maps, and project lists to guide the provision of transportation facilities and services in the McMinnville planning area. In addition to this chapter the TSP contains the following sections:
    - Street System Plan
    - Pedestrian System Plan
    - Bicycle System Plan
    - Public Transportation and Transportation Demand Management
    - Freight Mobility, Rail, Air and Pipeline Plans
    - Funding Plan and Capital Improvement Plan
    - TSP Implementation
- The McMinnville Transportation System Plan shall be updated as necessary to remain consistent with: (a) the city's land use plan, (b) regional and statewide plans; and c) applicable local, state and federal law.

Complete Streets

- The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a

Complete Street: Evans Street

project so that even the most vulnerable McMinnville residents – children, elderly, and persons with disabilities – can travel safely within the public right of way.

Examples of how the Complete Streets policy is implemented:

- Design and construct right-of-way improvements in compliance with ADA accessibility guidelines (see below).
- Incorporate features that create a pedestrian friendly environment (see Chapters 4 and 5), such as:
  - narrower traffic lanes
  - median refuges and raised medians
  - curb extensions ("bulb-outs")
  - count-down and audible pedestrian signals
  - wider sidewalks
  - bicycle lanes, and
  - street furniture, street trees and landscaping
- Improve pedestrian accommodation and safety at signalized intersections by:
  - using good geometric design to minimize crossing distances and increase visibility between pedestrians and motorists
  - timing signals to minimize pedestrian delay & conflicts
  - balancing competing needs of vehicular level of service and pedestrian safety

Multi-Modal Transportation System

- The transportation system for the McMinnville planning area shall consist of an integrated network of facilities and services for a variety of motorized and non-motorized travel modes.

Connectivity and Circulation

- The vehicle, pedestrian, transit, and bicycle circulation systems shall be designed to connect major activity centers in the McMinnville planning area, increase the overall accessibility of downtown and other centers, as well as provide access to neighborhood residential, shopping and industrial areas, and McMinnville's parks and schools.
- New street connections, complete with appropriately planned pedestrian and bicycle features, shall be incorporated in all new developments consistent with the Local Street Connectivity map as shown **Exhibit 2-1**.

Supportive of General Land Use Plan Designations and Development Patterns

- The provision of transportation facilities and services shall reflect and support the land use designations and development patterns identified in the ***McMinnville Comprehensive Plan***. The design and implementation of transportation facilities and services shall be based on serving current and future travel demand - both short-term and long-term planned uses.

Regional Mobility

- A balanced system of transportation facilities and services shall be designed for the McMinnville planning area to accommodate the mobility needs of residents, businesses, and industry.

Growth Management

- The construction of transportation facilities in the McMinnville planning area shall be timed to coincide with community needs, and shall be implemented so as to minimize impacts on existing development. Prioritization of improvements should consider the City's level of service standards (see below – Level of Service).
- Off-site improvements to streets or the provision of enhanced pedestrian and bicycle facilities in the McMinnville planning area may be required as a condition of approval for land divisions or other development permits.

Transportation System and Energy Efficiency

- The implementation of transportation system and transportation demand management measures, provision of enhanced transit service, and provision of bicycle and pedestrian facilities in the McMinnville planning area shall be embraced by policy as the first choice for accommodating travel demand and relieving congestion in a travel corridor, before street widening projects for additional travel lanes are undertaken.

- The McMinnville Transportation System Plan shall promote alternative commute methods that decrease demand on the transportation system, options which also enhance energy efficiency such as using transit, telecommuting, carpooling, vanpooling, using flexible work schedules, walking, and bicycling (see Chapter 6).

Transportation Safety

- The City of McMinnville shall make the design, construction, and operation of a safe transportation system for all modes of travel a high priority.

Public Safety

- The safe, rapid movement of fire, medical, and police vehicles shall be an integral part of the design and operation of the McMinnville transportation system.

Accessibility for Persons with Disabilities

- The McMinnville transportation system shall be designed with consideration of the needs of persons with disabilities by meeting the requirements set forth in the ***Americans with Disabilities Act*** **(ADA)**.

Economic Development

- Supportive of the mobility needs of businesses and industry, the McMinnville transportation system shall consist of the infrastructure necessary for the safe and efficient movement of goods, services, and people throughout the McMinnville planning area, and between other centers within Yamhill County and the Willamette Valley. The McMinnville Transportation System Plan shall include consideration of ways to facilitate and manage the inter-modal transfer of freight.
- The McMinnville Transportation System Plan shall promote methods that employers can utilize to: better facilitate employee commuting; to encourage employees to use alternative commute methods to the single occupancy vehicle.

Livability

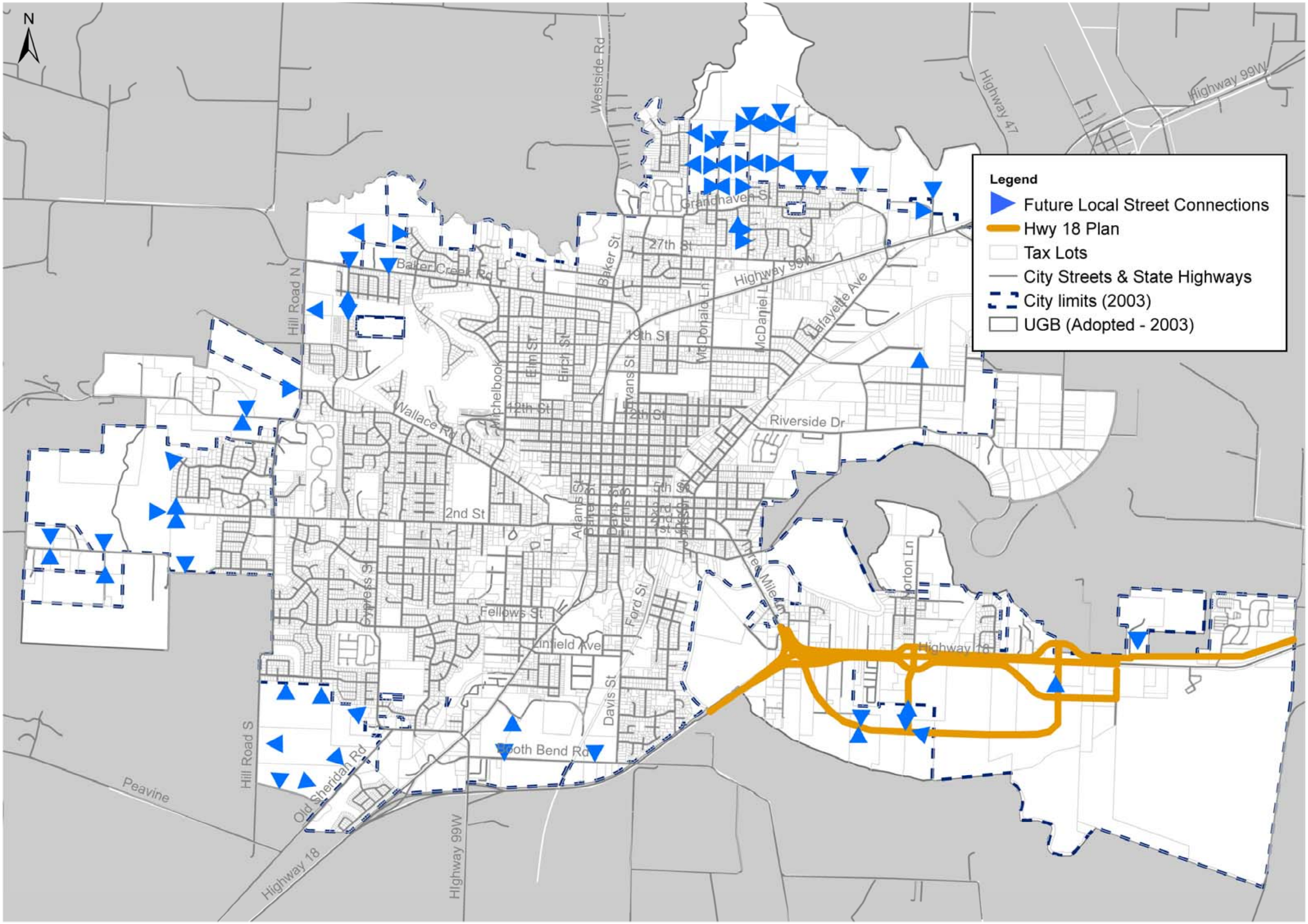
- Transportation facilities in the McMinnville planning area shall be, to the degree possible, designed and constructed to mitigate noise, energy consumption, and neighborhood disruption, and to encourage the use of public transit, bikeways, sidewalks, and walkways.

Health and Welfare

- Through implementation of its Complete Streets policy and the TSP by enhancing its pedestrian and bicycle systems, the City of McMinnville will help encourage greater physical activity and improved health and welfare of its residents.

Transportation Sustainability

- Through implementation of the TSP and the Comprehensive Plan, the City of McMinnville will, to the extent possible, seek measures that simultaneously help reduce traffic congestion, pollution, crashes and consumer costs, while increasing mobility options for non-drivers, and encouraging a more efficient land use pattern.



CITY OF McMinnville OREGON

Future Local Street Connections

McMinnville TSP

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Exhibit 2-1

Aesthetics and Streetscaping

- Aesthetics and streetscaping shall be a part of the design of McMinnville's transportation system. Streetscaping, where appropriate and financially feasible, including public art, shall be included in the design of transportation facilities. Various streetscaping designs and materials shall be utilized to enhance the livability in the area of a transportation project.

Local Streetscaping

Intergovernmental Coordination and Consistency

- The City of McMinnville shall coordinate its transportation planning and construction efforts with those of Yamhill County and the Oregon Department of Transportation (ODOT). McMinnville's transportation plan shall be consistent with those developed at the regional and state level.

Street Functional Classification & Street Standards

Streets and highways within an urban network are often grouped, or classified, with other streets sharing similar characteristics of purpose, design, and function. McMinnville has adopted street functional classifications to help ensure that streets are built and maintained in accordance with their relationship to the surrounding land use and that adequate connectivity exists between streets with lower capacities and more local access to streets with higher capacities and greater circulation. **Table 2-1** provides descriptions of the McMinnville's street functional classifications, their corresponding characteristics and land use context.

As can be seen in **Table 2-1** a hierarchy exists in the functional classification structure that is based on a direct relationship between the function of the street and the surrounding land uses and the relationship between mobility and access. For example, commercial developments will generally locate along arterials or collectors due to a high amount of mobility with certain restrictions on access. Likewise, it is desirable to have parks, schools, and residential homes located along collector or local streets due to lower traffic volumes and a high degree of access. **Exhibit 2-2** illustrates the relationship between mobility and access for streets within the City of McMinnville.

Exhibit 2-2 Relationship Between Mobility and Access

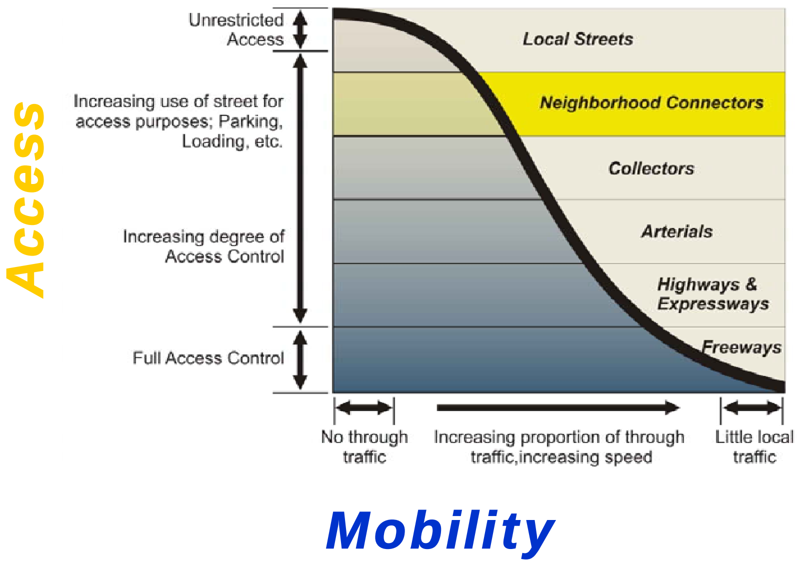


Table 2-1 Street Functional Classification Descriptions

Street Classification	Description and Land Use Context
Expressway	The portion of Highway 18 through McMinnville west of Norton Lane is currently grade separated and functions as a single-lane expressway with speeds of 50-55 mph. The Highway 18 Corridor Refinement Plan (mutually adopted by ODOT and the City) recommends full grade separation for that section of Highway 18 east of Three Mile Lane. Upon completion of the Highway 18 Corridor Plan, Highway 18 can be re-classified from Major Arterial to Expressway. Expressways serve regional and statewide through-traffic at higher but managed speeds, with no or very limited local access.
Arterial (Major and Minor)	Arterial streets form the primary street network within and through McMinnville. They provide a continuous system which distributes traffic between different neighborhoods and districts. Highway 99W is a major arterial, typically with two lanes in each direction of travel. Major arterials are intended to carry no more than 32,000 vehicles per day. Lafayette Avenue, North Baker Street/Westside Road, Baker Creek Road, Hill Road and Old Sheridan Road are Minor Arterials. Minor arterials are intended to be 2- or 3-lane streets, and carry no more than 20,000 vehicles per day.
Collector (Major and Minor)	Collector streets are primarily intended to serve abutting lands and local access needs of neighborhoods. They are intended to carry from 3,000 (maximum for Minor Collector) to 10,000 (maximum for Major Collector) vehicles per day, including some through traffic. The collector street serves either residential, commercial, industrial, or mixed land uses.
Neighborhood Connector	Neighborhood Connector streets serve mostly residential or mixed land uses. They are intended to carry between 1,200 and 3,000 vehicles per day. While through traffic connectivity is not a typical function, they may carry limited amounts. Neighborhood Connector routes are identified in McMinnville to help prioritize pedestrian improvements along previously classified Local Residential Streets; and it is possible or likely that slightly higher traffic volumes are expected on a daily basis.
Local Residential Street	Local residential streets are intended to serve the adjacent land without carrying through traffic. These streets are designed to carry less than 1,200 vehicles per day. To maintain low volumes, local residential streets should be designed to encourage low speed travel. Narrower streets generally improve the neighborhood aesthetics, and discourage speeding as well. They also reduce right-of-way needs, construction cost, storm water run-off, and vegetation clearance. 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 volume through the City's Neighborhood Traffic Calming Program, or the street shall be designed as a Neighborhood Connector route.
Alley	Alley streets provide secondary access to residential properties where street frontages are narrow; where the street is designed with a narrow width to provide limited on-street parking; or where alley access development is desired to increase residential densities. Alleys are intended to provide rear access to individual properties and may provide alternative areas for utility placement.
Cul-De-Sac	Cul-de-sac streets are a type of neighborhood street. They are intended to serve only the adjacent land in residential neighborhoods. These streets shall be short, serving a maximum of 20 single family houses. Because the streets are short and the traffic volumes relatively low, the street width can be 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. To encourage local street circulation capability, the use of cul-de-sac streets shall be discouraged, and shall not be permitted if future connections to other streets are likely. Sidewalk connections from a new cul-de-sac shall be provided to other nearby streets and sidewalks.

Descriptions taken in part from City of McMinnville Transportation Master Plan

The City of McMinnville's Street Functional Classification map is illustrated in **Exhibit 2-3**.

State Highway Classifications

ODOT manages highways into and through the City of McMinnville including, Highways 18 and 99W. Highway 18 is classified in the Oregon Highway Plan[2] (OHP) as a Statewide Highway and designated a Freight Route.

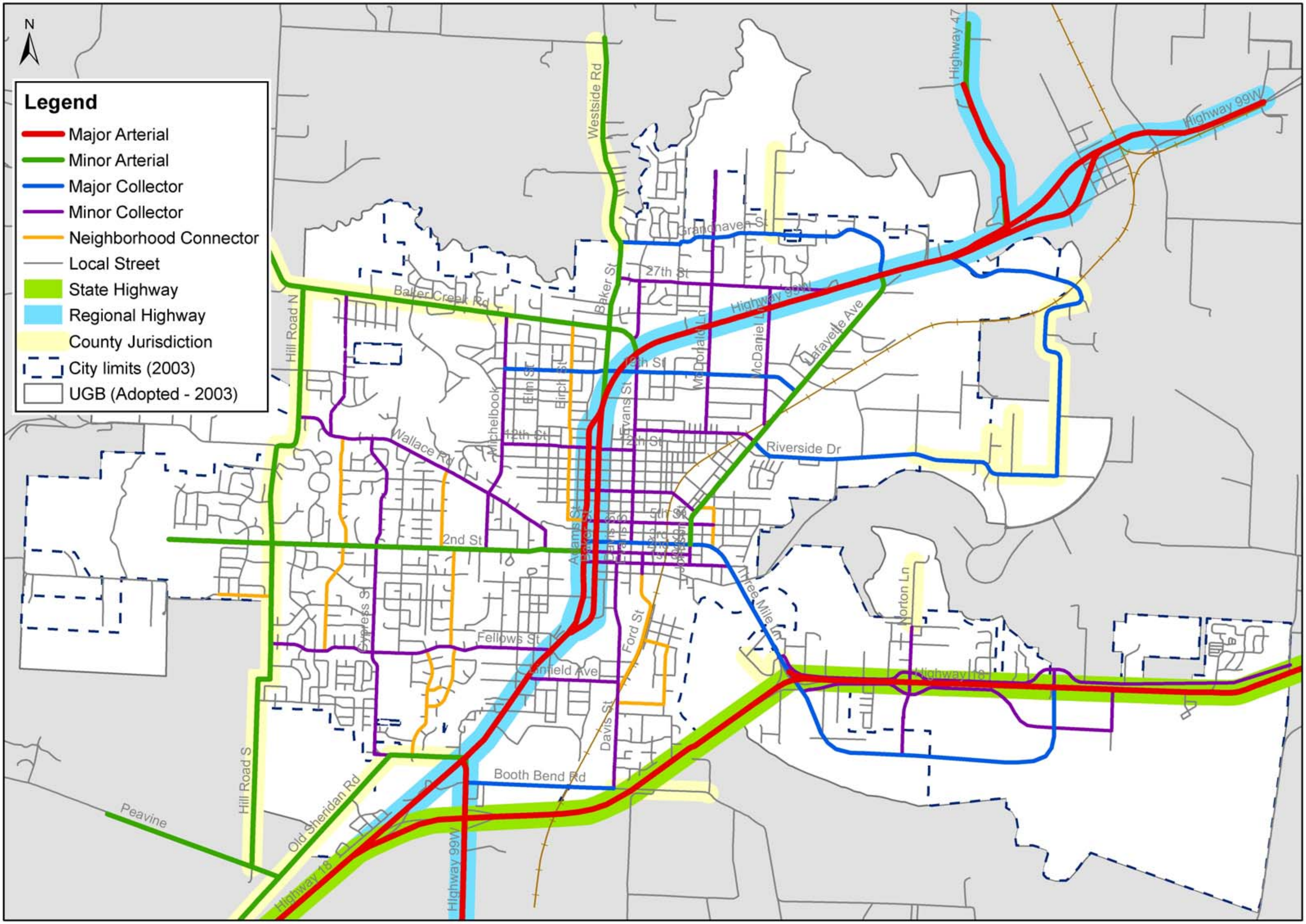
Highway 99W is designated as a Regional Highway. **Exhibit 2-3** also illustrates the OHP designation for the state highway functional classification through the McMinnville UGB.

Complete Street Design Guidelines

Street design standards are created based in part on the street functional classification to ensure that the function of the street is reflected in their design. Street standards ensure that street design is consistent with the look and feel of the surrounding land use, and meets the motorist, pedestrian and cyclist expectations for the area through which they are traveling, and meets the safety requirements of the City and other agencies.

As part of the TSP development, refinements to McMinnville's street design standards and Land Division ordinance[3] were identified to better implement the policy of *Complete Streets*. **Exhibit 2-4** lists McMinnville's Complete Streets Design Guidelines. These guidelines provide design professionals and developers the necessary information to design and construct streets to the City's desired standards. Street standards specify the widths and number of lanes recommended for each classification as well as bicycle facility, landscaping, pedestrian facilities, curb, and gutter requirements necessary to match the surrounding land uses with the intended function of each street class.

It is the intent, by implementation of the Complete Street Design Guidelines, to achieve a better and balanced, multi-modal streetscape that is reflective of McMinnville's transportation and land use policies, while also seeking to minimize the growing costs of right-of-way and street construction.



CITY OF McMinnville OREGON

Street Functional Classifcation

McMinnville TSP

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Exhibit 2-3

Exhibit 2-4 Complete Streets Design Guideline

			Arterial		Collector		Neighborhood Connector	Local Residential	Alley
***Complete Street* Design Standards**			Major	Minor	Major	Minor			
Streetscape	Street Profile	Auto/Truck Amenities (lane widths) [1]	2-4 lanes (12 ft.)	2 lanes (11 ft.)	2 lanes (11 ft.)	2 lanes (10 ft.)	See Street Width	See Street Width	20 ft.
Streetscape	Street Profile	Median / Center Turn Lane	14 ft.	12 ft.	12 ft.	10 ft.	None	None	None
Streetscape	Street Profile – Bike	Bike Facility [2]	2 Lanes (6 ft.)	2 Lanes (6 ft.)	2 Lanes (5 ft.)	2 Lanes (5 ft.) or Shared Lane	Shared Lane	Shared Lane	None
Streetscape	Street Profile	Curb-to-curb Street Width [3]							
Streetscape	Street Profile	On-Street Parking							Not Apply
Streetscape	Street Profile	Two Sides	na	na	na	30 or 40 ft.	28 ft.	28 ft.	
Streetscape	Street Profile	None	74 ft.	46 ft.	44 ft.	30 or 40 ft.			
Streetscape	Pedestrian Zone (with ADA requirements)	Pedestrian Amenities [4]							
Streetscape	Pedestrian Zone (with ADA requirements)	Sidewalks (both sides)	8 ft. Com	5 ft. Res 10-12 ft. Com	5 ft. Res 10-12 ft. Com	5 ft. Res 10-12 ft. Com	5 ft.	5 ft.	None
Streetscape	Pedestrian Zone (with ADA requirements)	Planter Strips		6 ft. Res na Com	6 ft. Res na Com	6 ft. Res na Com	5 ft. Res	5 ft. Res	None
Streetscape	Pedestrian Zone (with ADA requirements)	Preferred Adjacent Land Use - Intensity	High	Medium to High	Medium	Medium	Medium to Low	Low	Low
	Traffic Management	Maximum Average Daily Traffic	32,000	20,000	16,000	10,000	1,200 - 3,000	1,200	500
	Traffic Management	Traffic Calming	Not Typical	Not Typical	Not Typical	Permissible/ Not Typical	Permissible/ Not Typical	Typical	Not Typical
	Traffic Management	Managed Speed [5]	35 mph	30-35 mph	25-30 mph	25 mph	25 mph	15-25 mph	10 mph
	Traffic Management	Through-traffic Connectivity	Primary	Typical	Typical	Typical	Not Typical	Not Permissible	Not Permissible
	Traffic Management	Access Control	Yes	Yes	Some	Some	No	No	No
	Traffic Management	Maximum Grade	6%	6%	10%	10%	12%	12%	12%
		Right-of-Way:	104 ft.	96 ft.	74 ft.	56 ft. (no bike lane) 66 ft. (bike lane)	50 ft.	50 ft.	20 ft.

General Design Notes:

1 Lane widths shown are the preferred construction standards that apply to existing routes adjacent to areas of new development, and to newly constructed routes. For arterial and collector streets within industrial zones, lanes widths shall be 12 feet.

2 An absolute minimum bike lane width for safety concern is 5 ft. on arterial and 4 ft. on collector streets, which is expected to occur only in locations where existing development along an established route or other severe physical constraints preclude construction of the preferred facility width.

3 Street design for each development shall provide for emergency and fire vehicle access.

4 Sidewalks 10-12 feet in width are required in commercial areas to accomodate the Pedestrian zone. Sreet trees are to be placed in tree wells. Placement of street trees and furniture and business accesses are to meet ADA requirements for pedestrina access.

5 Speeds in the central business district may be 20-25 mph. Traffic calming techniques, signal timing, and other efforts will be used to keep traffic within the desired managed speed ranges for each Functional Class. Design of a corridor's vertical and horizontal alignment will focus on providing an enhanced degree of safety for the managed speed.

6 None with on-street parking.

Street Design Stnadard Notes:

(a) Exclusive of side slope easement which may be required in addition for cuts and fills in rough terrain.

(b) The right-of-way and street width may be varied after consideration of the unique characteristics of the land including geography, topography, unique vegetation, and its relation to land developments already present or proposed in the area.

(c) The right-of-way, street width, improvement standards, and turnaround radius of commercial/industrial cul-de-sacs and streets shall be dependent upon the types of vehicle traffic to be served.

(d) Intersection curb radii shall be no less than 25 feet. On-street parking shall not be permitted within a 30-foot distance of street intersections measured from the terminus of the curb return. Where such a local residential street intersects an arterial, parking along the local street shall not be permitted within a 60-foot distance of the intersection measured from the terminus of the curb return. The developer shall be responsible for the provision and installation of "No Parking" signs as approved by the City Engineering Department.

(e) Sidewalks and planting strips shall not be required along eyebrows.

(f) For cul-de-sacs greater than 300 feet in length, fire hydrants may be required to be installed at the end of the bulb and appropriately spaced along the throat of the cul-de-sac as determined by the McMinnville Fire Department.

Level of Service

Volume-to-Capacity as the Policy Measure for Level of Service

As required by the Transportation Planning Rule (TPR),[4] and since the adoption of the 1999 Oregon Highway Plan (OHP), local jurisdictions, when amending their Comprehensive Plans or TSPs, are to be consistent with the 1999 OHP mobility standards.

The 1999 OHP mobility standards were established to better address and assess the performance of intersections (both signalized and unsignalized) and driveways. These standards were defined by ODOT as an objective measure of the volume-to-capacity (V/C ratio) of an intersection, rather than delay to drivers. The highway mobility standards are expressed in V/C ratios, which are defined as "the peak hour traffic volume (vehicles/hour) on a highway section divided by the maximum volume that the highway section can handle." The closer the V/C ratio is to 1.0, the more congested traffic is. **Table 2-2** summarizes the OHP mobility standards for state highways and recommended standards for city intersections within the McMinnville UGB.

Traffic Delays on 2nd Street

Table 2-2 Mobility Standards for McMinnville UGB Area – Volume-to-Capacity Ratios for State Highways and Local Streets

	Maximum Volume-to-Capacity Ratios Posted Travel Speed			
Highway/Street	STA *[2]*	<= 35 mph	> = 45 mph	**State Highway Category** *[1] [3]*
OR 18		0.80	0.70	State / Expressway
OR 99W	0.95	0.85		Regional
Local Street Approaches to State Highways	0.95	0.90		District
McMinnville Streets		0.90		

[1] Oregon Highway Plan, 1999.

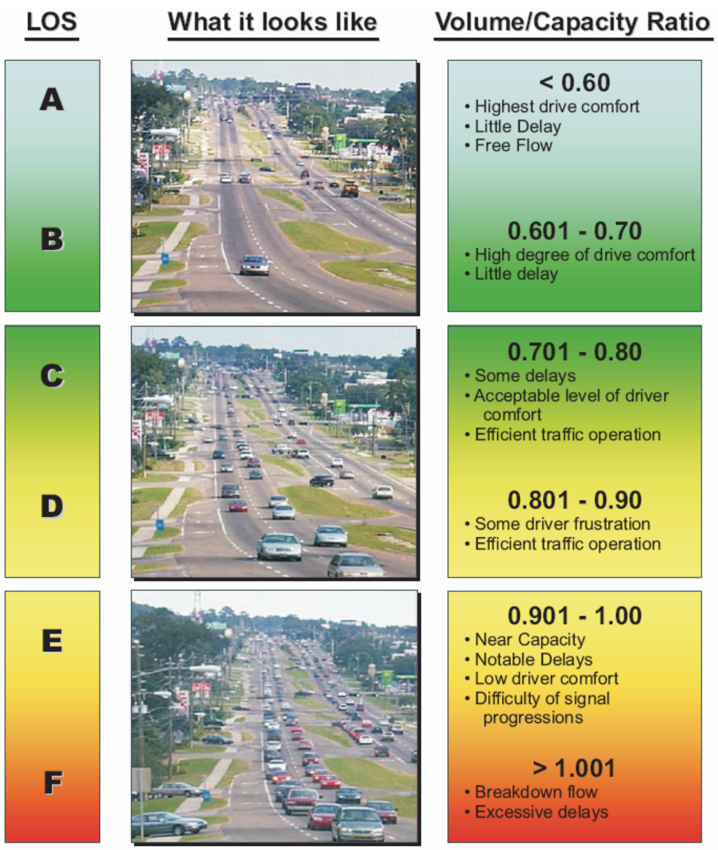
[2] Recommendation for re-designation of Adams/Baker one-way couplet as a Special Transportation Areas, to be adopted by Oregon Transportation Commission.

[3] Traffic on non-state highway approaches that must either stop or yield shall not exceed the V/C for District highways.

For the purposes of the McMinnville TSP, the Mobility Standard for all local (city) intersections and streets shall be a volume/capacity ratio of .90.

Exhibit 2-5 illustrates and compares the volume-to-capacity mobility standard thresholds with the more traditional level of service (LOS) measures used to gauge traffic performance.

Exhibit 2-5 Level of Service and V/C Ratios



Levels of Service and analysis procedures are defined by the *Highway Capacity Manual* (Transportation Research Board, 2000)

Access Management

McMinnville and ODOT have mutually adopted both the Highway 18 Corridor Refinement Plan and Southwest Highway 99W Interchange Access Management Plan. They each contain access management policies that the City and ODOT will administer as land development and City street and highway access plans are proposed in those areas.

Appendix F summarizes the recommended access management policies and standards for Highways 18 and 99W within the McMinnville urban area, consistent with the Oregon Highway Plan. When adopted by the City of McMinnville, the TSP access management policy will be the controlling document and policy with regards to access management within McMinnville's UGB.

ODOT and the Oregon Transportation Commission should designate the portion of Highway 99W along the Adams-Baker one-way couplet (1st Street to 13th Street) as a Special Transportation Area (STA), in recognition of the existing street spacing. STAs are designated districts of compact development located along a state highway. While auto and truck traffic are important, the convenience of movement within an STA is focused upon pedestrian, bicycle and transit modes. The primary objective of an STA is to provide access to and circulation amongst community activities, businesses and residences and to accommodate pedestrian, bicycle and transit movement along and across the highway. See **Appendix F** for further definition of STAs.

State Plans and Policy Review

The TPR, which governs the preparation of transportation system plans (TSPs), requires the review of existing plans and policies as part of preparing a TSP (see Appendix H for a summary of McMinnville's TPR compliance). The intended purpose of such a review is to provide a context for the preparation of the plan. The Oregon Department of Transportation (ODOT) has its own set of TSPs that address transportation in Oregon in general, such as the

Oregon Transportation Plan (OTP), and modal specific TSP, such as the Oregon Highway Plan (OHP) and the Oregon Pedestrian and Bicycle Plan (OPBP). These state TSPs identify goals and policies for the development of transportation facilities throughout the state, and are to be used to guide the development of regional and local TSPs, such as the McMinnville TSP. The TPR further requires that local TSPs be consistent with regional and state TSPs.

As noted in **Appendix B**, McMinnville's TSP is both consistent with and serves as the local implementation of important regional, state and federal transportation plans and policy.

[1] McMinnville Growth Management and Urbanization Plan, An Element of the City of McMinnville Comprehensive Plan, May 2003.
[2] Oregon Highway Plan, 1999. Oregon Department of Transportation.
[3] See Appendix F for recommended changes to the City's current Street Design Standards and Land Division Ordinance, No. 3702.
[4] The requirements of the Transportation Planning Rule are found in Oregon Administrative Rules (OAR) 660, Division 12 – Transportation Planning.

CITY OF McMinnville OREGON

Transportation System Plan

Chapter 3

Evaluation of McMinnville's Transportation System

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3 Evaluation of McMinnville's Transportation System

This chapter includes a summary of the analyses in support of the McMinnville TSP. It includes sections that summarize the data and methods used to estimate future travel volumes, street and highway performance measures based on the mobility standards identified in Chapter 2 of the TSP, and various future street and intersection improvement options to help minimize the impact growth will have in the community.

The goal of the TSP is to define a balanced, multi-modal transportation plan that serves McMinnville's Comprehensive Plan and land use as shown in **Exhibit 3-1.**

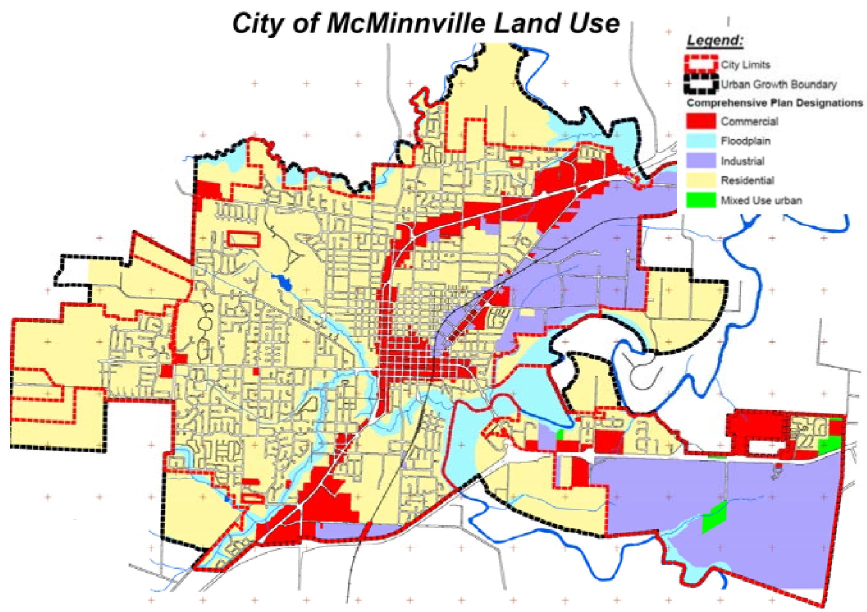
This chapter also includes a summary of a pavement condition inventory, a walking inventory of McMinnville's sidewalk system, and a review of the City's bicycle system plan development, including on-street bike lanes and off-street shared-use paths.

The findings from this chapter are used to identify TSP improvement projects in each of the Street (Chapter 4), Pedestrian (Chapter 5), Bicycle (Chapter 6) and Transit (Chapter 7) System Plans, plus Transportation Demand Management Plan (see also Chapter 7).

Methodology to Estimate Future Travel Volumes

This section summarizes the methodology and assumptions used to develop future travel demand forecasts for the McMinnville Urban Growth Boundary (UGB) area, for the 20-year period beginning in 2003. A 2003-2023 planning horizon was chosen for consistency with the *McMinnville Growth Management and Urbanization Plan*, and as directed by DLCD staff. The chapter also includes an analysis of the impact of growth on traffic operations at selected intersections within the McMinnville urban area.

Exhibit 3-1 McMinnville Comprehensive Plan[1]



Background and General Assumptions

The method used to estimate future traffic conditions for the McMinnville TSP is based on procedures in the 2001 Transportation System Planning Guidelines[2] prepared by the Oregon Department of Transportation. These guidelines identify three levels of transportation forecasting (auto/truck vehicle estimates) and analysis: (1) Trend Forecasting; (2) Cumulative Analysis; or (3) Transportation Model. Both ODOT and the City of McMinnville agreed that a Level 3 Transportation Model was appropriate for the TSP analysis, and agreed that ODOT would develop the Model with input and support from the City.

Level 3 - Transportation Model

ODOT's Level 3 Transportation Model has generally been developed and used for Oregon cities with populations of 15,000 or greater. These models have served as valuable tools in analyzing street and highway networks where there are multiple and alternative solutions to test and compare. These models are used to present major street networks and highlight existing and future traffic problems. Combined with this analysis is additional post processing evaluation of turning lane requirements, intersection capacity and signal warrants.

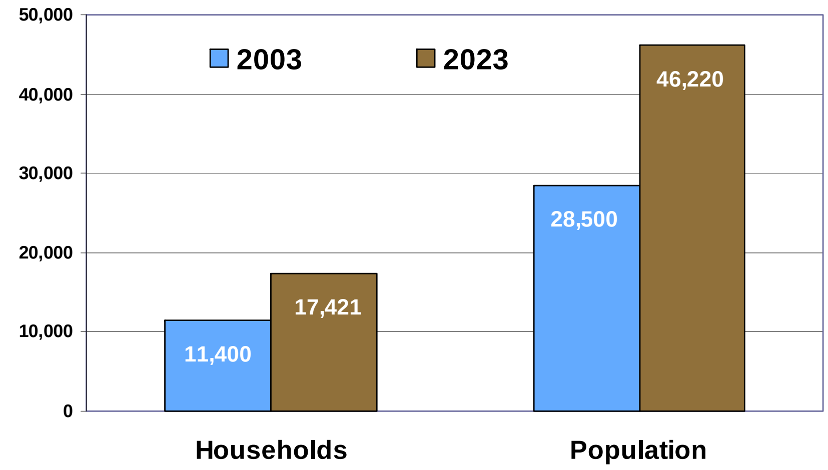
Land Use Assumptions

The two major components for estimating travel demand in the McMinnville Travel Demand Model are local housing and employment. The 2000 U.S. Census and McMinnville's Comprehensive Plan are the base resources of identifying year 2003 population and housing. The Land Use Plan and the *McMinnville Growth Management and Urbanization Plan* were used to estimate city-wide housing (by low, medium and high density type) and population growth for year 2023, and localized allocation of new housing.

Population and Housing

Exhibit 3-2 summarizes year 2003 and 2023 housing and population in McMinnville. McMinnville's population is expected to reach slightly over 46,000 by 2023 (62% growth). McMinnville's current population, as of March 2009 is a little more than 32,400. Much of the City's population (and housing) growth is expected in the west, southwest, northwest and north areas of the city.

Exhibit 3-2 McMinnville Population and Housing Forecast

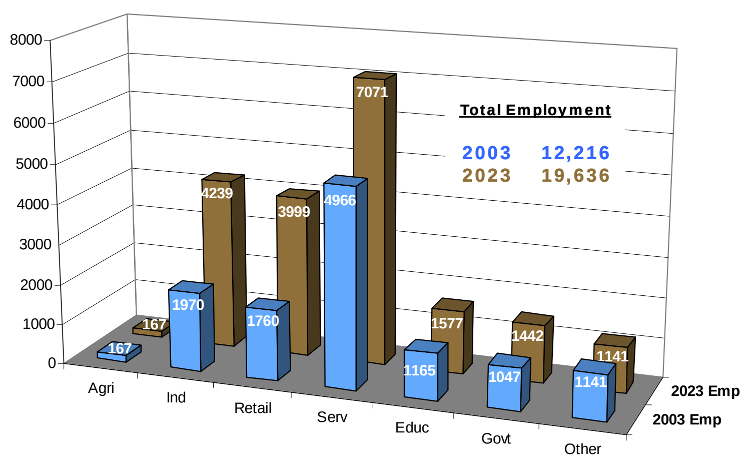


Employment

Base year employment data was provided by Oregon Economic Analysis (OEA) and categorized by major type. City-wide and localized allocation of future employment growth was identified for the McMinnville UGB based on the *McMinnville Growth Management and Urbanization* Plan.

As shown in **Exhibit 3-3**, McMinnville's employment is expected to grow by 61%, from about 12,200 to more than 19,600 for the 2003-2023 planning horizon.

Exhibit 3-3 McMinnville Employment Forecast



Much of McMinnville's employment growth is expected in the industrial, retail and service sectors.

Commuter Travel Behavior

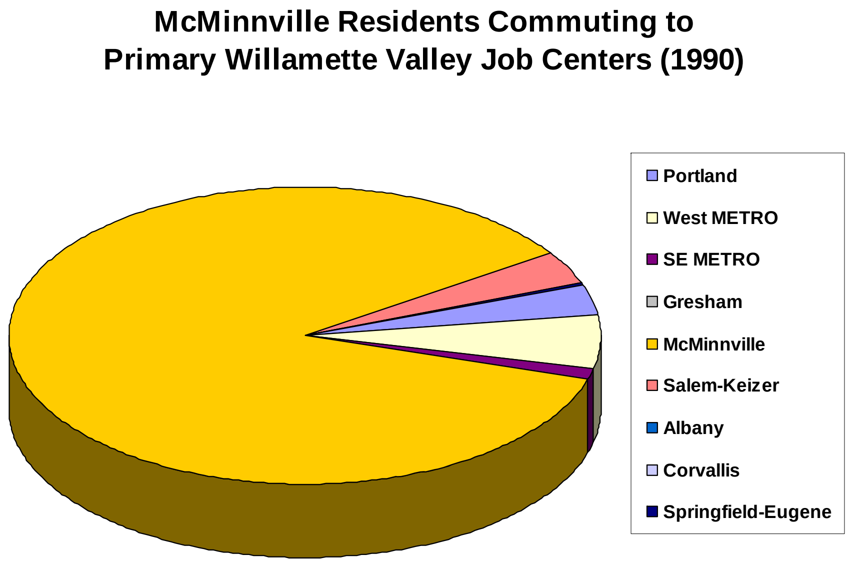
It is important to note that while McMinnville is located near Portland, it does not behave like a suburban "bedroom" community. As shown in **Exhibit 3-4**, based on a recent U.S. Census summary of commuter travel, the overwhelming majority (86%) of McMinnville resident commuters work within the McMinnville UGB[3]. When compared to other Willamette Valley cities, particularly near the Portland metropolitan area, McMinnville has one of the highest self-contained employment commuter sheds north of Salem.

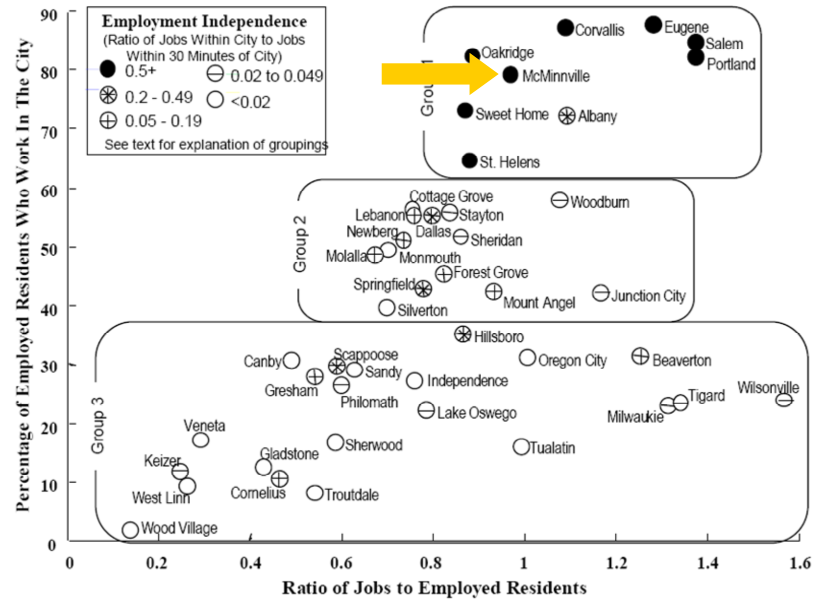
Travel Model Limitations

The McMinnville Travel Demand Model is a key aid to the development of the City's TSP. The Model can evaluate future traffic conditions and the impacts of major street and highway options. The Model, however, has some inherent limitations that must be understood to correctly interpret its results, and that have broader implications for the TSP:

- Future (2023) **travel characteristics** for McMinnville residents <u>are assumed unchanged</u> from 2003 for:
  - **mode choice -** the proportionate share of McMinnville drive-alone, carpool, transit, bike, walk or telecommute, by trip purpose (work, shopping, recreation, etc.)
  - **auto trip generation rate (per household), by trip purpose** – The typical McMinnville household generates roughly 9-10 auto trips during the average weekday
  - **trip destinations, by trip purpose and travel mode** - the proportionate share of McMinnville travelers who choose to travel to local destinations within the UGB vs. destinations outside the UGB.
- **Fuel costs** – the Model does not account for the possible (and likely) impact of significant increases in the price and cost of gasoline. Price changes in the summer of 2008 had a direct impact on local and regional (a) travel choice (both travel within McMinnville and commuter travel from and to McMinnville), and (b) mode choice (e.g., drive-alone vs. bike or transit).
- **Economic impacts on housing costs and location choice** – in the current recessionary economy, home buyers are re-thinking housing affordability and housing location. Without much more work, one cannot isolate the distinct effects of the overall slowdown of housing construction in the Portland metropolitan region from the effects that increases in commuting costs (from

Exhibit 3-4 McMinnville Commuter Travel





increases in fuel prices and congestion) are having on the local housing market in McMinnville. In the short run, however, there is a noticeable decline new home sales, as reflected, in part, by the slowing of residential development in McMinnville and greater Yamhill County.

- Highway 18 corridor constraint – the Model assumes a continued trend in traffic growth within in the Highway 18/99W corridor and its connection to the Portland metro area – indirectly assuming the Newberg-Dundee Bypass is constructed and operational prior to 2023. The funding for the Bypass is uncertain. The absence of the Bypass and of additional capacity improvements in the corridor to improve connections to I-5 would (other things being equal) reduce the demand for McMinnville homes from households whose wage earners work in the greater Portland urban area.
- **Transportation pricing or taxing** – proposals for modified statewide transportation taxing on the basis of personal vehicle mileage rather than current gasoline purchase/consumption (gas tax) will affect future, long-distant commuting to/from McMinnville. Depending on how the pricing is imposed and how the funds are spent in the McMinnville-Portland corridor, the effects on the demand for housing in McMinnville could be positive or negative, and could vary by type and price of housing.

The combination of these factors—none of which the base-run (future, year 2023) of the Model (and, in some cases, the structure of the model itself) can account for— will affect travel behavior and, as a result, the number and type of new residents and businesses attracted to McMinnville. One reasonable scenario could assume that a larger portion of new McMinnville residents will be (a) non-working retirees, (b) work-at-home tele-commuters, and (c) alternative mode users, especially local and inter-city commuters. Furthermore, current McMinnville residents may also be more inclined to reduce their driving in favor of alternative, less-costly forms of transportation. Compared to that scenario, the current base-run of the Model is very likely to overstate the estimate of future vehicle travel demand, both within the McMinnville area and for those commuting to and from the Portland and Salem urban areas.

Nonetheless, one must start somewhere, and the Model's estimates can serve as a baseline for comparison. No other estimating tools are currently available to the City. Continued tracking of traffic volume will serve as the best indicator whether the Model's 20-year vehicle traffic estimates are accurate (as the City regularly re-evaluates its TSP and supportive traffic estimate findings).

Traffic Forecasts

ODOT's Level 3 Travel Demand Model was used to estimate year 2003 and 2023 design hour volumes, which generally reflect the PM peak hour. The PM peak hour varies within the city, depending on location and adjacent land use. A city-wide weighted average reveals that the typical peak hour occurs in McMinnville between 5:00 and 6:00 pm, on an average weekday. Based on year 2003 housing and employment data, the Travel Demand Model estimates vehicular traffic on area highways and arterial and collector streets. The 2003 pm peak hour Model estimates are shown in **Exhibit 3-5**. These estimates compared favorably to the level of traffic recorded on McMinnville arterial streets and ODOT highways in 2003, a term referred to as "calibration."

2023 PM Peak Hour

ODOT's 2023 Travel Demand Model estimates future travel conditions in the McMinnville area based on two principles:

(1) local demographics, reflected by the growth in housing and employment within McMinnville's UGB, and
(2) relatively no change to the vehicle trip generation rates and trip distribution patterns of McMinnville residents and commuters.

The resulting 2023 PM peak hour Model estimates on major McMinnville streets and highways are summarized in **Exhibit 3-6.** Future volumes are expected to be highest on Highways 18 and 99W, with considerable growth also on McMinnville's minor arterial network. These traffic conditions assume that no major street capacity improvements or new connections are constructed in the McMinnville UGB area.

For perspective, the Travel Demand Model enables a direct comparison between years 2003 and 2023 traffic estimates. By subtracting the year 2003 traffic from year 2023, the net new traffic volume can be mapped. **Exhibit 3-7** notes the net new vehicular traffic growth by route in the McMinnville area.

East-west minor arterials like Baker Creek Road and Old Sheridan Road are expected to see significant growth in traffic; as are Highway 99W and Lafayette Avenue. The most significant growth in traffic is expected on Highway 18 between Norton Lane and SW McMinnville, the corridor serving the city's high residential (west and southwest) and employment (airport area) growth areas.

Exhibit 3-5 2003 PM Peak Hour Traffic

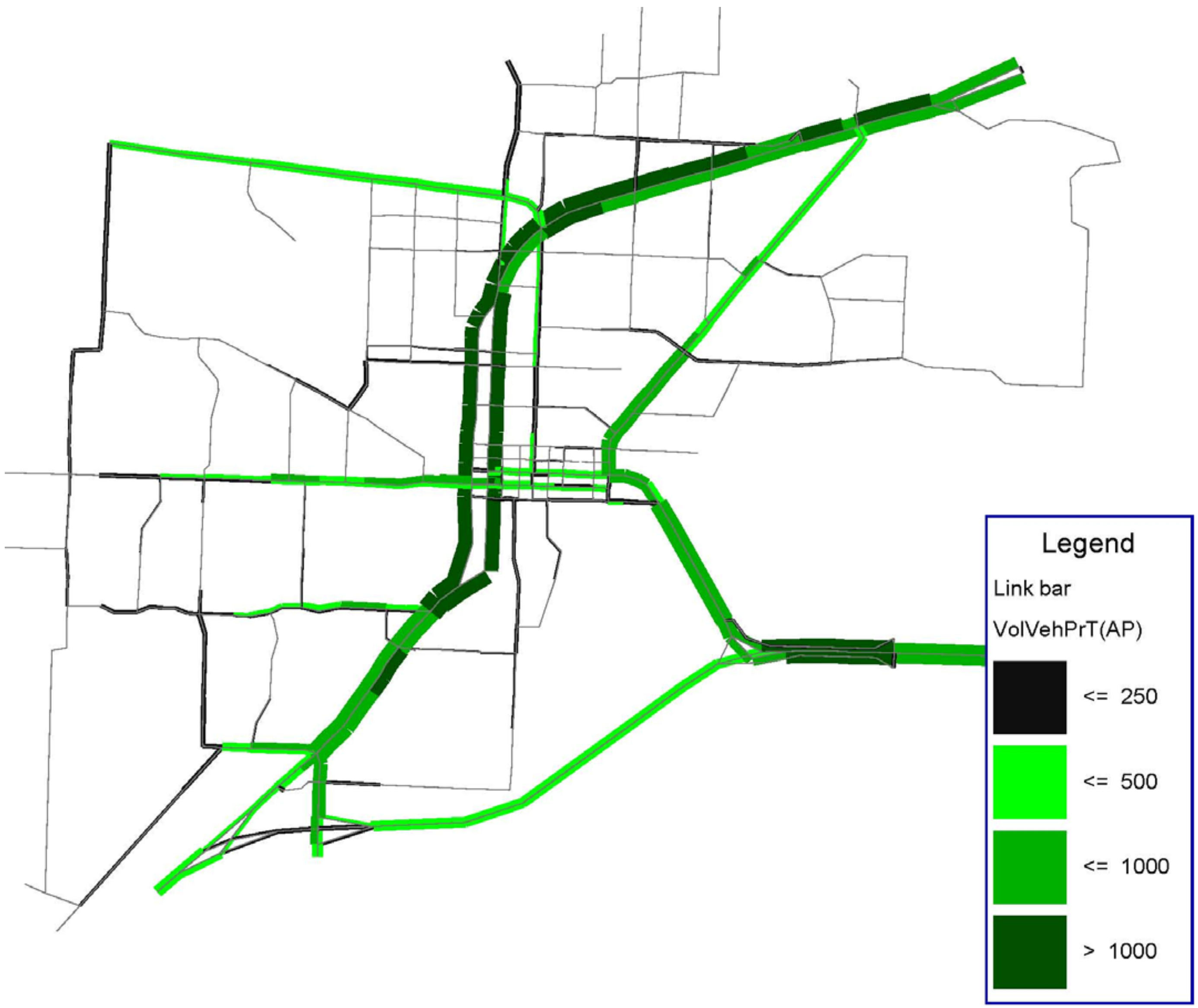


Exhibit 3-6 2023 PM Peak Hour Traffic

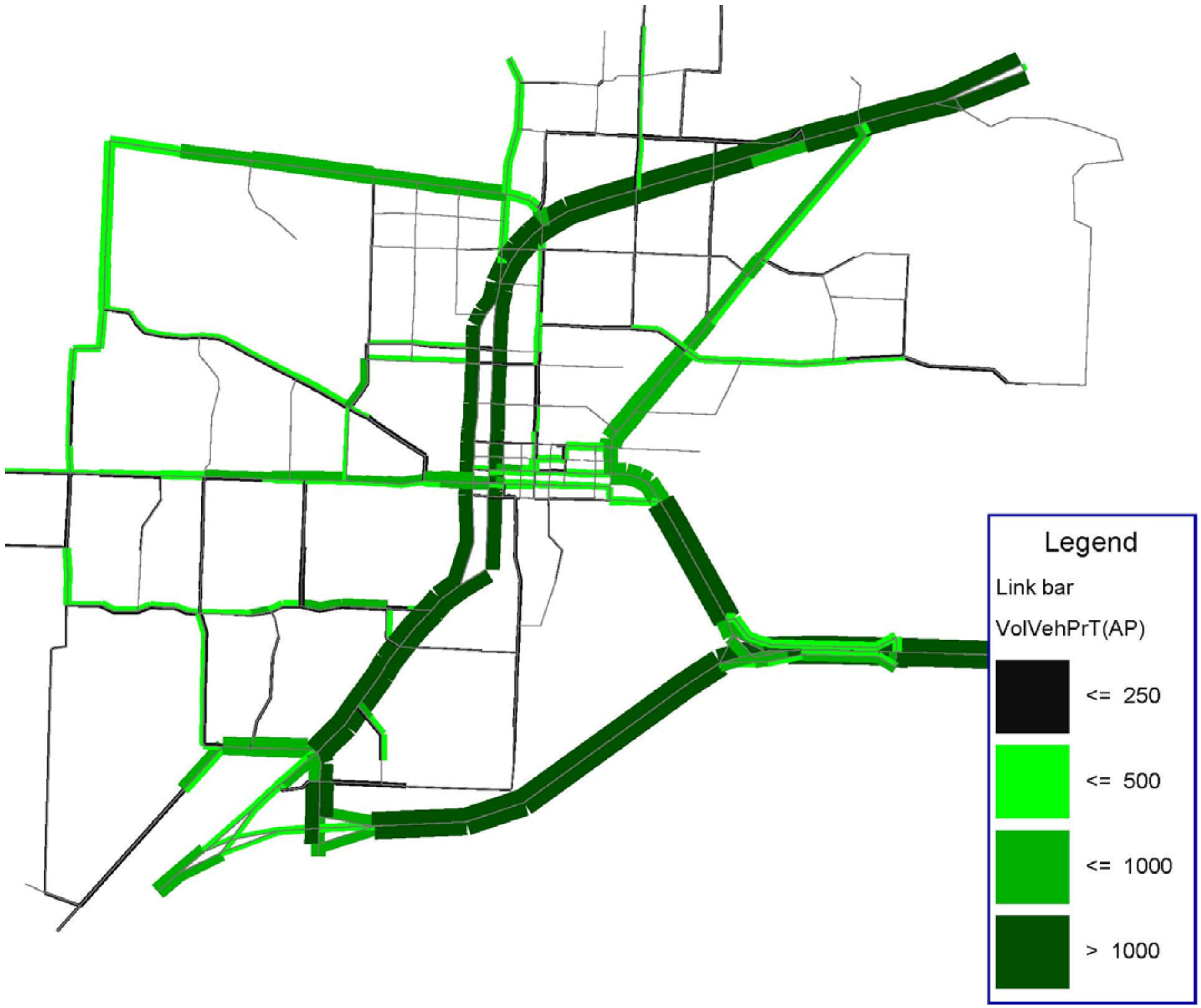
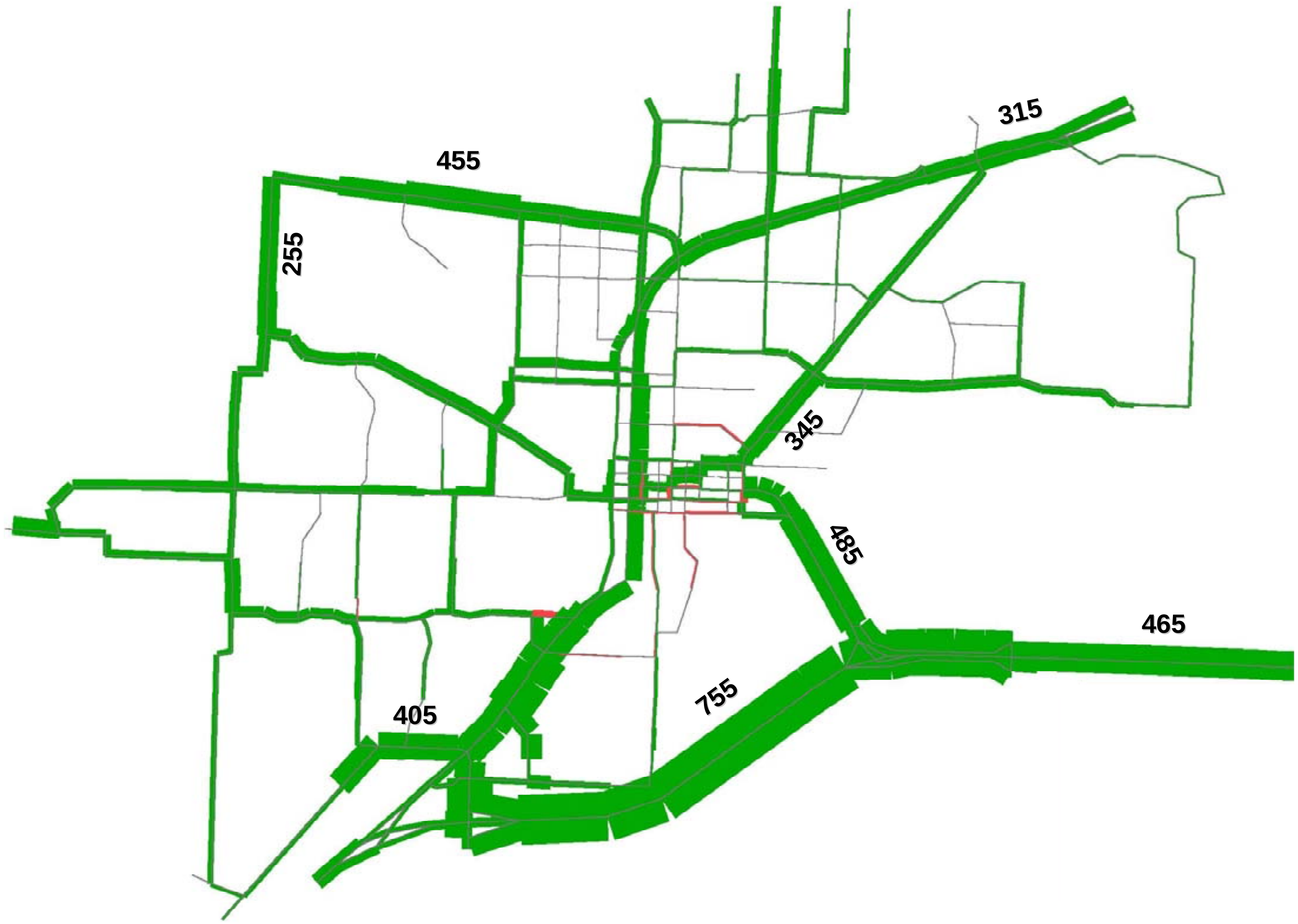


Exhibit 3-7 Net Difference: 2023 -2003 PM Peak Hour Traffic



Street System Performance

Future (2023) Traffic Performance

As discussed in Chapter 2, the 1999 Oregon Highway Plan (OHP) mobility standards are integrated in the TSP to assess state highway intersection performance in the McMinnville urban area. These standards were originally defined by ODOT as a measure of the V/C ratio at state highway intersections. For consistency, the same measures have been applied to city street intersections in the TSP study. The mobility standards are defined as "the peak hour traffic volume (vehicles/hour) at an intersection divided by the maximum volume that the intersection can handle." Higher levels of traffic congestion are expected when the V/C ratio is near or over 1.0.

Major Street Corridors

Similar V/C measures are used to evaluate the Travel Demand Model estimates for years 2003 and 2023 for the major highways and streets in McMinnville. These measures are helpful in first targeting those street corridors where higher levels of congestion are expected. **Exhibits 3-8** and **3-9** show the PM peak hour, street corridor V/C calculations for years 2003 and 2023 respectively. In these two maps the red lines indicate where estimated travel demand exceeds the practical capacity of the street or highway, yellow lines indicate possible hot spots, and green lines indicate traffic volumes below capacity.

These maps indicate and confirm recognized congestion spots today, particularly the 2nd Street corridor crossing of Adams and Baker Streets, and Lafayette Avenue. By 2023, traffic congestion on many of McMinnville's major east-west routes will present a challenge. Baker Creek Road, 2nd Street, Fellows Street and Old Sheridan Road will all experience higher levels of congestion; as will sections of Highway 99W, especially in the south end of the city. Also of note, future travel demand on the Three Mile Lane Spur across the Yamhill River is estimated to exceed capacity.

In many cases future traffic congestion is directional. For example, most of the east-west routes serving West McMinnville are congested in the westbound direction. This is logical, as much of the PM peak traffic is made up of commuters returning home from work and other activities. While the Travel Demand Model was not developed to test the morning commute peak hour, the reverse pattern is expected, as eastbound travel lanes are more heavily congested.

Major Intersections

Using the major street corridor analysis as perspective, the evaluation of future traffic conditions in the McMinnville TSP focused on critical intersections along major and minor arterials throughout McMinnville. A more detailed evaluation of the downtown street system was also conducted and summarized separately below. These major intersections serve as additional indicators of overall system performance, and are used to help identify operational and capacity improvements at critical junction points.

Exhibit 3-8 2003 PM Peak Hour V/C

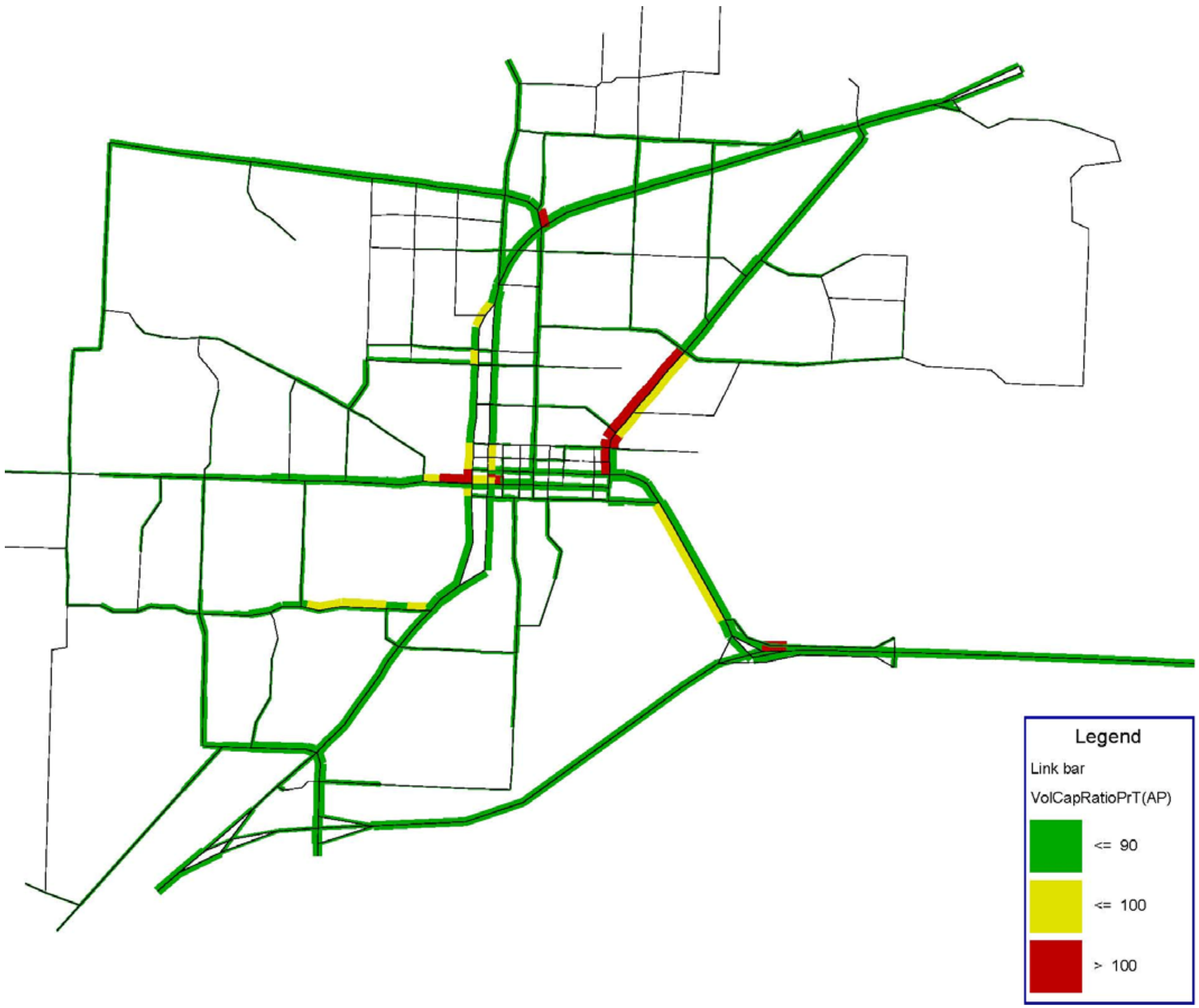


Exhibit 3-9 2023 PM Peak Hour V/C

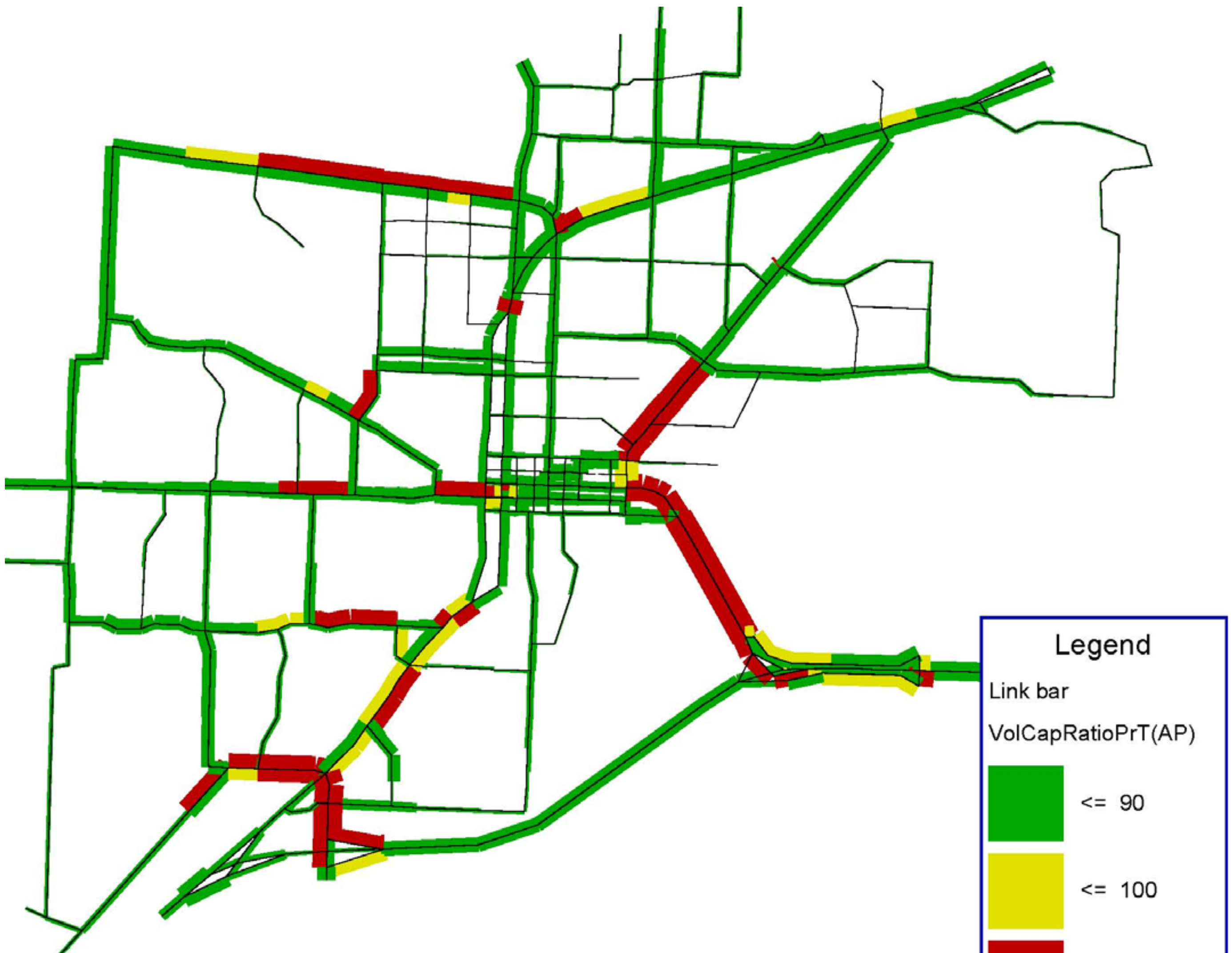


Table 3-1 compares existing (2006) and future (2023) V/C ratios for PM peak hour operations with the McMinnville TSP mobility standards (see Chapter 2). With the exception of the Highway 18 westbound ramp intersection at Highway 99W, all critical area intersections operate within the TSP mobility standards.

Table 3-1 Weekday PM Peak Hour LOS 2006 and 2023 Summary

	2006			2023 Future		
Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
1. Hwy 99/LaFayette Ave	C	25.5	0.77	C	23.9	0.80
2. Hwy 99/McDaniel Ln	B	14.2	0.62	A	9.9	0.54
3. Hwy 99/McDonald Ln	C	29.2	0.59	C	30.0	0.65
4. Hwy 99-NE Evans St/Baker Crk Rd	B	13.3	0.62	B	19.6	0.81
5. 19th St/Hwy 99	B	12.6	0.56	A	9.7	0.56
6. 12th St/Adams (Hwy 99)	B	11.3	0.78	C	31.1	0.97
16. Old Sheridan Rd/Baker (Hwy 99)	C	34.1	0.72	F	155.2	1.52
17. WB Ramp/Hwy 99	E	38.9	0.82/WB	F	>200	3.25/WB
21. NW Baker Creek Rd/Baker St	A	9.2	0.43	B	13.4	0.55
22. 19th St/Baker St (all-way stop)	B	12.3	0.53	C	16.5	0.60
29. NW Baker Creek Rd/Hill Rd	B	11.9	0.26/NB	F	72.5	1.01/NB
31. 2nd St/Hill Ave	B	15.0	0.13/EBT-L	E	39.4	0.79/WB
34. Cypress St/SW Old Sheridan Rd	C	16.0	0.07/NBL	F	>200	1.16/NBL
43. 13th St/LaFayette Ave	B	12.5	0.60	B	17.0	0.79
47. OR 18/Norton Ln	B	19.7	0.53	E	63.3	1.02

1. Level of service, based on 2000 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections.

By 2023, however, several intersections along McMinnville's arterial streets and on ODOT highways exceed the mobility standards. Signalized intersections that are projected to exceed the mobility standards in 2023 include:

- Adams (Hwy 99) and 12th Street
- Highway 99 and Old Sheridan Road
- Highway 18 and Norton Lane

Several study area unsignalized intersections are estimated to exceed the TSP mobility standards in 2023, including:

- Baker Creek Road and Hill Road
- Cypress Street and Old Sheridan Road

See **Appendix C** for a summary of all study area intersection V/C calculations for year 2006 and 2023, and for the summary documentation of ODOT Travel Demand Model (when made available).

Downtown McMinnville

During the 2006 weekday PM peak hour, traffic regularly backs up on 2nd Street east of Adams Street in the downtown area. Regular back-ups on 2nd Street extend as far east as Ford Street, causing disruption to north-south vehicle, bicycle and pedestrian traffic. A special examination of localized traffic operations was conducted early in the TSP process to help identify options to reduce congestion in the corridor.

Traffic Delays on 2nd Street

No reasonable options exist to widen or build new arterial streets to help relieve these conditions. The downtown McMinnville land use and street grid network is relatively fixed. Further, Cozine Creek, City Park, Michelbook golf course and existing neighborhoods greatly limit the City's ability to extend alternative routes to West McMinnville.

Emphasis in the analysis of downtown options focused on increasing system efficiencies: making better use of existing street and intersection infrastructure (channelization) and traffic signal control measures.

As shown in **Exhibit 3-10**, much of the east-west traffic through downtown is centered on 3rd Street and 2nd Street, with some also on 1st Street. All of the east-west traffic to and from West McMinnville is confined to 2nd Street. Between Adams and Baker Streets there is very little storage for vehicles on 2nd Street, and the two traffic signals have limited capacity to accommodate 2nd Street traffic, while simultaneously servicing movements on Adams and Baker Streets.

Exhibit 3-11 illustrates use of 5th Street as an alternative east-west route. The option assumes placing new traffic signals at either end of 5th Street; at the Adams and Baker west end and also at Lafayette Avenue. A new signal at Adams and 5th Street obviates the need for the existing Adams/4th Street signal. An additional signal on Adams Street at 3rd Street is also assumed for enhanced pedestrian connectivity between downtown McMinnville (east of the Adams/Baker one-way couplet) and the City Park, Aquatic Center and Library. Pedestrians currently crossing Adams Street, via the 4th Street signal, can then use either the new 3rd Street or 5th Street signals. The new signal on Lafayette at 5th Street would allow eastbound traffic to access Lafayette. Today, the steady flow of traffic on Lafayette makes this connection very difficult. As a result, there is a shift in existing PM peak hour traffic of about 20-30 percent from 2nd Street to 5th Street

The estimated shift in traffic to the 5th Street option is based on modified travel patterns that are predicted to occur after the traffic control upgrades are made. A detailed analysis of aggregate turning movement patterns in the Downtown McMinnville area was confirmed by observed, origin-destination patterns

Additional lane re-striping or very minor curb-line adjustments at select intersections would also be required to best support the revised traffic pattern. These include:

- Added right-turn lane to the westbound approach on 2nd Street. at Baker Street,
- Additional left- and right-turn lanes to the southbound approach on Adams Street at 2nd Street, and
- Added left-turn lane to the southbound approach on Adams Street at 5th Street.

Further, neighborhood traffic calming measures that discourage cut-through traffic are likely needed on 5th Street west of Adams Street to discourage non-local traffic.

Table 3-2 compares existing (2006) and future (2023) V/C ratios for PM peak hour operations at major intersections in Downtown McMinnville with the McMinnville TSP mobility standards.

Table 3-2 Weekday PM Peak Hour LOS 2006 and 2023 Summary –Downtown McMinnville

	2006 Existing			2023 – 5th Street Option		
Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
10. 3rd St & Baker (Hwy 99)	B	10.3	0.58	B	15.4	0.65
11. 2nd St & Adams (Hwy 99)	B	17.3	0.79	B	17.2	0.78
12. 2nd St & Baker (Hwy 99)	B	12.1	0.64	C	23.0	0.88
45. 3rd St & LaFayette Ave	B	17.6	0.62	C	20.9	0.71
49. 5th Street & Adams (Hwy 99)	D	30.4	WB	C	21.2	0.89
50. 5th Street & Baker (Hwy 99)	E	38.5	EB	C	20.2	0.86
52. 5th Street & Lafayette	E	37.4	EBL	B	15.6	0.75

1. Level of service, based on 2000 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections.
5. Currently, the 5th Street intersections of Adams St., Baker St. and Lafayette are unsignalized.

Exhibit 3-10 Existing Street and Traffic Control: Downtown

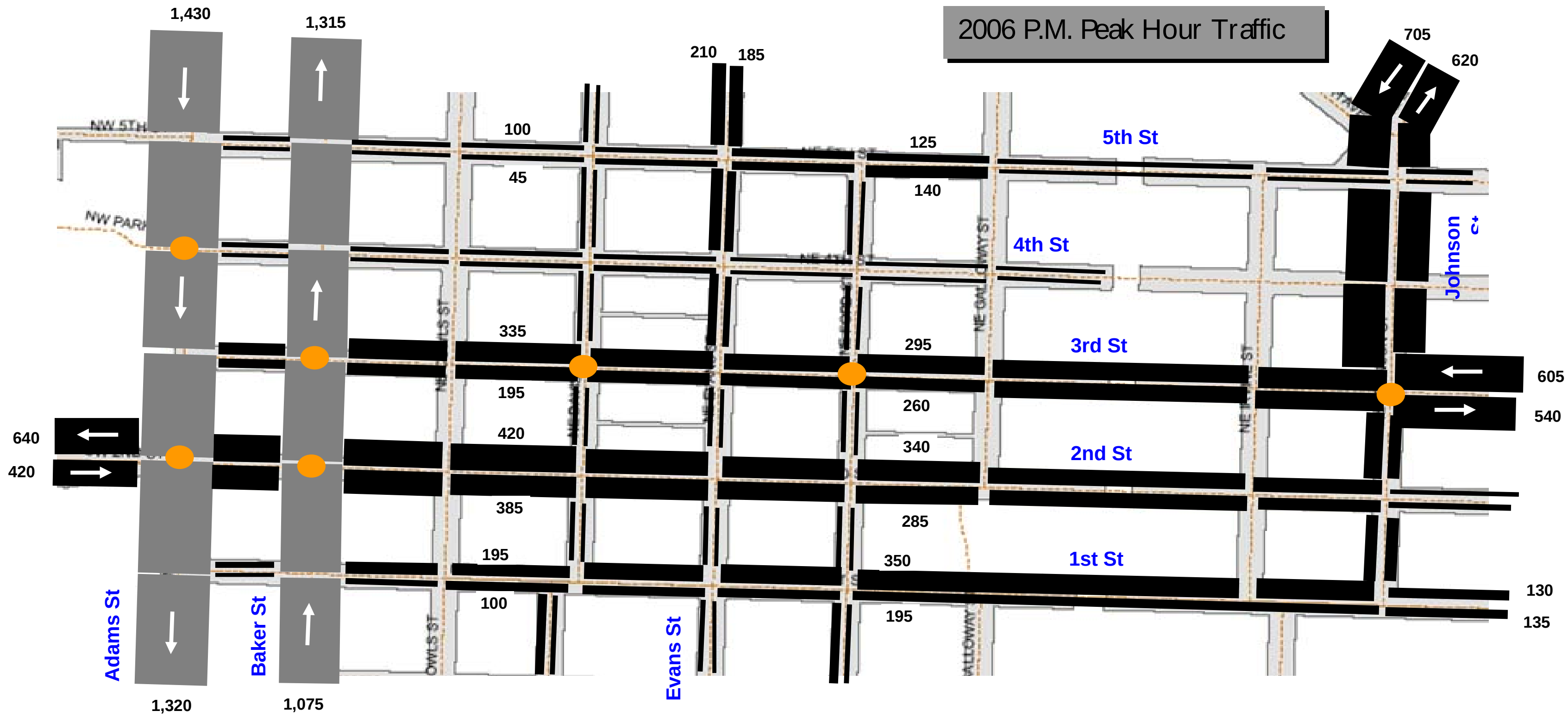
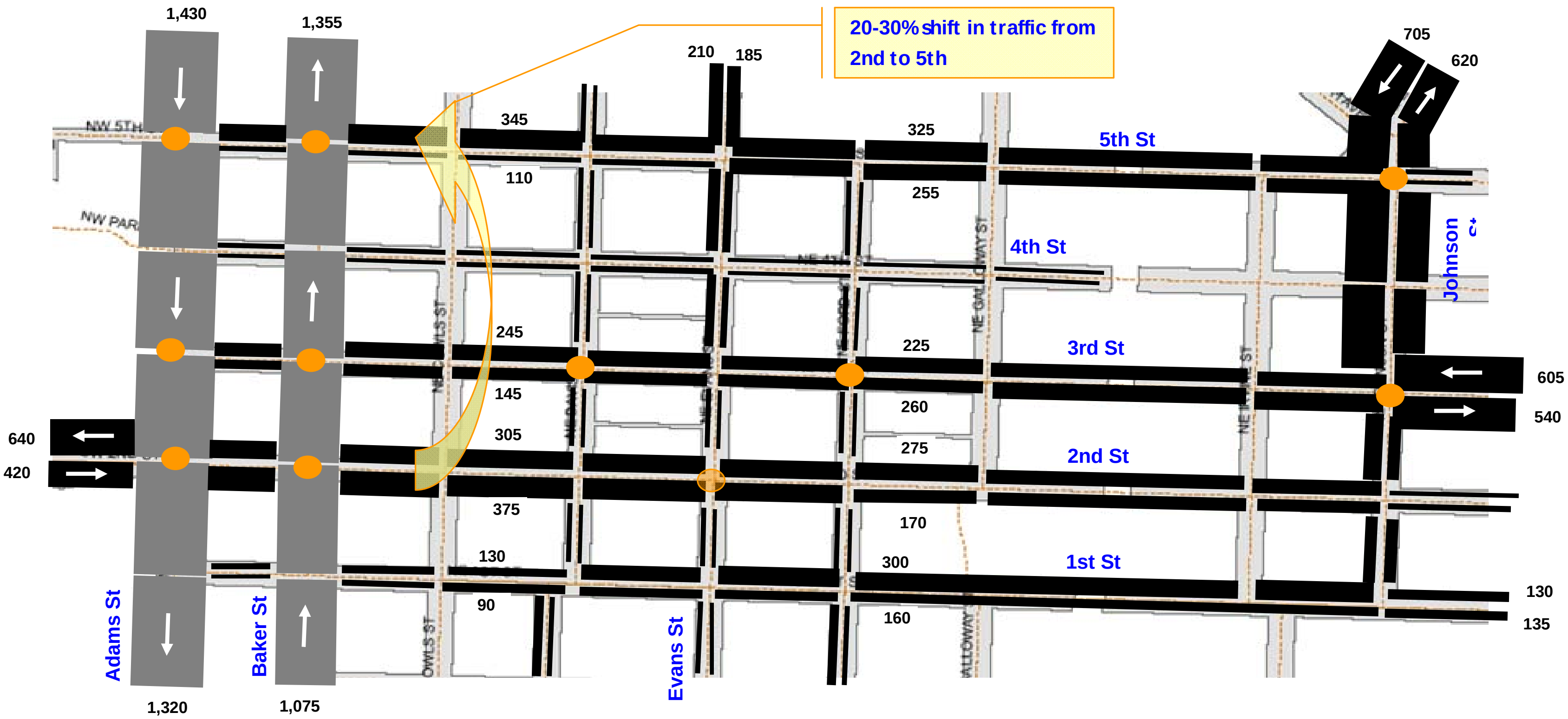


Exhibit 3-11 Revised Street and Traffic Control: Downtown



Long-Range Future Options Considered

In response to stakeholder participants in the TSP, a series of future transportation system options were defined and tested, and then compared to the Future Baseline travel conditions in McMinnville. Each option is defined in this section, including two Future Build options and a Transportation Demand Management option.

The purpose of each option is to determine the level of traffic demand relief they provide, particularly within those corridors linking central and southwest McMinnville and the McMinnville airport area. These options are further described below.

Future Baseline

The Future Baseline condition assumes that no major street capacity improvements or new street connections are made by year 2023. As described above, traffic volumes will increase in McMinnville as population and employment continue to grow. Assumed within the Future Baseline Option are the new traffic signals and routing improvements within the Downtown McMinnville area.

Future Build Options

Two major, long-term street system build options were evaluated as part of the TSP, including (1) a new Yamhill River bridge connecting Highway 18 through McMinnville's industrial area to Lafayette Avenue, and (2) a new Highway 18 interchange and connection to SW Hill Road.

Option 1: New Yamhill River Bridge

Exhibit 3-12 identifies the general location of a new connection that would link the McMinnville Airport area, north across the Yamhill River to Riverside Drive in the McMinnville Industrial Area. The new bridge would provide significant improvements for industrial access, reducing truck traffic through the downtown McMinnville area, and provide a more direct route between the Airport and northeast McMinnville.

This option shows that a new bridge across the Yamhill River would provide significant relief to future corridor constraints, mainly reducing the level of peak hour traffic on the current Yamhill River Bridge and Highway 99W in southwest McMinnville. Further, this option would require significant study of the environmental impacts and costs associated with a new bridge across the Yamhill River. The new bridge route would also exit McMinnville's current Urban Growth Boundary. Should the City pursue the new Yamhill River bridge option, further policy evaluation would be required to either substantiate a revision to the UGB, support an exception to applicable land use goals, and/or revise both the City's and Yamhill County's Transportation System Plans.

Option 2: New Highway 18 Interchange in SW McMinnville

The second build option assumes (conceptually) a new interchange on Highway 18 in southwest McMinnville. **Exhibit 3-14** shows the general location of the new interchange and the relative impacts of future traffic relief to the McMinnville street and highway system. While this option does help reduce some future traffic on east-west corridors in west McMinnville, it has very little impact alleviating congestion on Three Mile Lane and Highway 99W in southwest McMinnville.

Two critical design and policy issues limit this option. State policy guiding the spacing of interchanges requires the location of a new interchange on Highway 18 to be two miles west of the existing Highway 99W interchange (Oregon Highway Plan, 1999), too far west to reasonably assist McMinnville.
Modifications to the existing interchange with a new link north to Hill Road would require extensive new right-of-way, much of which is outside the current UGB, and costly structural improvements to the existing interchange. For these reasons this option is not recommended for further consideration.

Exhibit 3-12 New Yamhill River Bridge Option

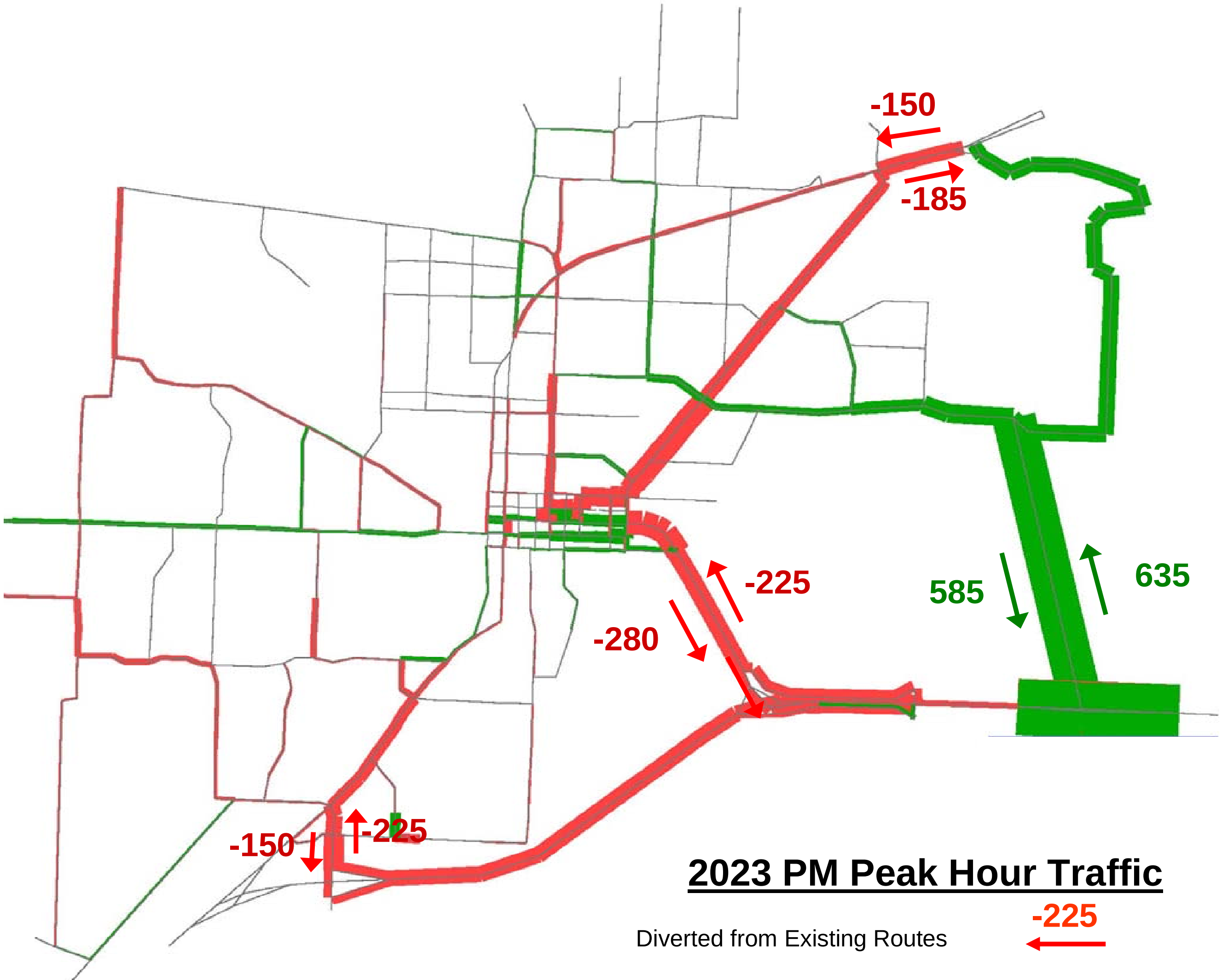
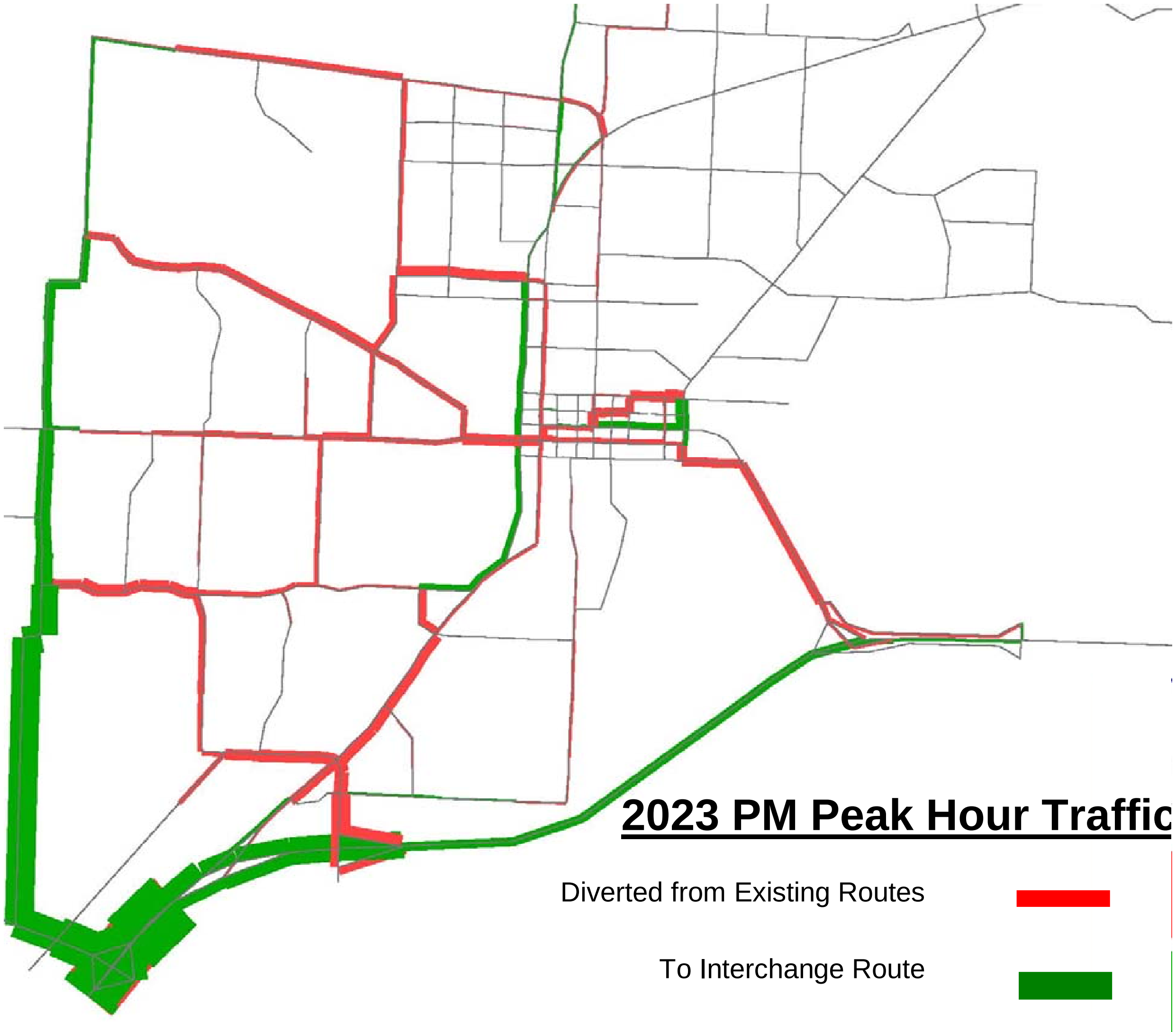


Exhibit 3-13 New OR 18 Interchange



Transportation Demand Management (TDM) Option

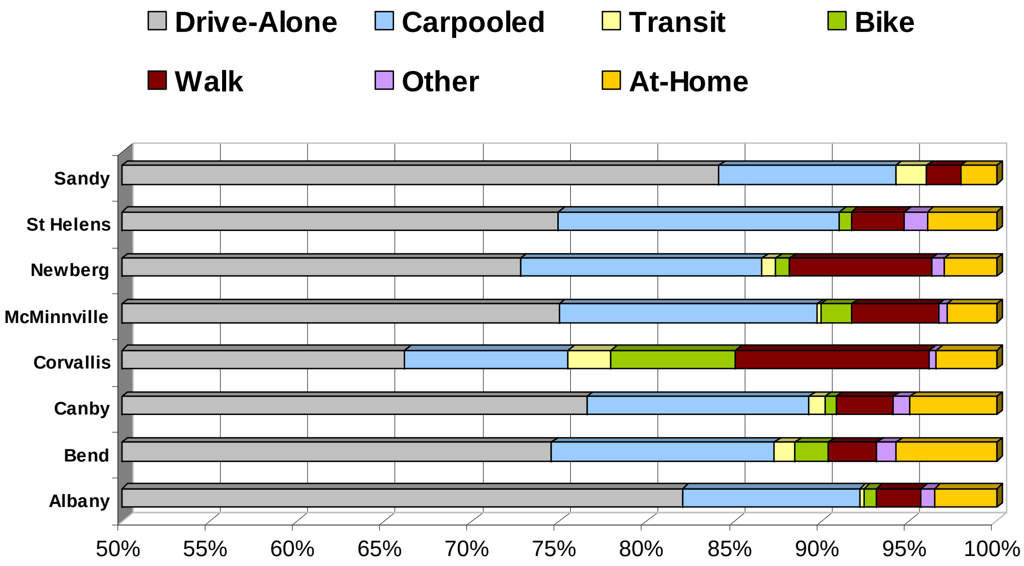
Through Transportation Demand Management *(TDM)*, the peak travel demands in McMinnville can be reduced or spread to different time periods to provide more efficiency in the City's transportation system. Further analysis was conducted to determine if TDM measures, either individually or collectively, would reduce the levels of congestion along key corridors by the year 2023.

There are many TDM programs and measures. The most effective TDM programs focus on reducing drive-alone commuter trips, either by *mode* (e.g. shift from "drive-alone" to walk or carpool/vanpool modes) or by *time of day* (e.g. shift in commuter travel times to avoid P.M. peak hour).

This option focuses on the conceptual application of combined TDM program impacts to reduce the level of drive-alone commuting to employment sites city-wide, but particularly in the McMinnville Airport area and job sites east of McMinnville. The target is to reduce the level of future drive-alone commuter travel during the PM peak hour on Three Mile Lane (across the Yamhill River bridge) and Highway 99W in southwest McMinnville.

As shown in **Exhibit 3-14**, the work-commute characteristics of McMinnville residents are similar to other mid-sized Willamette Valley cities[4]. Many factors affect these characteristics: proximity to major urban areas and employment centers, local employment, travel costs (including parking fees) and presence of transit and bicycle systems to name a few. Of course the price of fuel is a significant factor affecting travel behavior. Today, 75% of McMinnville workers drive-alone and another 15% carpool.

Exhibit 3-14 2000 Census – Journey-To-Work Comparison



For the purposes of the TSP evaluation an adjustment to the future travel demand estimates (PM peak hour) are made: 10% reduction in worker commute auto trips between the McMinnville Airport industrial area and McMinnville neighborhoods. The effect of the TDM measures could result in reduction of 90-120 westbound vehicle trips during the future PM peak hour in the Three Mile Lane and Highway 99W corridors. Even with the TDM enhancements, future (2023) PM peak hour intersection performance at the intersections of OR-18/Norton Lane and Highway 99W/Old Sheridan Road exceed OHP mobility standards. See Appendix C for future LOS analysis and results.

The implementation of these TDM measures will require significant policy coordination between the City and private employers. See Chapter 7 for recommended TDM measures.

Pavement Condition Inventory

In support of the TSP effort, in 2006 the City of McMinnville conducted an inventory of the City's pavement condition on arterial and collector streets. Later in 2007 the City conducted a second inventory of pavement conditions on the remaining local (residential) streets.

The pavement condition inventory consisted of a walking evaluation of street pavement condition identifying signs of fatigue due to various types of rutting and cracking, and then scoring individual street segments using a pavement condition index (PCI), with a range from *excellent* to *failing*. See separate report[5] for full definition of pavement inventory and rating methods and valuation.

Exhibit 3-15 generally summarizes the PCI rating for McMinnville's arterial and collector streets. McMinnville's arterial-collector street system is in good condition, with an average PCI rating for a particular street segment. Excluded from the inventory are the State highways. Highway 99W in particular is showing significant signs of rutting on highway approaches at signalized intersections, primarily due to heavier vehicle operations (braking and stopping).

Exhibit 3-15 Pavement Condition Index – Arterial and Collector Streets

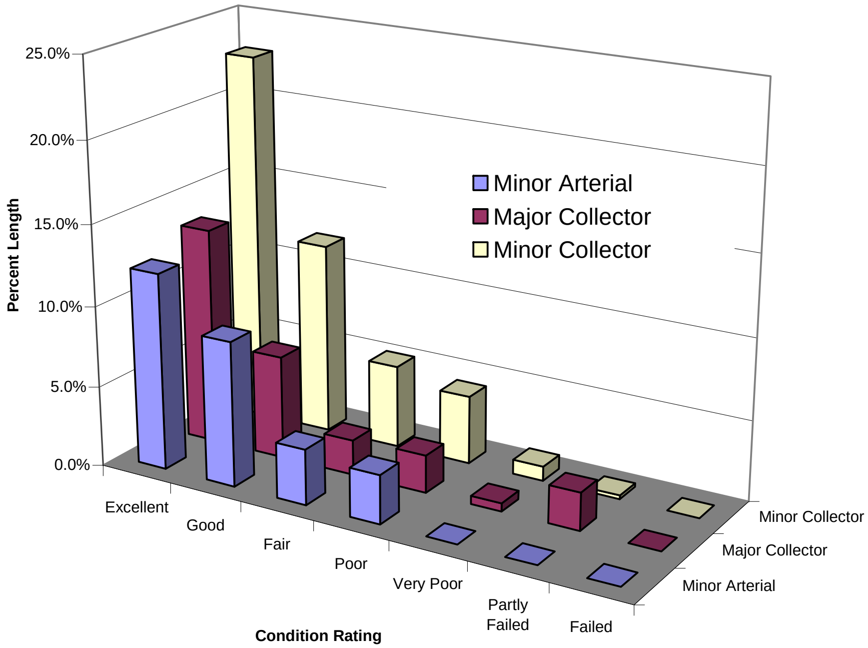
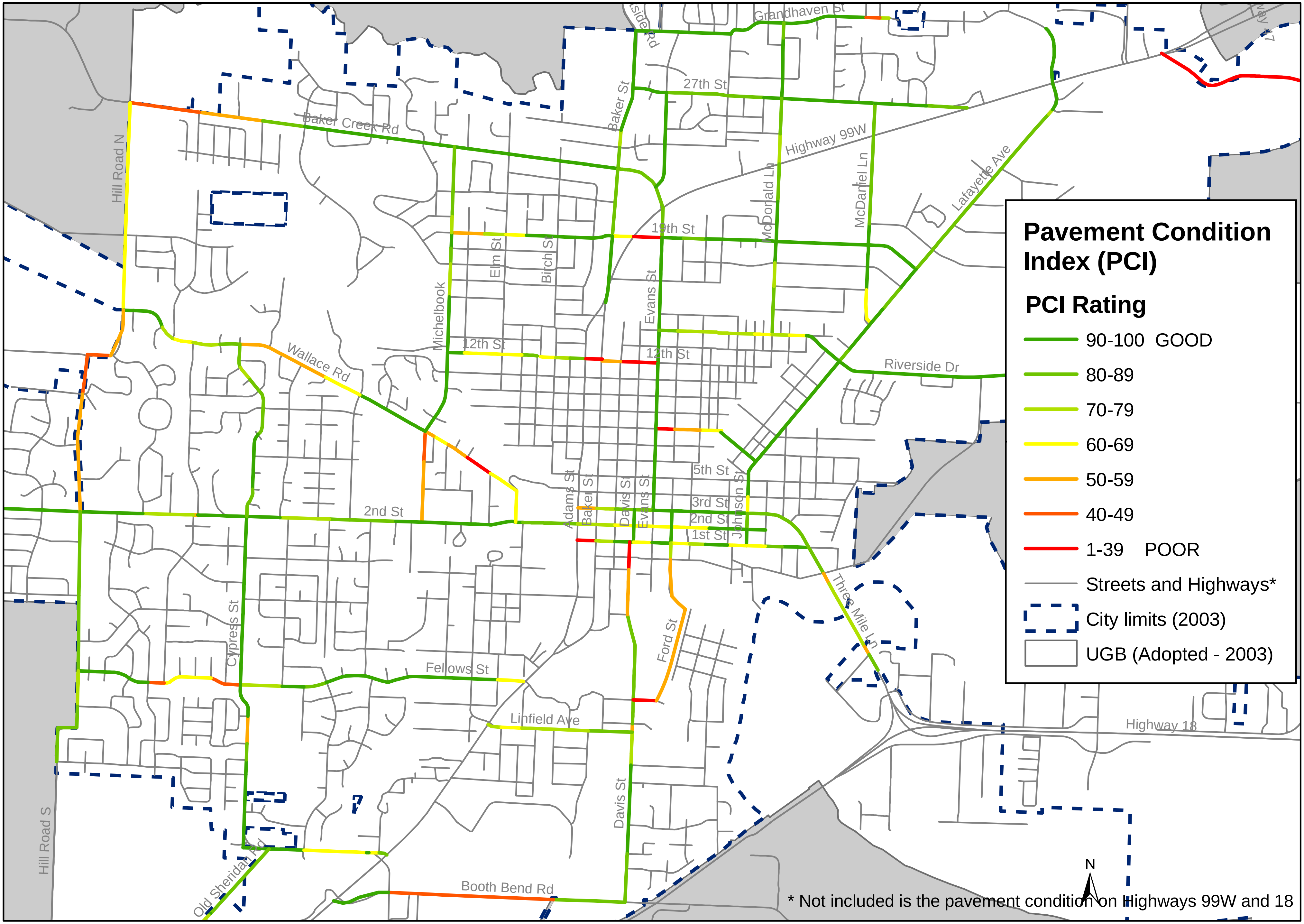


Exhibit 3-16 maps the pavement condition rating for McMinnville's street system. The inventory and evaluation indicate the poorest street pavement ratings are found on Riverside Drive, west Baker Creek Road and Hill Road (see Chapter 4, these street segments are identified for Complete Street improvements).



CITY OF McMinnville OREGON

Pavement Condition - Major Streets

McMinnville TSP

transpoGROUP

Exhibit 3-16

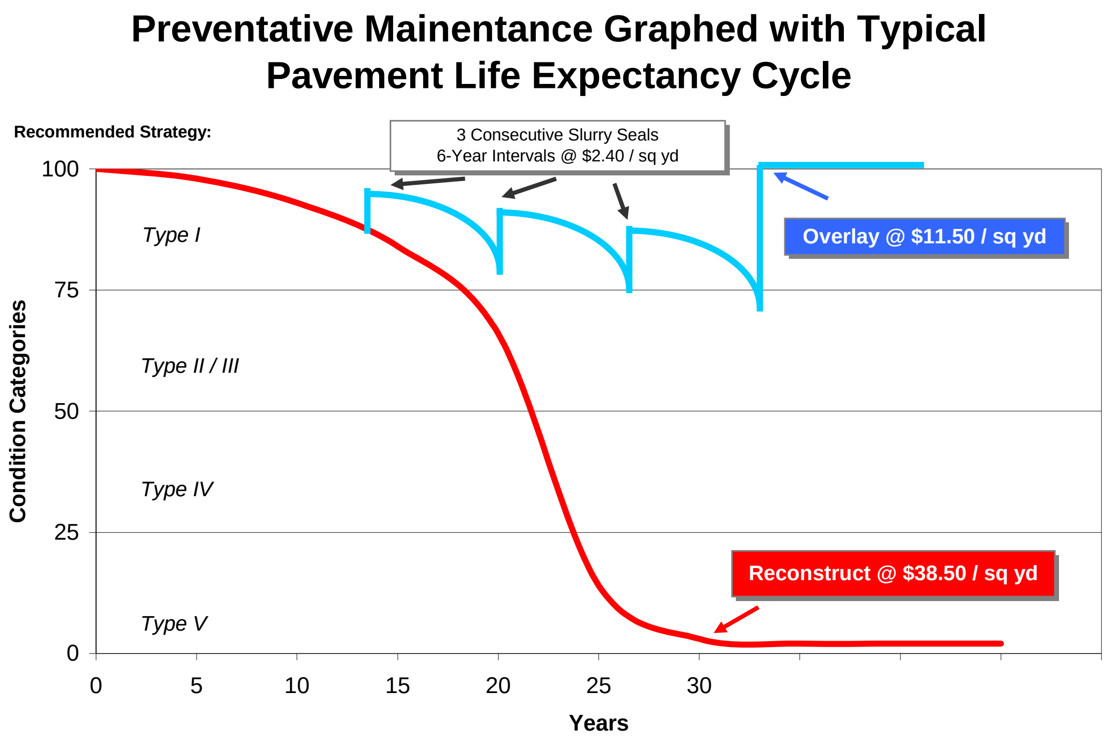
The Pavement Condition Inventory establishes a baseline for the City to consider its course of action for future maintenance and programming of the city street system. Preventative maintenance is crucial to helping McMinnville maintain its current pavement condition (good).

Exhibit 3-17 illustrates the importance and cost of regular street maintenance compared to the more expensive cost of full reconstruction[6] of a street. The regular application of sealing and overlays cost roughly a third of full reconstruction in order to maintain good pavement conditions over a 50-year life-span.

Many cities do not have sufficient funding resources to conduct proper maintenance and preservation. The Federal Highway Administration (FHWA) estimates the annual cost to properly maintain a lane-mile of street at approximately $15,000.

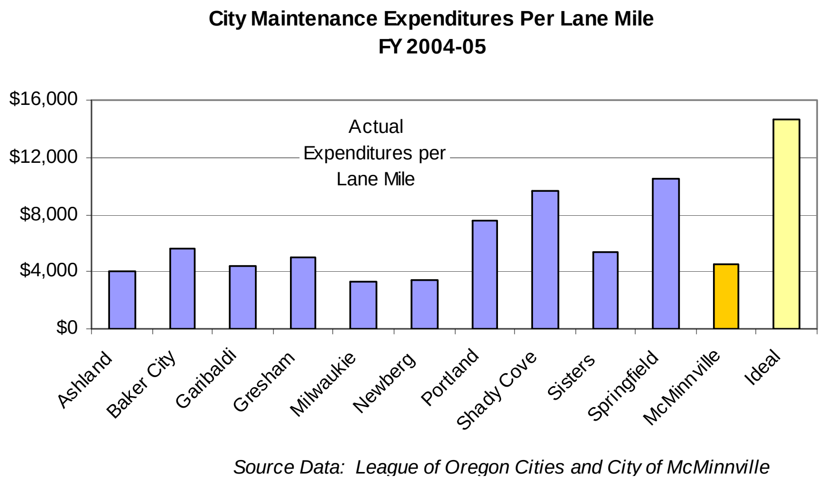
Recently Reconstructed Evans St

Exhibit 3-17 Preventative Pavement Maintenance



As shown in **Exhibit 3-18**, most Oregon cities fund their street maintenance programs at levels well below the FHWA ideal investment. McMinnville has done a very good job of historically maintaining its streets, but is not sufficiently budgeting to maintain these conditions in the future.

Exhibit 3-18 Comparative Street Maintenance Expenditures



Sidewalk System Inventory

In 2006 the City conducted a walking inventory of all city streets and Highway 99W within the UGB to document the location and type of existing and missing sidewalks and curb ramps. This section describes the data collection process and resulting inventory of sidewalk and curb ramp facilities within the McMinnville urban area.

Transpo Group developed the inventory program for use of hand-held Global Positioning System (GPS) units to electronically record the necessary pedestrian system features. City Staff conducted the walking inventory of sidewalk and curb ramps.

A summary of the sidewalk inventory is shown in **Exhibit 3-19.** There are over 86 miles of existing sidewalks in McMinnville. Many of the older and most recent neighborhoods have fully developed sidewalk networks. Other neighborhoods are missing sidewalks along many streets. These neighborhoods were developed at times when development codes and standards did not require sidewalk construction.

Of the City's existing sidewalks, 40% have some form of buffering or park strip between the sidewalk and curb. Some street segments have a sidewalk on at least one side. However, there are over 18.5 miles of missing sidewalks.

The sidewalk system inventory also identified the location and type of existing curb ramps, and intersection corners with missing curb ramps. Curb ramps assist the mobility impaired pedestrians when crossing streets and are a required design feature contained within the City's street design standards, consistent with the American's With Disabilities Act (ADA). There are over 1,665 curb ramps within the McMinnville urban area. However, over 650 street corners have missing curb ramps.

Exhibit 3-19 Sidewalk System Summary

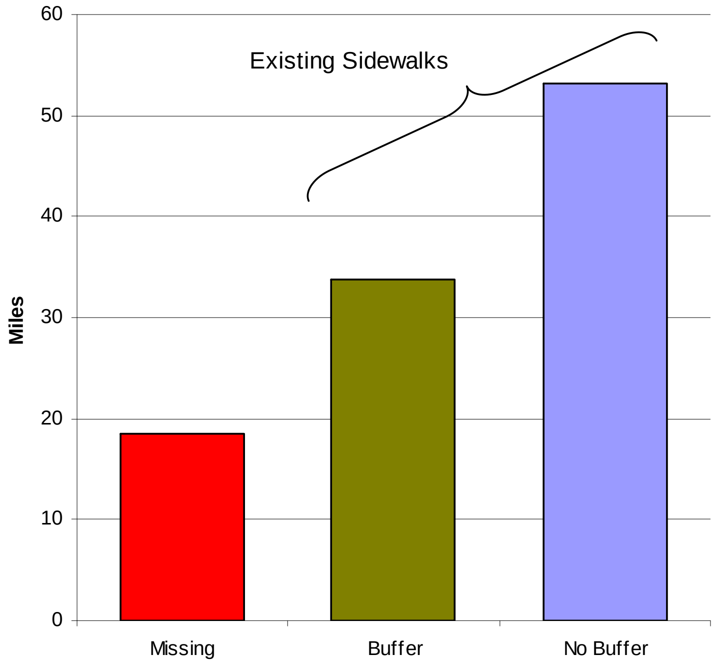


Exhibit 3-20 maps the sidewalk inventory. **Exhibit 3-21** maps the missing sidewalks and curb ramps.

The sidewalk and curb ramp inventory serves as a crucial baseline by which Complete Street projects and priority pedestrian system improvements are identified in Chapters 4 and 5, respectively.

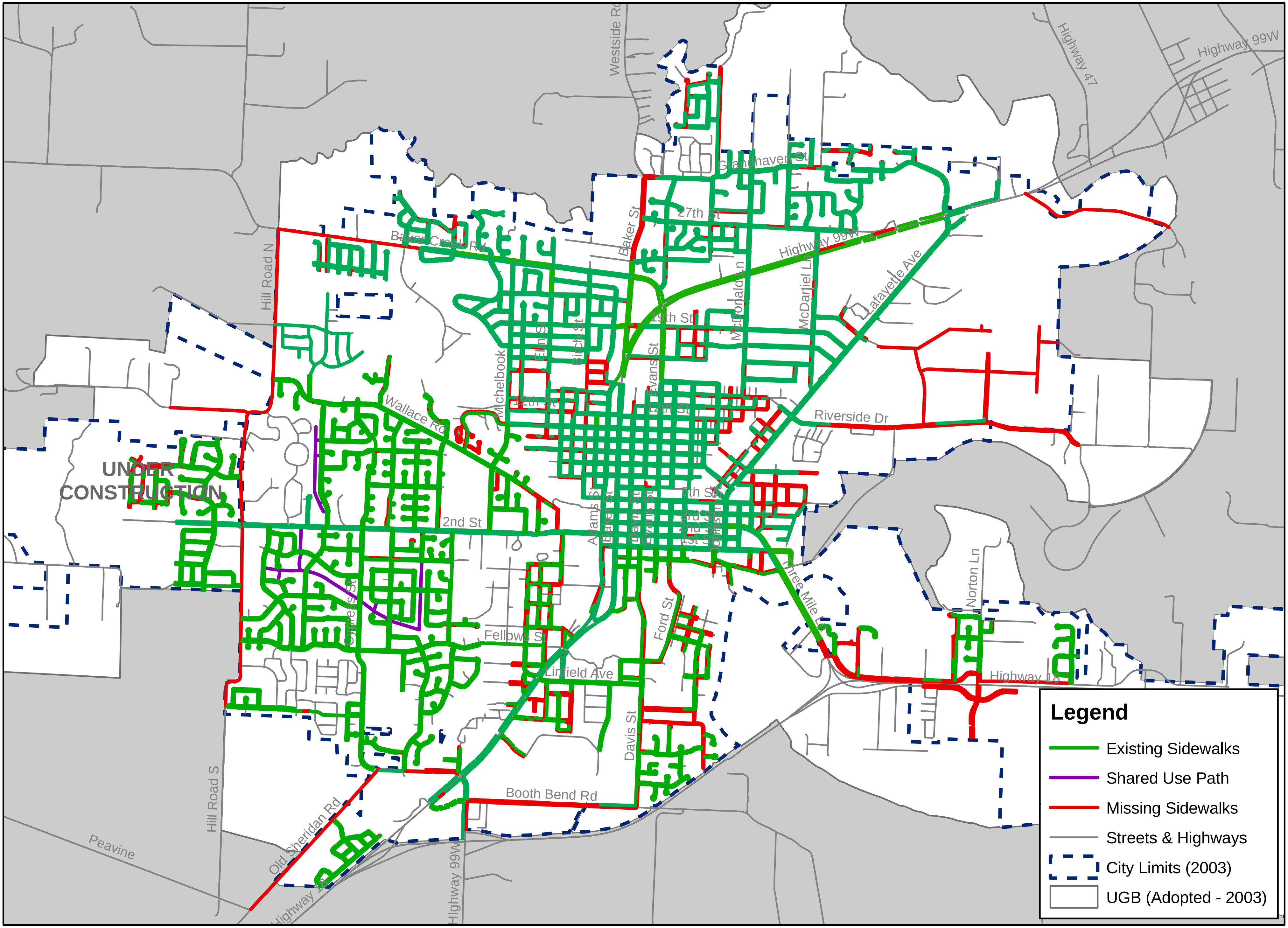
Bicycle System Update

A bicycle system inventory was completed as part of the 1994 McMinnville Transportation Master Plan. Several streets have been improved since 1994, including the addition of on-street bicycle lanes on Lafayette Avenue. In addition, new shared-use path facilities were recently constructed west of Meadows Drive along the utility rights-of-way. Several arterial routes, however, do not accommodate separate bicycle facilities, some require cyclists to share the travel lanes with motorized traffic, or use fairly narrow shoulder space.

The current bicycle system is illustrated in **Figure 3-22**. The Bicycle System Plan chapter includes a detailed description of differing bicycle users, facilities and plan elements to complete McMinnville's bicycle facility network.

Summary

This chapter identifies the impact of McMinnville's growth on the City's street and highway system. It also provides a baseline by which later chapters of the TSP identify important plan recommendations for pavement management, pedestrian and bicycle system plan development, and policy development to advance a transportation demand management program for the McMinnville Urban area.



CITY OF McMinnville OREGON

Sidewalk Inventory

McMinnville TSP

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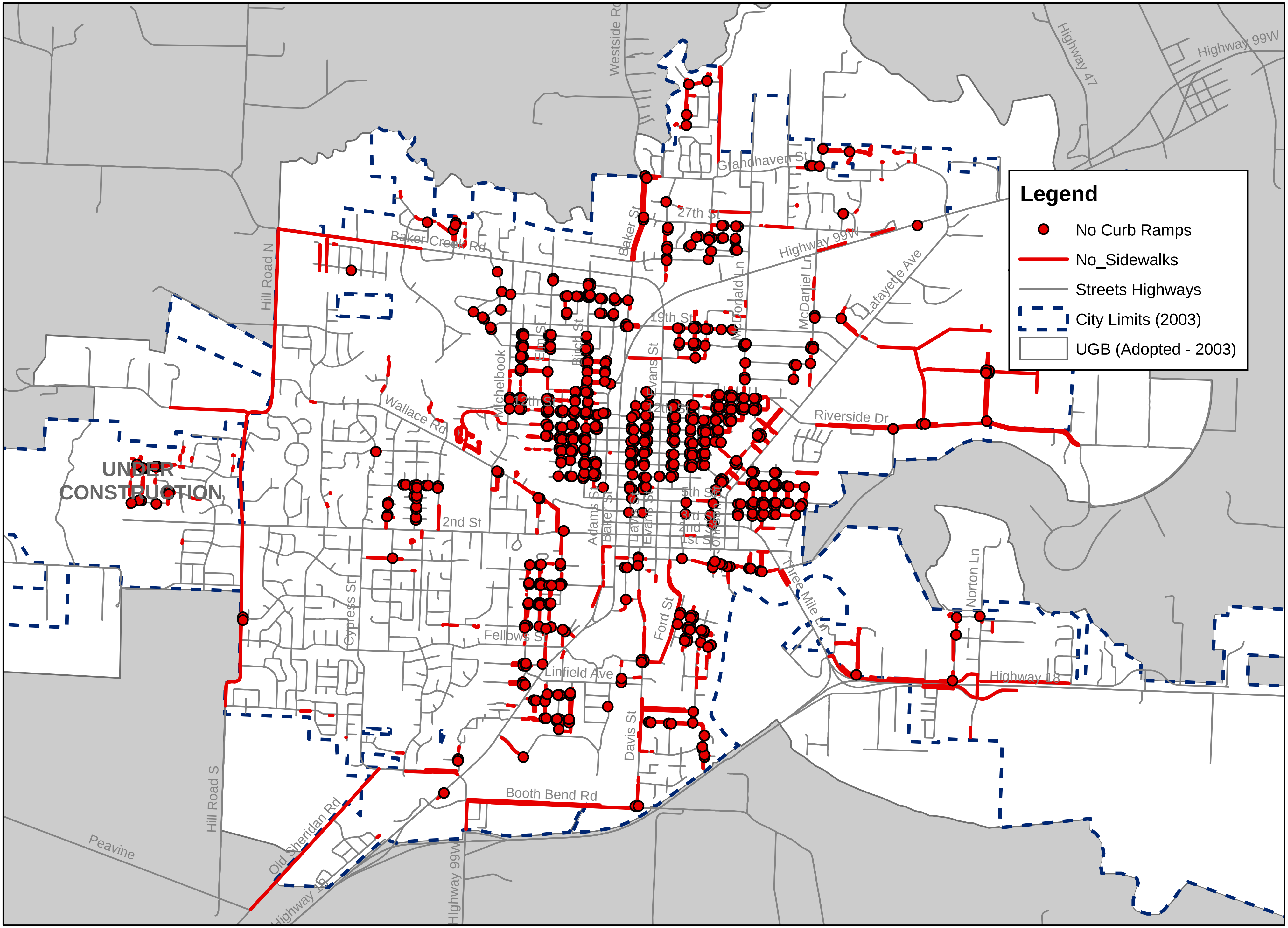
Exhibit 3-20



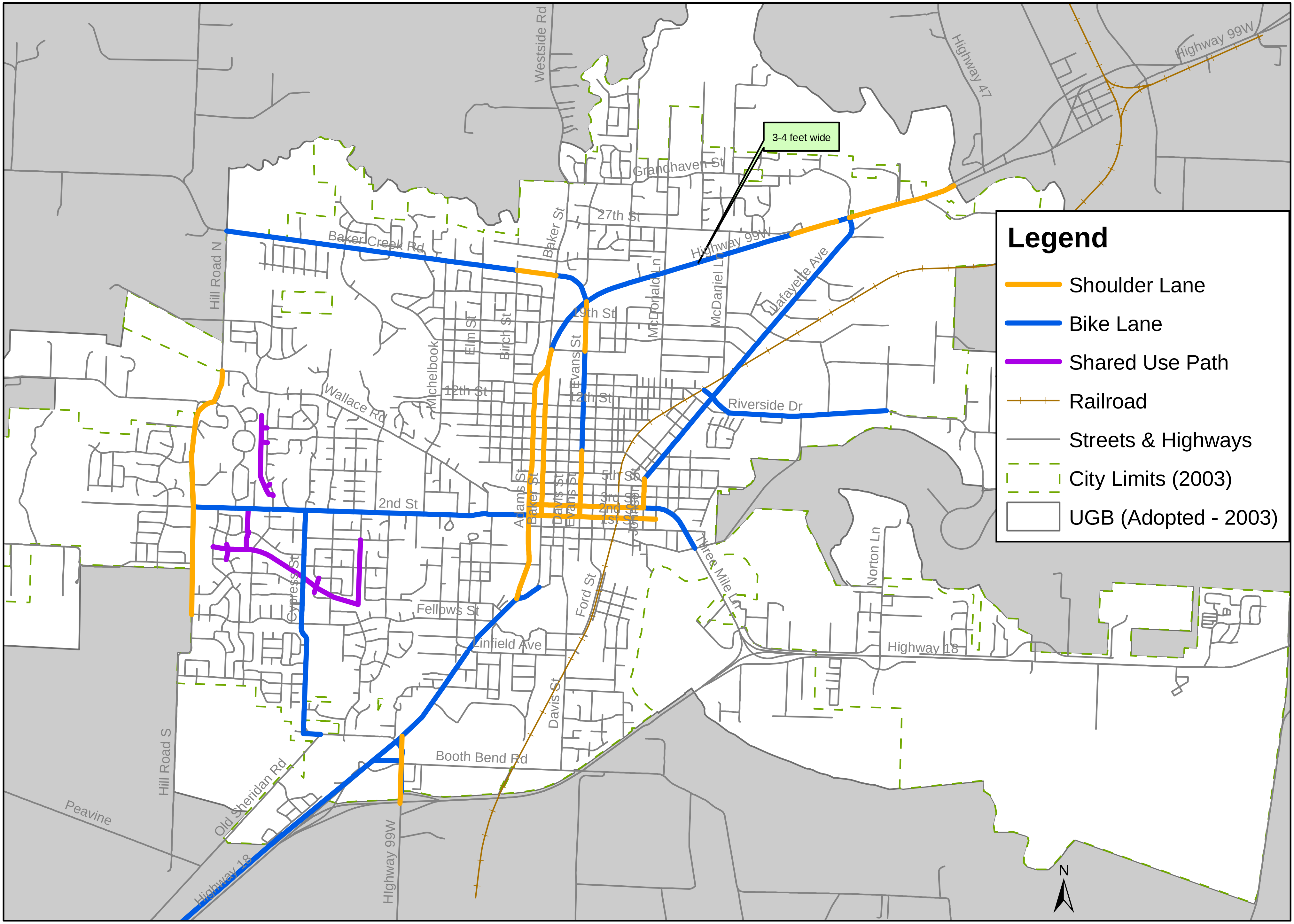
Missing Sidewalks and Curb Ramps

McMinnville TSP

CITY OF McMinnville OREGON

transpoGROUP

Exhibit 3-21



CITY OF McMinnville OREGON

Existing Bicycle Facilities

McMinnville TSP

transpoGROUP

Exhibit 3-22

[1] Exhibit 3-1 includes lands that are under appeal and not officially inside the McMinnville UGB; and include the assumptions and designations of the McMinnville Growth Management and Urbanization Plan and Highway 18 Corridor Plan.
[2] Oregon Department of Transportation (ODOT), Transportation System Planning Guidelines, 2001.
[3] ODOT TPAU report, 2007, source data from U.S. Census from 1990 Census Transportation Planning Package.
[4] U.S Bureau of Census, 2000 Journey to Work summary.
[5] McMinnville Pavement Condition Survey, Measurement Research Corporation, March 23, 2007.
[6] League of Oregon Cities: Investing in a Neglected Asset. Case Study and report to invest in Oregon's Municipal Street Infrastructure. March 2007.

Transportation System Plan

Chapter 4
Street System Plan

4 Street System Plan

McMinnville's streets and state highways provide the core system of circulation, access and connectivity for most all travelers within and through the city. These streets and highways facilitate the movement of freight, pedestrians, bicyclists, motorists, and transit passengers.

McMinnville's transportation goal (see Chapter 2) seeks efficiency and safety in the movement of *people* and goods. *Complete streets* are for all users, not just car and truck drivers. A well-defined street system then provides: (a) a pleasant and safe walking environment; (b) an easy-to-use transit system; (c) efficient bike routes; (d) effective incentives for carpools and vanpools; and, (f) a network of streets that moves people and goods efficiently throughout the City.


West Second Street

A street system that is inadequate or poorly maintained can retard the growth of a city and decrease the livability of the community.

The purpose of this chapter of the McMinnville TSP is to outline the characteristics of the existing street system and identify programs and projects that will be needed to preserve and enhance the street infrastructure. The following sections highlight McMinnville's Street System Plan of the TSP:

- Planning Principles,
- Street Physical Characteristics,
- Traffic Safety,
- Traffic Volumes and Level of Service,
- Street Maintenance,
- Bridge Conditions,
- Transportation System Management, and
- Future Capital Street Projects.

Street System Policies

In the formation of the McMinnville TSP, additional policies are identified as essential to the Plan's success. This section outlines a series of supplemental policies intended to help guide the Street System Plan. These are intended to complement the policies already included and summarized in Chapter 2 of the TSP.

Growth Management

- **Mobility standards** will be used to evaluate the transportation impacts of long term growth. The City should adopt the intersection mobility standards as noted in Chapter 2.

- **Conditions of Approval** - in accordance with the City's TSP and capital improvements plan (CIP), and based on the level of impact generated by a proposed development, conditions of approval applicable to a development application should include:
  - Improvement of on-site transportation facilities,
  - Improvement of off-site transportation facilities (as conditions of development approval), including those that create safety concerns, or those that increase a facility's operations beyond the City's mobility standards, and
  - Transportation Demand Management strategies.

- **Multi-modal Improvements** - to manage growth, improvements to transportation facilities may include both motorized and non-motorized facilities improvements, constructed in accordance with the City's minimum design standards.

- .**Transportation SDCs** - the City should update its transportation systems development charge (SDC) to address growth-related traffic impacts.

Circulation

- **Residential Street Network** - a safe and convenient network of residential streets should serve neighborhoods. When assessing the adequacy of local traffic circulation, the following considerations are of high priority:
  - Pedestrian circulation,
  - Enhancement of emergency vehicle access,
  - Reduction of emergency vehicle response times,
  - Reduction of speeds in neighborhoods, and
  - Mitigation of other neighborhood concerns such as safety, noise and aesthetics.

- **Limit Cul-de-Sacs** - cul-de-sac streets in new development should only be allowed when connecting neighborhood streets are not feasible due to existing land uses, topography, or other natural and physical constraints.

- **Limit Physical Barriers** - the City should limit the placement of facilities or physical barriers (such as buildings, utilities, and surface water management facilities) to allow for the future construction of streets that facilitate the establishment of a safe and efficient traffic circulation network.

- **Establish Truck Routes** - to support the efficient and safe movement of goods and freight, the City should establish and identify truck routes to the city's major destinations. Such routes should be located along arterial roadways and should avoid potential impacts on neighborhood streets. (see Chapter 8 – Truck Route Plan)

- **Modal Balance** - the improvement of roadway circulation must not impair the safe and efficient movement of pedestrians and bicycle traffic.

- **Consolidate Access -** efforts should be made to consolidate access points to properties along major arterial, minor arterial, and collector roadways.

Street Width – Human Scale

- Generally, a major arterial street should not be widened beyond two through lanes in each direction with auxiliary turn lanes as appropriate. Minor arterials and collector streets should not be widened beyond one through lane in each direction with auxiliary left-turn lanes as appropriate. Major arterial streets with more than five lanes and minor arterial and collector streets with more than three lanes are perceived as beyond the scale that is appropriate for McMinnville.

Neighborhood Traffic Management

- **Implementation** - the City should adopt and implement its Neighborhood Traffic Calming Program (see Appendix I).

- **Encourage Safety Enhancements** - in conjunction with residential street improvements, the City should encourage traffic and pedestrian safety improvements that may include, but are not limited to, the following safety and livability enhancements:
  - Traffic circles,
  - Painted or raised crosswalks (see also recommended crosswalk designation in Chapter 4),
  - Landscaping barriers between roadway and non-motorized uses,
  - Landscaping that promotes a residential atmosphere,
  - Sidewalks and trails, and
  - Dedicated bicycle lanes.

- **Limit Neighborhood Cut-Through Traffic** - local residential streets should be designed to prevent or discourage their use as shortcuts for through traffic. Local traffic control measures should be coordinated with the affected neighborhood.

Access Management

The City should continue to coordinate with ODOT in the administration of jointly adopted plans to manage access and highway improvements as noted in Chapter 2.

Impervious Surface Area

- **Supplement Street Design Standards -** McMinnville's standards should be supplemented to achieve reductions in impermeable surfaces, consistent with safety and operating standards. Innovative design and materials should be utilized to reduce impermeable surfaces.

Environmental Preservation

- **Low impact street** design, construction, and maintenance methods should be used first to avoid and second to minimize negative impacts related to water quality, air quality, and noise in neighborhoods.

- **Conservation -** streets should be located, designed, and improved in a manner that will conserve land, materials and energy. Impacts should be limited to the minimum necessary to achieve the transportation objective.

- **Clean Burning Fuels -** the City should support the use of clean burning and/or renewable fuels through regional organizations (see U.S. Environmental Protection Agency guides)[1].

Aesthetics

- The City should update and maintain its street design standards to increase aesthetics of the streets environment through landscaping and streetscape design.
- The City should consider the attendant cost of increased street aesthetics and maintenance.

Safety and Maintenance

- **Pavement Maintenance Plan Implementation -** the City should develop and implement its pavement maintenance plan to best preserve the existing transportation infrastructure.

Routine System Inspection - the City should promote safety through continued and routine inspection and rehabilitation of existing signage, roadway striping, and street lighting; identifying and rectifying existing deficiencies as they are identified.

Street Physical Characteristics

The physical characteristics of a McMinnville's street system provide the basis for their intended function and the amount of traffic that can be safely and efficiently accommodated by them each day. The street physical characteristics should be directly related to the functional classification of the street and should be reflected in the design standards. The following street characteristics are described in this section:

- Travel Lanes
- Traffic Signals
- Speed Limits

Other important street physical characteristics, such as sidewalks and bike lanes will be discussed in the Pedestrian and Bicycle System Plan chapters of the TSP.

Travel Lanes

The majority of streets in the City of McMinnville have one travel lane in each direction. *Major arterials* are state Highways 18 and 99W. Highway 99W has two lanes in each direction throughout the city, except for that section south of its intersection with Old Sheridan Road. Also, Highway 99W includes center left-turn lanes throughout the city, except for that section along the Adams Street/Baker Street one-way couplet. Highway 18 also has two lanes in each direction east of the Three-Mile Lane interchange, and only one lane in each direction west of the interchange.

Highway 99W: Major Arterial

The City's *minor arterials* include Baker Creek Road, Westside Road, Hill Road Lafayette Avenue, Old Sheridan Road and Booth Bend Road; all have one lane in each direction. Those minor arterials that have been improved to urban standards typically have a center left-turn lane.

Baker Creek Rd: Minor Arterial

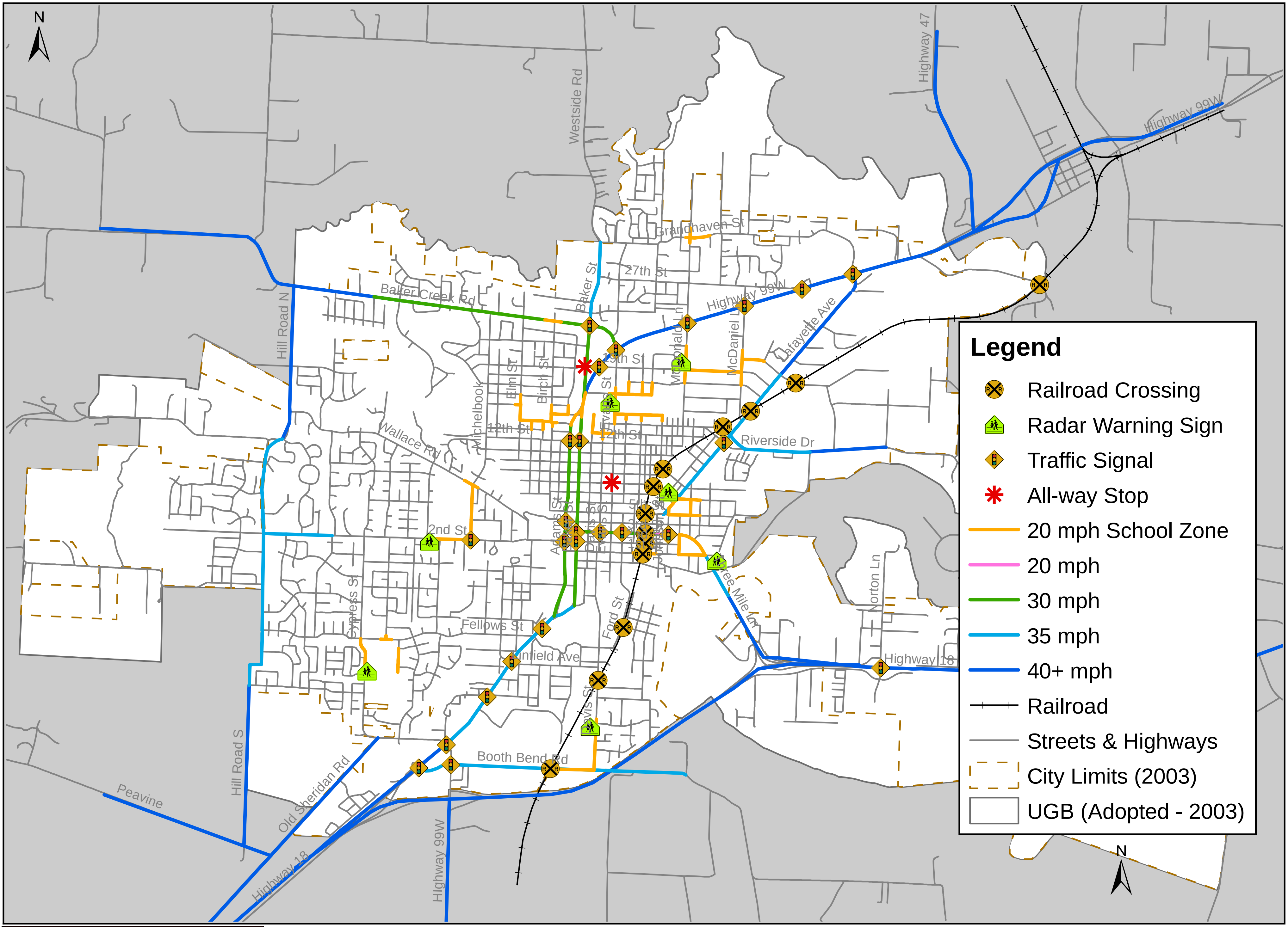
Each of the City's *major* and *minor collectors* has no more than one travel lane in each direction; some collector streets have center left-turn lanes.

Evans Street: Minor Collector

Traffic Signals

Exhibit 4-1 shows the locations of traffic signals and railroad crossings within McMinnville. Also shown in the exhibit are the location of the flashing beacon signals and radar warning signs used in conjunction with school zones.

The City has 25 traffic signals that are largely located along major and minor arterials, especially in the commercially zoned areas of the City. Where traffic signals are not shown at intersections, other signage exists to control traffic, including all-way stops, two-way stops, and yield signs



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Posted Speed Limit and Traffic Control

McMinnville TSP

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Exhibit 4-1

ODOT owns, maintains and operates the traffic signals on state highways within McMinnville. In an inter-local agreement the City of McMinnville contracts with ODOT to maintain and operate traffic signals on the City's street system.


Traffic Signal on Hwy 99W at Lafayette

Speed Limits

Posted speed limits within the city range from 55 mph on the state highways at the urban periphery to 25 mph on local streets. As shown in **Exhibit 4-1**, several streets within school zones are marked for 20 mph during school hours (7 am – 5 pm), as is Third Street in the downtown area. Collector streets such as Evans Street and Wallace Road typically are posted at 25 mph. Minor arterials are posted with speed limits ranging from 30-35 mph in the core area, and sometimes 40 mph at the urban periphery.

State highways have the highest speed limits, up to 55 mph along Highway 18 as it enters the city from the east and west. Highway 99W posted speed limits range from 30 mph to 55 mph.

Traffic Safety

Traffic safety is an important factor in examining possible street and intersection improvements. For the City of McMinnville, traffic safety was evaluated for major state highway intersections over a five year period, from 2000 to 2005. Data was obtained from ODOT based only on information for those collisions reported to the City and State Highway Patrol. These data include pedestrian and bicycle crash information throughout the city and vehicle crash information for state highway facilities (major arterials) only. Vehicle crash data on McMinnville streets was unavailable for the TSP evaluation. The following safety data are discussed in this section:

- Fatalities
- ODOT Safety Priority Index System
- Pedestrian and Bicycle Accidents

Fatalities

During the years 2000 to 2005, two traffic-related fatalities occurred within the city, both on Highway 99W: one near Doran Drive in east McMinnville, and the other at the intersection of Booth Bend Road. Neither of the two fatality crashes were related to underlying traffic control or street design issues.

Safety Priority Index System (SPIS) Sites

ODOT's Traffic Management Section maintains a Safety Priority Index System (SPIS) to identity locations with safety problems due to the crash frequency, rate, and severity at the site. The SPIS takes into account crash data for the past three years and rates highway segments based on crash frequency, crash rate, and crash severity. A review of the current SPIS list showed that eight state highway segments within the McMinnville UGB fall within the top ten percent SPIS group; all eight segments are located on Highway 99W. These SPIS segments are summarized in **Exhibit 4-2**.

Exhibit 4-2 Safety Priority Index – OR 99W: 2005-2007

	Milepost	
Key intersection(s)	**From**	**To**
Wal-Mart Shopping Entrance	35.6	35.8
McDaniel Street	36.0	36.15
McDonald Lane	36.3	36.5
Baker Cr Rd – 19th Street	36.6	36.8
14th Street to 10th Street	37.2	37.3
4th Street to 1st Street	37.7	37.9
Fellows Street	38.2	38.3
Booth Bend Rd – Hwy 18 Ramp	39.0	39.15

Data Source: ODOT SPIS Report, 2008.

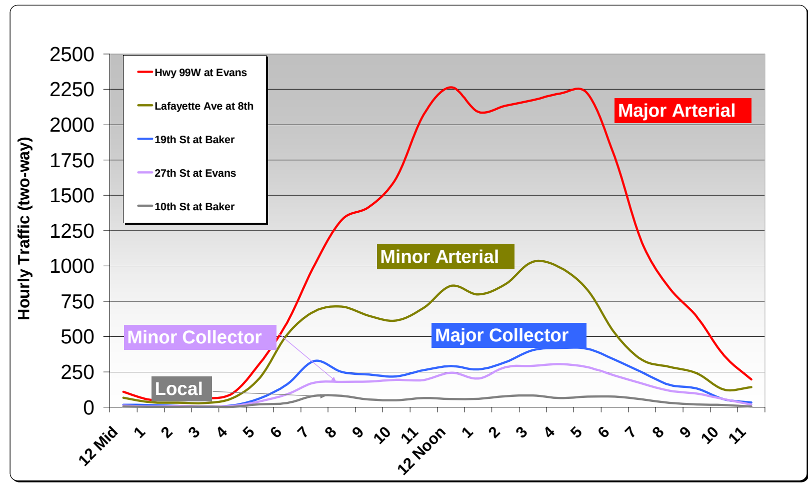
Pedestrian and Bicycle Collisions

Pedestrian and bicycle collisions have occurred at several locations within the city between 2000 and 2005. **Exhibit 4-3** illustrates the location of vehicle accidents along the state highways (2005-2007) and the location of pedestrian and bicycle crashes within McMinnville (2000-2005).

Non-motorized crashes are found in several locations: in some areas with missing sidewalk and bicycle facilities; and, in other areas along collector and arterial streets where non-motorized facilities are present but there are higher levels of mixed and crossing traffic. Specific crash rates were not calculated for every city street segment or intersection in McMinnville due to limited data. With limited data it is difficult to assess whether some McMinnville street segments are prone to higher crash rates. However, the C*omplete Street*, bicycle system and pedestrian system improvements noted in this and following chapters of the TSP are partially defined to help reduce the incidence of vehicle and non-motorized crashes.

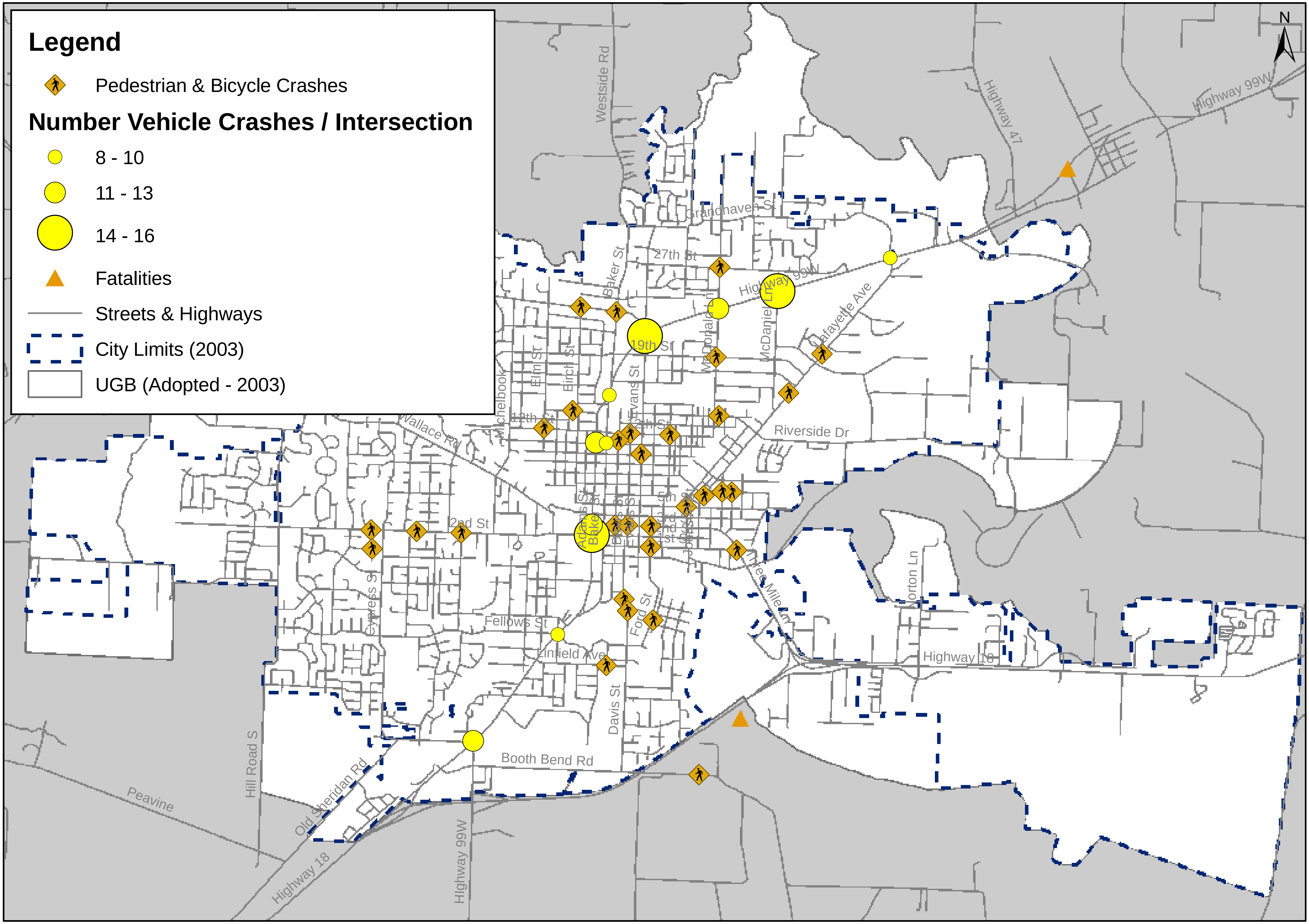
Traffic Volumes

Traffic volume varies throughout McMinnville depending on the time, location and street type. Existing weekday daily traffic volumes from selected streets are shown here to illustrate the variation in traffic. As shown, morning, mid-day and afternoon peak conditions are typical, more so pronounced on McMinnville's arterial streets.



2006 Weekday PM Peak Hour Traffic Volumes

The *late-afternoon peak period* typically occurs between 4 and 6 PM. Within the PM peak period the highest hourly traffic volume usually occurs, referred to as the *PM peak hour*. For the purpose of the TSP, the PM peak hour is used to evaluate traffic operations and capacity at McMinnville's major street intersections. PM peak hour turn-volume counts were collected manually at 47 intersections in March 2006, supplemented by another set of counts at 13 additional intersections in November 2006. These later counts were used to help supplement the ODOT Travel Demand Model development. A summary of existing PM peak hour traffic in McMinnville is included in **Exhibit 4-4**.



Traffic Accident History: 2000-2005 (data source: ODOT)

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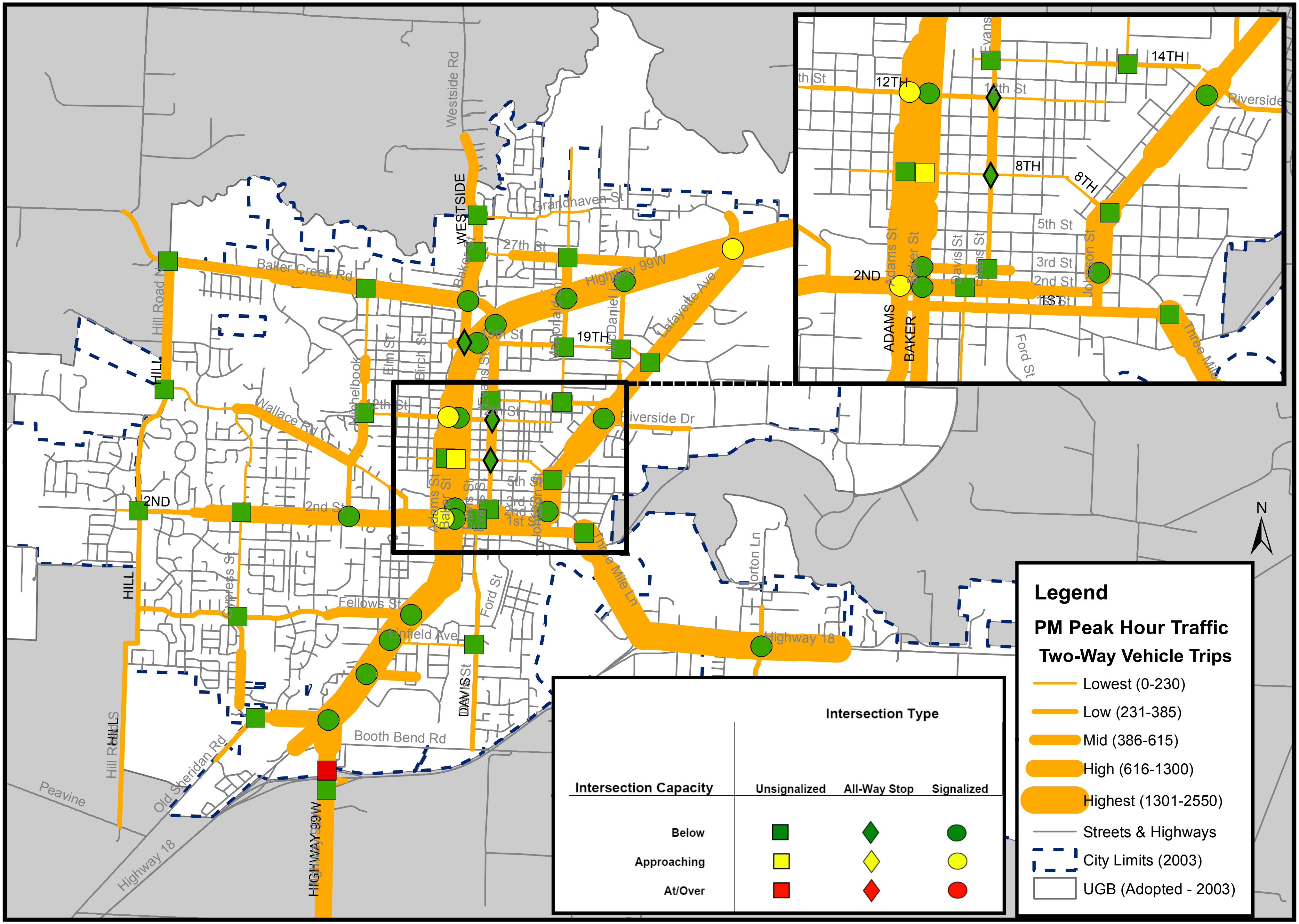
Exhibit 4-3



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2006 PM Peak Hour Traffic and Level of Service

McMinnville TSP

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Exhibit 4-4

McMinnville's PM peak hour traffic volumes account for between 8 to 12 percent of the daily traffic along most major streets. Intuitively, the heaviest peak hour traffic occurs along state Highways 99W and 18. Significant peak hour traffic is also found on McMinnville's arterial streets, notably Lafayette Avenue, Baker Street, West Second Street and Old Sheridan Road.

Based on the mobility standards identified in Chapter 2, the volume-to-capacity (V/C) ratio was calculated for each of the major intersections (both signalized and unsignalized intersections) in McMinnville. The summary of these v/c calculations is also included in **Exhibit 4-4**.

As shown, most all of the study area intersections are operating better than the McMinnville and ODOT mobility standards. There are some exceptions: (1) traffic along the Adams/Baker Street corridor are approaching capacity thresholds, particularly at West Second Street, 8th Street and 12th Street, and (2) current peak hour traffic volumes exceed capacity at the intersection of Highway 99W and the Highway 18 westbound off-ramp.

Appendix C includes a more detailed summary of McMinnville's intersection performance measures.

2023 PM Peak Hour Traffic Volumes

As noted in Chapter 3, for consistency with the city's UGB evaluation, a twenty-year planning horizon of 2003-2023 serves as the basis for the TSP evaluation of future travel conditions. Year 2023 PM peak hour volumes were estimated based on the ODOT Travel Demand Model as summarized in Chapter 3.

By year 2023 traffic volumes increase on most corridors throughout the City, with some notable exceptions of heavier traffic growth on (1) Highway 18, between Norton Lane and Highway 99W; and on (2) Highway 99W and Old Sheridan Road in southwest McMinnville.

There are a few intersections that exceed the city and state mobility standards in year 2023. See Capital Street Projects section below for discussion of projects that mitigate future deficiencies.

Appendix C includes a detailed summary of future year (2023) performance measures at critical intersections within the McMinnville UGB.

Maintenance

Maintenance is vitally important to the function, life-span, quality, and long-term user costs of streets, intersections, and other infrastructure components. Poorly maintained streets cost more to fix in the long run and degrade safety. Poorly maintained traffic signs and signals can increase the frequency of crashes and increase delay. Maintenance costs cover such things as sign replacements, vegetation removal, pothole repair, crack seals, surface seals, or overlays, and street reconstruction.

Maintenance can also improve conditions for pedestrians and cyclists as cracks and upheavals in sidewalks are repaired and streets are swept and kept clear of debris. More pedestrians and/or cyclists are likely to use streets and sidewalks that are properly maintained, safe, and attractive thereby reducing vehicular traffic.

As noted in Chapter 3, however, the City is unable to fund its street preservation program at levels necessary to maintain desired system condition (good). To maintain and preserve the existing infrastructure in a cost-effective manner, the City will need to increase its funding of the street maintenance program.

Bridge Conditions

Seventeen bridges serve McMinnville and the roads leading into the city. Thirteen of these bridges are located on state highways and are owned and maintained by ODOT. The other four bridges are owned and maintained by Yamhill County. Four of the state-owned bridges are located along OR 99W and the other eight are located along OR 18. The four county-owned bridges are located on:

- Old Sheridan Road - Cozine Creek
- Hill Road S – Cozine Creek
- Baker Creek Road* – Baker Creek
- West Side Road* – Baker Creek

[*Note: The West Side Road and Baker Creek Road bridges were replaced in 2007.]

ODOT regularly rates the state and county bridges. Bridge ratings are based on three mutually exclusive elements: structural deficiency, functional obsolescence, and sufficiency (ability to meet service demand). See **Appendix C** for a complete description of ODOT's bridge rating program and the most recent ratings for McMinnville area bridges.

One state highway bridge in the study area is rated *structurally deficient*:

- Three Mile Lane over the South Yamhill River

Yamhill River Bridge

Old Sheridan Road Bridge

Six state highway bridges area rated *functionally obsolete*:

- OR 99W over the North Yamhill River
- OR 99W over OR 18
- OR 18 over the Union Pacific Rail Road
- Booth Bend Road over OR 18
- OR 18 connection at milepost 44.06 (Bridge #08950)
- OR 18 spur at milepost 46.35 (Bridge #08951)

One county bridge has been identified as *functionally obsolete*:

- Old Sheridan Road over Cozine Creek

Equally important to the overall structural integrity of these bridges are the facilities to accommodate safe and efficient travel for bicyclists and pedestrians. Sidewalks on the Three Mile Lane bridge are insufficiently wide to accommodate two-way pedestrian traffic, and there is insufficient buffering between the raised sidewalk and nearby vehicular traffic. The bridge is also too narrow to accommodate bicycle lanes.

The Old Sheridan Road bridge over Cozine Creek lacks both sidewalks and bike lanes.

Transportation System Management

Transportation System Management (TSM) programs are designed to increase the usefulness and efficiency of existing facilities and systems through low cost improvements. TSM programs fitting McMinnville's needs include: traffic signal timing and coordination projects and neighborhood traffic calming program. Each TSM measure or program is discussed in this section.

Traffic Signal Timing and Coordination

Traffic signal systems must be retimed or upgraded periodically as growth occurs to ensure optimal operations at intersections, improve safety, meet city standards, and refresh or replace software.

In partial response to higher accident rates on Highway 99W at the McDonald Street and McDaniel Lane intersections, ODOT has programmed in its Statewide Transportation Improvement Program (STIP) for year 2010 the installation of median traffic separators and traffic signal interconnect equipment to better coordinate the two existing traffic signals. The City of McMinnville is also underway with re-designing the 3rd Street/Johnson Street traffic signal to better accommodate emerging traffic trends.

The City should coordinate with ODOT and encourage State assistance in the expansion of ODOT's new signal interconnect system for Highway 99W in the following sections:

- **One-way couplet** section along Adams and Baker Streets, between 2nd Street and 12th Street; *integrated with the City's downtown street signals on 3rd Street and new signals proposed on 5th Street (at Adams, Baker and Lafayette) and 2nd Street (at Davis)*
- **South McMinnville** – between new signal at the Highway 18 off-ramp to Fellows Drive

The City and ODOT should conduct further assessment to determine if these signal systems best work independently or as a single system.

Traffic Signal at 3rd & Johnson

The signal system upgrades and re-timings will help reduce traffic delay, improve operations, and increase safety for motorists and pedestrians. Reduced delay will also save motorists time, reduce fuel consumption, and reduce pollution and harmful particulate matter. Improvements to the communication equipment will aid traffic operations and vehicle detection.

The City of McMinnville should continue to coordinate with ODOT and review signals and signal timing plans and put in place a plan whereby signals are evaluated on a regular basis.

Intersection & Signal Improvements

Some of McMinnville's street corridors require minor improvements with new traffic signal control to help reduce congestion and vehicle emissions and increase safety. Intersection improvements can help reduce traffic delay at major cross-streets and relieve street system queuing and vehicle emissions, and improve pedestrian access.

Based on continued city-wide traffic growth, new traffic signals are either already warranted or likely to meet future warrants at the following intersections:

- Lafayette / Orchard (planned for completion in 2009)
- 5th Street at Adams (2010) and Baker (2010)
- 2nd Street / Davis Street (2013)
- Baker Creek Rd at Michelbook (2023) and Hill Rd (2023)
- Wallace Rd / Hill Rd (2023)
- West 2nd Street at Hill Rd (2023) and Cypress (2023)

- Old Sheridan Rd / Cypress (2023)
- 5th Street at Lafayette (2010) and Evans Street (2023)

See **Appendix C** for Traffic Signal Warrant Analyses.

Energy-Efficient Traffic Signals

In all new traffic signal construction or signal replacement, McMinnville should consider use of energy-efficient light emitting diode (LED) traffic signals. While the original costs of LED signals are slightly more than traditional incandescent halogen signals, LED signals (1) are brighter, (2) last longer, hence have lower maintenance costs, and (3) require lower energy use, hence have lower energy costs. The City's downtown signals should be replaced, and are also subject to design upgrades consistent with the Third Street Streetscape Plan recommendations (see Chapter 5). McMinnville should also coordinate with ODOT to ensure LED fixtures are included on all ODOT projects.

Central Traffic Signal System Control

A central traffic signal system control program will better enable the State and City to remotely monitor changing traffic conditions and adjust the signal control system to reduce traffic delay and emissions. McMinnville should coordinate with ODOT and install a central traffic signal system control program that links the State's existing signals along Highway 99W with new and existing signals in downtown McMinnville and along Adams and Baker Streets. The central system will require a new systems computer, interconnecting communications hardware, observation cameras, and new traffic signal controller hardware and software. The installation of new fiber-optic communications can be coordinated as TSP street project improvements are constructed (e.g. 5th Street and Adams-Baker Street reconstruction, and 3rd Street streetscape improvements) - see Capital Improvements section below.

Neighborhood Traffic Calming Program

McMinnville drafted its Neighborhood Traffic Calming Program (NTCP) in 2006[2]. The Program outlines policies and procedures by which problem areas are studied and possible neighborhood traffic calming measures are identified and applied as warranted by the findings of the study. This program is primarily focused on neighborhood/local streets rather than arterials or collector streets.

The City's draft NTMP includes three major types of traffic calming devices:

New Traffic Calming on Meadows Dr

- Vertical Deflection - techniques include speed humps, and are the most commonly used method of traffic calming. Vertical devices cause drivers to slow down by altering the surface of the roadway, making high-speed travel unpleasant.
- Horizontal Deflection - devices protrude into the street from the curb or the median, forcing drivers to alter their paths. In addition to slowing drivers, horizontal traffic calming can increase the visibility of pedestrians and keep drivers attentive.
- Obstruction – used to restrict automobiles from making certain movements, and can sometimes be used to close a street segment entirely.

These devices can sometimes be combined to address a variety of neighborhood traffic problems. McMinnville's NTCP will become an increasingly more important and popular program as traffic congestion increases on area arterial and collector

Desire for Traffic Calming

streets, which may cause diversion of some traffic onto neighborhood streets.

It is recommended that the draft NTCP be adopted as part of the TSP. See **Appendix I** for full documentation of the draft McMinnville NTCP.

Capital Street Projects

McMinnville's Capital Improvement Plan (CIP) is based on the evaluation of existing and forecast traffic volumes and operations, safety, street functional classification and physical characteristics, and connectivity issues. The CIP includes a list of projects and programs to improve the overall safety and efficiency of McMinnville's transportation system and meet the demands placed on the system by future growth (see Exhibit 4-5). **Exhibit 4-6** illustrates the location of each of the proposed projects. The projects are organized into the following categories:

- Complete Street Projects
- Intersection and Signal Improvements
- Pedestrian/Bicycle System Improvements (see Chapters 5/6)
- ODOT Programming Coordination

Summaries of the major projects are described below, while detailed descriptions of each are provided in **Appendix D**. Also included in Appendix D are the planning-level unit cost assumptions used to quantify the TSP cost estimates.

Complete Street Projects

Major street improvement projects were identified based on the need to support anticipated growth through the upgrade of rural roads to urban arterial and collector street standards set by the City of McMinnville. Termed "complete streets," these projects do not add vehicle travel lanes; rather they are redesigned to increase public safety and facilitate walking and bicycling along key routes by better separation of non-motorized and motorized travel. Key complete street improvement projects include Hill Road, Old Sheridan Road, Booth Bend Road, Westside Road and Riverside Drive. See **Appendix D** for detailed summaries of each project.

Hill Road

Hill Road is a minor arterial that connects west McMinnville with the primary east-west routes, each with linkages to central McMinnville. Hill Road remains a County facility. McMinnville School District is planning to site a new elementary school and high school along Hill Road. Today there are no sidewalks or bicycle lanes on Hill Road. Hill Road improvements are separated into two major sections, one north of West 2nd Street, and the other to the south.

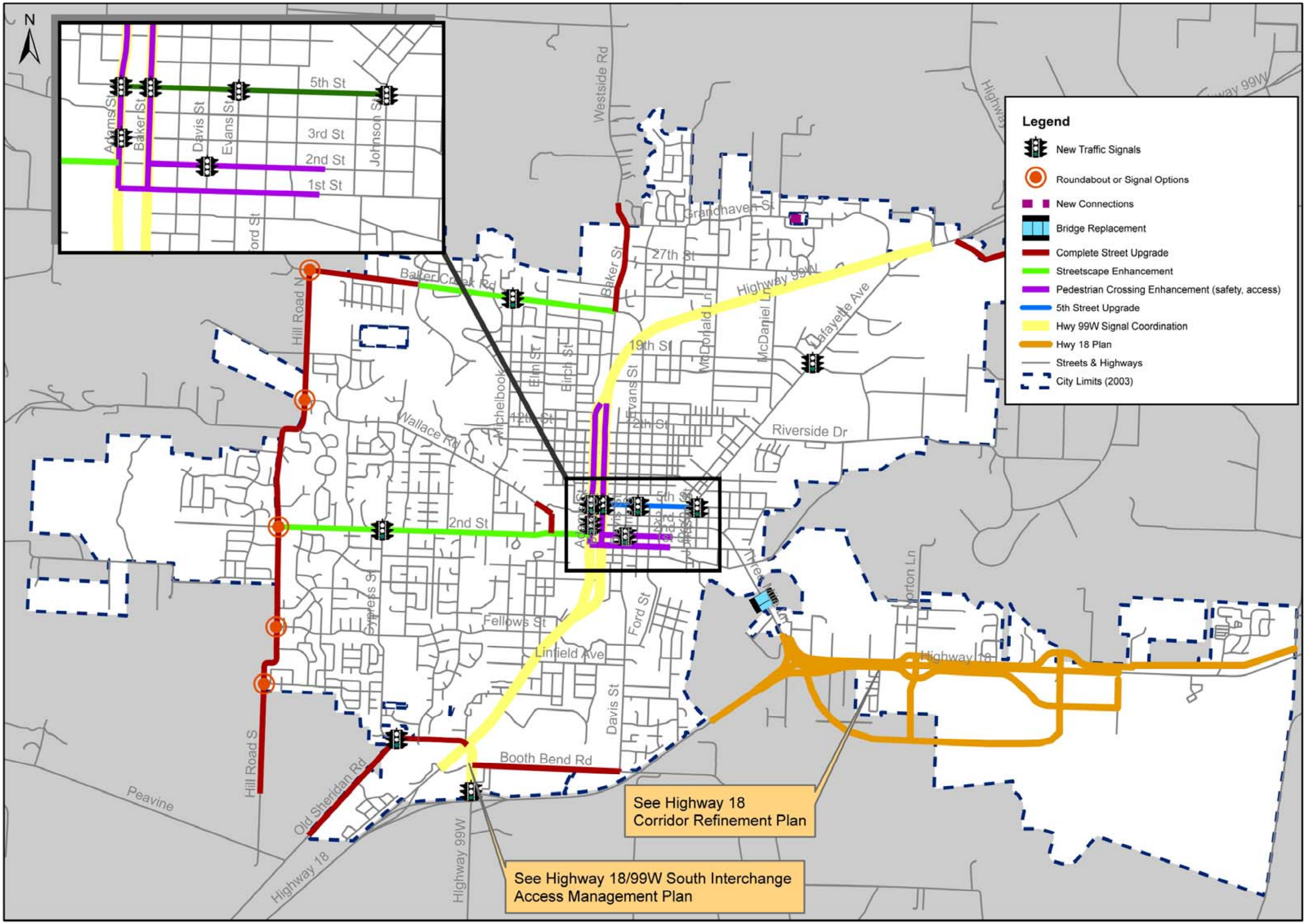
North Hill Road

The intersection of Hill Road and Baker Creek Road acts as a transitional junction between higher speed rural traffic and urban traffic within the city. Just south of Wallace Road, there is a relatively sharp "s" curve at Hillside Road. The city and county have coordinated plans to flatten this section of Hill Road. With growth in future traffic additional traffic control will be warranted at the intersections of Hill Road at Baker Creek Road, Wallace Road and West Second Street.

The City should consider alternative intersection traffic control at these locations as part of its future corridor designs. Roundabouts will likely provide a better rural-to-urban transition design than a traditional traffic signal at these junctions by allowing more continuous moderation of vehicular speeds. A roundabout at Hill Road and Baker Creek Road can also serve as a gateway design treatment and entrance to McMinnville's current edge of urban development. Use of a series of roundabouts can also help minimize the need for extra right-of-way that is taken by the more traditional arterial street, which often requires a continuous, center left-turn lane. Conversely, roundabouts sometimes require more rights-of-way at street intersection points than signal-controlled intersections. Examination of final rights-of-way needs at these Hill Road intersections will be required through the preliminary engineering stage of project development.

Exhibit 4-5 McMinnville Capital Improvement Plan Project List

CAPITAL IMPROVEMENT PROJECTS					USER									COST	PARTNERSHIP					
			Traffic Signals		Need					Benefit					City					
Street	From	To	New	Modify / Replace	Safety	Capacity	Access	Operations	Freight	Auto	Pedestrian	Bicycle	Transit		General	SDC	Private	Grant	County	State
Complete Streets																				
2nd Street	Adams	Cowls		2	+	+	+	+						$1,097,000	✖	✖		✖		
5th Street	Hwy 99W	Lafayette	4	1	+	+	+	+						$1,203,500	✖	✖				
Baker Creek	North Baker	Hill Rd	1		+	+	+	+	+					$414,000	✖	✖				
Booth Bend Road	Hwy 99W	School Site			+	+	+	+	+					$2,850,000	✖	✖	✖			
North Baker Street	24th Street	Burnett			+	+	+	+						$801,800	✖	✖			✖	
Hill Road - North	2nd Street	Baker Cr Rd			+	+	+	+						$5,817,400	✖	✖			✖	
Hill Road - South	Alexandria	2nd Street			+	+	+	+						$3,675,000	✖	✖			✖	
Old Sheridan Road	Cypress	Hwy 99W	1		+	+	+	+						$2,371,400	✖	✖		✖	✖	
Riverside Drive	Hwy 99W	RR Crossing			+	+	+	+	+					$2,911,100	✖	✖				
3rd Street Streetscape				1	+		+	+						$2,325,000	✖		✖	✖		
Systems Management																				
Central Traffic Signal System Control	**Hwy 99W & central city**		system		+	+		+	+					$640,400		✖		✖		✖
Bicycle System																				
Bike Lane Signing/Striping	System				+	+		+						$237,500	✖			✖		
Bike "Sharrow" Signing/Striping	System				+	+		+						$312,000	✖			✖		
Pedestrian System																				
1st and 2nd Street Pedestrian Crossings	1st	Johnson	1		+	+	+	+						$996,500	✖		✖	✖		
Curb Ramp Program	System				+	+	+	+						$1,765,000	✖		✖	✖		
New Priority Sidewalks	System				+	+	+	+						$6,415,200	✖		✖	✖		
					TOTAL COST									**$33,832,800**						
											Primary									
											Secondary									
ODOT Program Coordination			*Current State Transportation Improvement Program?*																	
Hwy 99W/McDonald & McDaniel Signal Replacement				yes	+	+	+	+	+					funded						✖
Yamhill River Bridge Replacement				no	+	+	+	+	+					$8,778,000						✖
Adams/Baker One-Way Couplet (Hwy 99W) Reconstruction				no	+	+	+	+	+					$745,800				✖		✖
Highway 18/99W South Interchange Access Management Plan				no	+	+	+	+	+					$3,112,600		✖	✖			✖
Highway 18 Corridor Plan				no	+	+	+	+	+					$25,500,000		✖	✖			✖



CITY OF McMinnville OREGON

TSP Projects and Programs

McMinnville TSP

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Exhibit 4-6

The roundabout corridor design option would include on-street bicycle lanes and sidewalks along both sides of Hill Road. **Exhibits 4-7** and **4-8** compare the two typical corridor designs.

<u>South Hill Road</u>

For consistency, South Hill Road should be designed to match plans for North Hill Road. Based on the level of anticipated traffic growth and in the future, South Hill Road will also need to function as a transitioning link between rural and urban traffic speeds. The intersection of South Hill Road and Fellows Street will serve as a good entry point and placement of a complementary roundabout. In addition, the "S curve on Hill Road just south of Fellows Street should be fitted with traffic calming designs to improve safety but maintain appropriate urban arterial speeds (30-35 mph).

South Hill Road

Old Sheridan Road

Old Sheridan Road is an important east-west route linking SW McMinnville to Highway 99W. It presently lacks sidewalks in critical sections, especially across Cozine Creek, and lacks bike lanes that provide an important link for bicyclists traveling between Cypress Street and Highway 99W. This project includes the reconstruction of Old Sheridan Road to urban minor arterial standards, with bike lanes and sidewalks on both sides of the street, and a new traffic signal at Cypress Street. The project also includes the replacement of the Cozine Creek bridge, which is in very poor condition (see below).

Old Sheridan Road

Booth Bend Road

On the south side of McMinnville, Booth Bend Road provides the key east-west connection linking Davis Street and Highway 99W. With the exception of that section located in front of Sue Buel elementary school, there are no sidewalks on Booth Bend Road. This project includes the reconstruction of Booth Bend Road to urban minor arterial standards, with bike lanes and sidewalks on both sides of the street. The project includes the replacement of the existing Union Pacific Rail Road crossing with standard traffic control and pedestrian facilities.

Booth Bend Road

North Baker Street

North Baker Street is a key north-south corridor that links north McMinnville neighborhoods to the rest of the city and serves as a northern entry point to the city from Westside Road. It, too, lacks sidewalks and bike lanes. Future improvements to North Baker Street, north of 25th Street to Burnett Street,

North Baker Street

Exhibit 4-7 Traditional Traffic Control Corridor

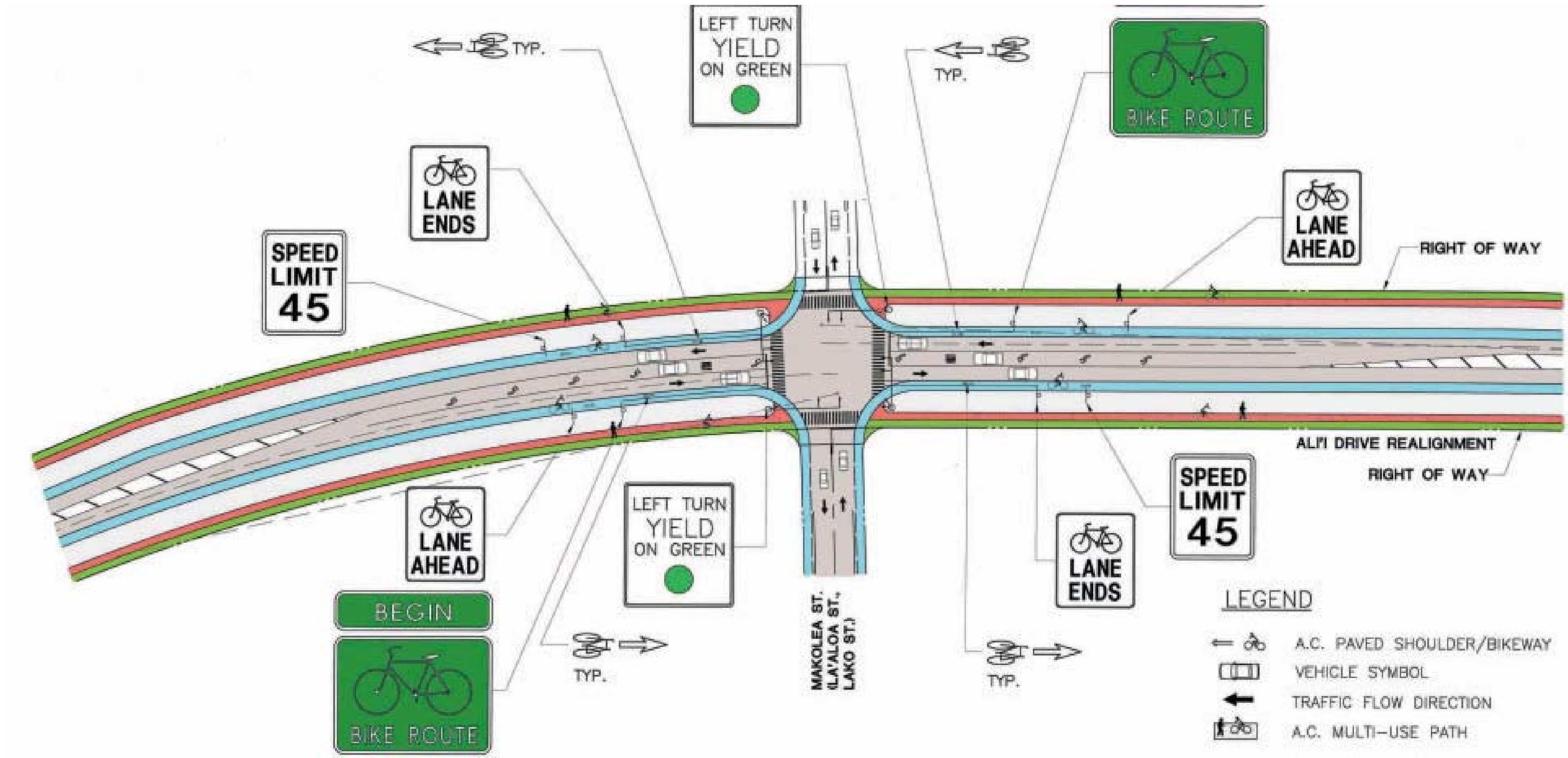
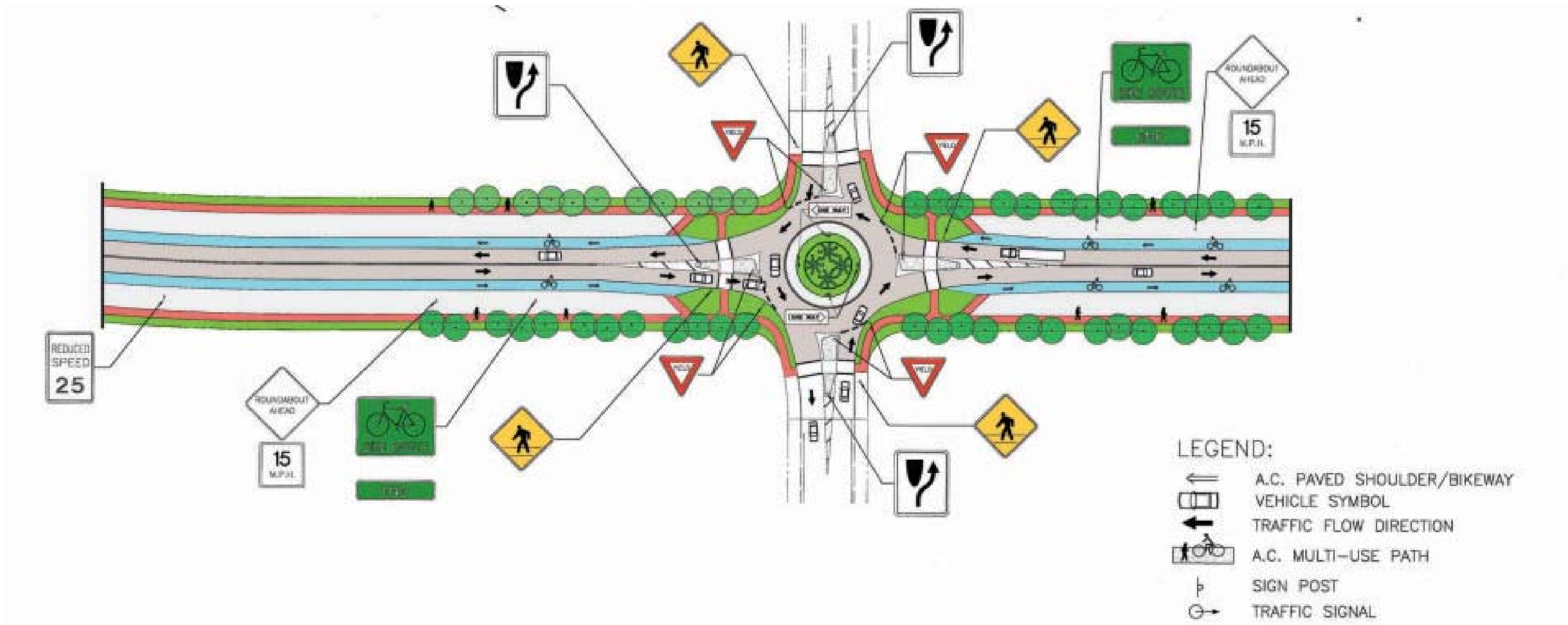


Exhibit 4-8 Roundabout Control Corridor



should include on-street bike lanes and sidewalks to minor arterial street standards.

Riverside Drive

North of the Union Pacific Rail Road crossing, Riverside Drive is currently insufficient in depth and width to function safely and efficiently as an urban industrial connector to the McMinnville industrial area. This project includes reconstruction of Riverside Drive to industrial collector street standards, with bicycle lanes and sidewalks, replacement of the railroad crossing to State standard, and re-alignment to Highway 99W.

Riverside Drive

As part of a future design, the re-alignment of Riverside Drive with Highway 99W will need to consider the possibility of disconnecting the existing local access to Highway 99W, while considering the proximity to the Yamhill River bridgeheads, and the requirements for adequate left-turn lane refuge for southbound Highway 99W traffic turning left onto Riverside Drive.

As lands continue to develop in the north, west and south portions of McMinnville, these complete street improvement projects will be needed to provide important improvements to best separate motorized and non-motorized traffic (safety), and make important pedestrian and bicycle connections (capacity and circulation).

ODOT Programming Coordination

Highway 18/99W Improvements – South McMinnville

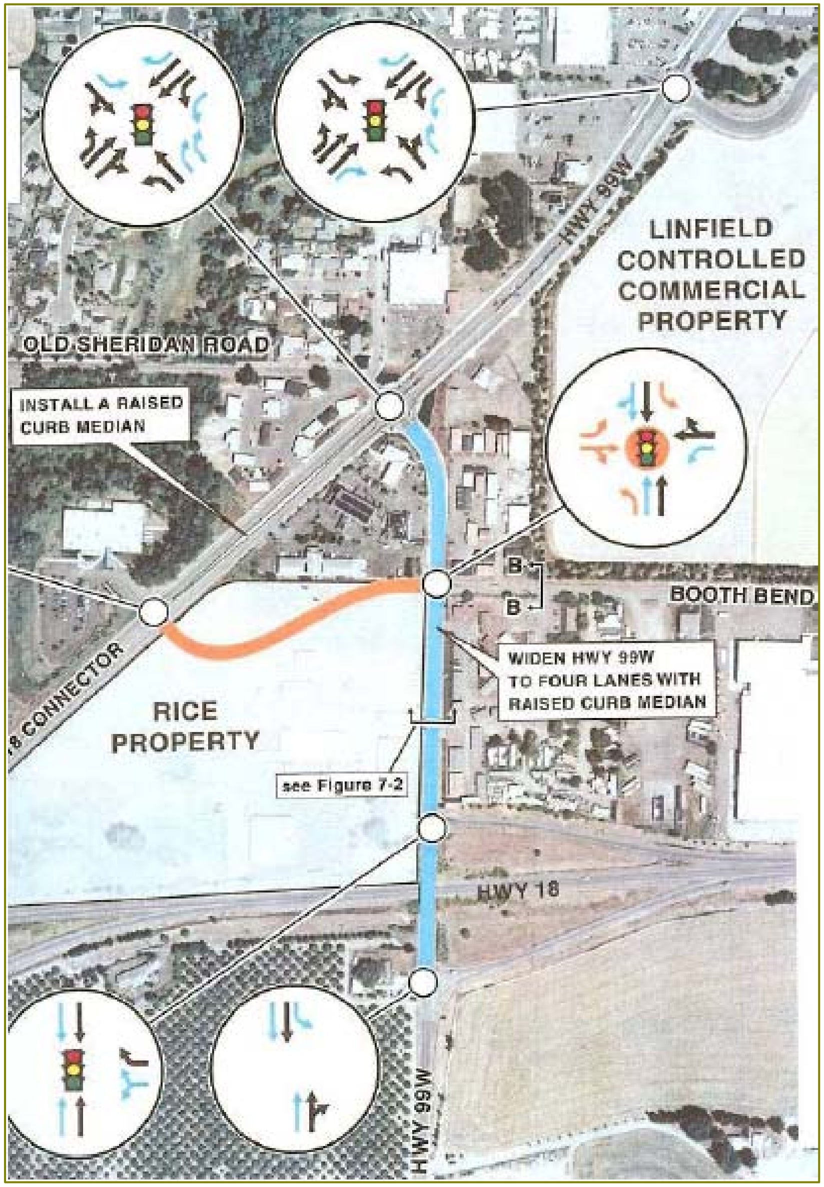
The City and ODOT have mutually developed and adopted the Highway 18/99W South Interchange Access Management Plan[3] for that section of Highway 99W south of the Old Sheridan Road intersection. The plan, as summarized in **Exhibit 4-9**, outlines access policy and project revisions for Highway 99W, and a series of short- and long-range highway and intersection improvements to be made in conjunction with development of the remaining portion of the Lowe's and Linfield commercial properties, and other adjacent properties.

As shown here, long-term improvements to Highway 99W in this area include:

- Widening Highway 99W for additional travel lanes, bike lanes and sidewalks
- Modification to existing Highway 99W / Old Sheridan Road intersection to include additional turn lanes and signal replacement
- Modification to existing Highway 99W / Booth Bend Road to include additional turn lanes and signal replacement
- Replacement of the Highway 18 over-crossing, to accommodate separate southbound left-turn lanes, sidewalks and bike lanes
- New traffic signal at Highway 18 Westbound off-ramp

Highway 99W at Highway 18

Exhibit 4-9 Highway 18/99W Plan



Oregon Highway 18 (McMinnville) Corridor Refinement Plan

ODOT, the City of McMinnville and Yamhill County have mutually approved the *Highway 18 Corridor Refinement Plan,* which was completed in 1996. The Plan includes a series of traffic control and frontage roads improvements north and south of Highway 18, to include closing of the existing Norton Lane intersection, construction of a new interchange near the Evergreen Air Museum, and redesign of the current East McMinnville (Three Mile Lane) interchange for full, directional access.

Some frontage road improvements have been completed since the 1996 Plan was adopted. **Exhibit 4-10** illustrates the current state of the Plan. It is important to note, however, that the northernmost collector access road depicted in the Highway 18 Corridor Refinement Plan is not shown in the TSP due to the fact that it is located outside of McMinnville's current urban growth boundary. Under Oregon Administrative Rule (OAR 660-012), transportation facilities outside of urban growth boundaries are not permitted as part of a TSP unless a "reasons" exception to the applicable goal(s) has been approved by the City. In this case, McMinnville finds such action premature due to the lack of certainty as to the street corridor's location and design. An amendment to this plan, and a Goal 2 (Land Use) exception, would be part of any future proposal to add this element to the TSP and permit its construction and use for urban purposes.

To view the general alignment of this future improvement, please refer to the Highway 18 Corridor Refinement plan.

Exhibit 4-10 Highway 18 Corridor Refinement Plan - Status

Bridge Replacements

The Yamhill River Bridge on Three Mile Lane is one of the oldest and poorest rated bridges in the Willamette Valley, and it should be replaced as soon as possible. Three Mile Lane is a vital link between greater McMinnville and the Willamette Valley Medical Center and Highway 18. The Yamhill River Bridge is presently ill-fitted to accommodate bicycle and pedestrian travel.

The replacement of the Old Sheridan Road bridge over Cozine Creek is assumed as part of the Old Sheridan Road C*omplete Street* improvement project (see above).

Other bridges in the McMinnville urban area are in sufficiently adequate condition for service throughout the planning horizon. However, ODOT's regular bridge inventory and rating system should be checked every two to four years to confirm and update these findings.

Streetscape Enhancements

Streetscape enhancements are recommended for the Adams/Baker one-way couplet, Baker Creek Road, 3rd Street, 2nd Street and 1st Street in the Downtown McMinnville area. These are discussed in greater detail in the Pedestrian System Plan, see Chapter 5.

Planning-Level Cost Estimates

The planning level costs estimates in the McMinnville TSP are in 2008 dollars and were prepared based on typical unit costs for other projects that were recently completed in the City. The cost estimates account for projected costs for right-of-way, typical City street standards, labor, design, and engineering costs. Adjustments were made to cost estimates where environmental issues, railroad or canal crossings, and structural or bridge construction were identified.

See **Appendix D** for planning-level cost estimates of the TSP.

The TSP Funding Plan and Capital Improvement Plan are discussed in Chapter 9.

[1] U.S. Environmental Protection Agency website: http://epa.gov/otaq/renewablefuels/index.htm

[2] McMinnville Neighborhood Traffic Calming Program, Kittelson & Associates, 2006.

[3] Highway 18/99W South Interchange Access management plan, Kittelson & Associates, Inc., 2002.

CITY OF McMinnville OREGON

Transportation System Plan

Chapter 5
Pedestrian System Plan

transpoGROUP

5 Pedestrian System Plan

The City of McMinnville has long valued its downtown as a regional business, civic and cultural center. Downtown McMinnville hosts several amenities that make walking easy, safe and enjoyable for residents and visitors. Street trees, wide sidewalks and curb extensions on Third Street all contribute to a 'walkable' environment. The City is actively working with community leaders to enhance the downtown by fine-tuning and implementing the findings and recommendations of the recently completed *Third Street Streetscape Plan*.

The recently completed street, bike lane and sidewalk improvement along Evans Street is a prime example of the intended outcome of the City's Comprehensive Plan goal for a balanced, multi-modal system. The improved non-motorized connection along Evans Street to Downtown McMinnville has triggered discussion and interest amongst some community leaders to address major street corridors that link the Downtown with other City neighborhoods. Attention is naturally drawn to those street corridors with higher levels of vehicular traffic that have or might become barriers to pedestrian travel. Other important corridors lack sidewalks, or their sidewalk network is incomplete or lacks important pedestrian safety features.

Recent Improvements to Evans Street

The Pedestrian System Plan targets priority corridors where important sidewalk and pedestrian improvement features are needed.

Pedestrian System Policies

Studies[1 2] have shown that increased street and non-motorized connectivity can reduce vehicle travel by reducing travel distances between destinations and by supporting alternative modes of travel. Increased connectivity tends to improve bicycling and walking conditions where paths provide shortcuts, so walking and cycling are relatively faster than driving. Improved connectivity directly supports transit use. A U.S. EPA study in 2004[3] found that increased street connectivity, a more pedestrian-friendly environment and shorter route options have a positive impact on street system performance (per-capita vehicle travel, congestion delays, traffic accidents and pollution emissions).

In 2008, transportation researchers[4] concluded a study of California cities (populations ranging from 30,000 to 150,000) and found that the most unsafe streets in California, in terms of traffic fatalities, are the newest ones — those developed primarily since 1950. The cities with the fewest fatalities, by contrast, are those with significant portions built before 1950. The newer street patterns tended to be more of a branch network, a tree-like hierarchy that includes many cul-de-sacs, limiting the movement of traffic through residential areas. They also don't have as many intersections. The pre-1950 street patterns, on the other hand, tend to be more grid-like, giving motorists and non-motorists many more routes to choose from.

As a rudimentary baseline, development of McMinnville's Pedestrian System Plan places full emphasis on the importance of ***system connectivity.*** This can only be accomplished by building sidewalks where they are missing, especially along major streets where pedestrian activity exists or is likely to occur and where transit operates. The Pedestrian System Goal is:

Pedestrian System Goal

TO PROVIDE A COMPREHENSIVE SYSTEM OF CONNECTING SIDEWALKS AND WALKWAYS THAT WILL ENCOURAGE AND INCREASE SAFE PEDESTRIAN TRAVEL.

Additional policies are identified to help guide the Pedestrian System Plan, supplementing those policies in the McMinnville Comprehensive Plan (see Appendix E) and Chapter 2 of the TSP.

- **System Inventory -** the City shall inventory and map existing pedestrian facilities. Facility inventories and selected inventory updates should be performed every five years to determine the success or failure of meeting the Plan's pedestrian goal, objectives, and policies. *The City has already partially met this policy objective having completed the walking inventory of all public streets as part of the TSP.*

- **Formalize New Sidewalk Construction Program** - to complete the pedestrian facility network, the City will formalize a New Sidewalk Construction Program that reflects the City's funding resources. This program will give priority to the construction of missing sidewalks in already developed areas of the city that would provide improved access to schools, parks, shopping, and transit services.

Need for Sidewalks and Greater Connectivity

- **Ensuring Future Sidewalk Connections** - all future development must include sidewalk and walkway construction as required by the McMinnville Zoning Ordinance and City Code. All street construction or renovation projects shall include sidewalks. The City will support, as resources are available, projects that would remove identified barriers to pedestrian travel or safety.

- **Complete Connections with Crosswalks** - all signalized intersections must have marked crosswalks. School crosswalks will be marked where crossing guards are provided. Subject to available funding, and where appropriate, marked crosswalks, along with safety enhancements (medians and curb extensions), shall be provided at unsignalized intersections and uncontrolled traffic locations in order to provide greater mobility in areas frequently traveled by persons with limited mobility. Marked crosswalks may also be installed at other high volume pedestrian locations without medians or curb extensions if a traffic study shows there would be a benefit to those pedestrians.

- **Connecting Shared-Use Paths** - the City will continue to encourage the development of a connecting, shared-use path network, expanding facilities along parks and other rights-of-way.

- **Compliance with ADA Standards** - the City shall comply with the requirements set forth in the Americans with Disabilities Act regarding the location and design of sidewalks and pedestrian facilities within the City's right-of-way.

- **Maintaining Quality of Facilities** - the City will establish standards for the maintenance and safety of pedestrian facilities. These standards should include the removal of hazards and obstacles to pedestrian travel, as well as maintenance of benches and landscaping.

- **Promoting Walking for Health and Community Livability -** the City will encourage efforts that inform and promote the health, economic, and environmental benefits of walking for the individual and McMinnville community. Walking for travel and recreation should be encouraged to achieve a more healthful environment that reduces pollution and noise to foster a more livable community.

- **Safe Routes To School -** the City shall work, where possible, with the McMinnville School District and neighborhood associations to maintain and improve its programs to evaluate the existing pedestrian access to local schools, estimate the current and potential use of walking as a travel mode, evaluate safety needs, and propose changes to increase the percentage of children and young adults safely using this mode (see Appendix J).

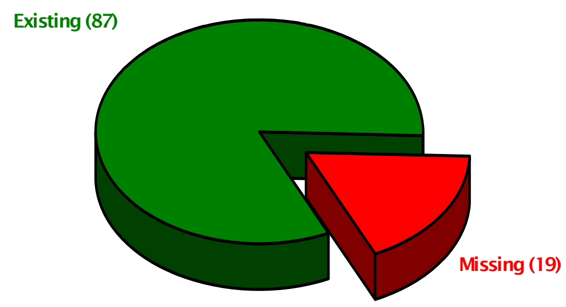
Existing Conditions

The McMinnville pedestrian system consists of sidewalks, crosswalks, curb ramps, and shared-use paths throughout the City. The City's streets act as the primary facilities to accommodate pedestrians. As was summarized in Chapter 3, over 30% of the City's street system lack sidewalks to accommodate pedestrian travel, some within important corridors that link various neighborhoods and activity centers.

Sidewalks

McMinnville's streets are generally well covered with respect to sidewalks. A majority of the city's street edges have some form of sidewalk, leaving about 19 miles of street segments missing sidewalks. See **Exhibit 5-1**. There is geographic disparity in the city regarding missing sidewalks. **Exhibit 5-2** shows the existing sidewalk and shared-use path locations, and missing sidewalks in the McMinnville urban area.

Exhibit 5-1 McMinnville Sidewalks (miles)



As shown in **Exhibit 5-2**, missing sidewalks are noticeable in several areas:

- Along county-owned minor arterials (e.g. North Baker Street, Hill Road, Old Sheridan Road, Booth Bend Road),
- Within neighborhoods, between central downtown McMinnville and the newer (since 1970) residential neighborhoods, primarily in east and south McMinnville,
- Along streets within the McMinnville industrial area, and
- Along Highway 18 frontage roads near Norton Lane.

In general, and over the past 20-30 years, the City of McMinnville has developed and implemented street and sidewalk standards that ensure sidewalks are constructed on all new streets. As a result, newer residential areas have few missing sidewalks. A greater number of streets with missing sidewalks are located within older neighborhoods.

Shared-Use Paths

Shared-use paths are defined and discussed in Chapter 6. Shared-use paths are facilities which can be used by pedestrians and other non-motorized vehicles, such as bicycles. As shown in **Exhibit 5-2**, there are two major corridors with shared-use paths:

- Southwest Greenway, which was also designed and functions as a linear park and traverses the Westvale, Jandina, James Addition, and Ash Meadows neighborhoods, and
- Newly constructed shared use path, located between West Second Street and Wallace Road (see photo)

New Shared-Use Path

Shared-use paths are used frequently by pedestrians of all ages, oftentimes for recreational purposes.

Curb Ramps

Important curb ramp data was inventoried and assimilated as part of McMinnville's walking survey. **Exhibit 3-23** (see Chapter 3) summarized the location of missing curb ramps and sidewalks. **There are 655 missing curb ramps** along McMinnville's current sidewalk network.

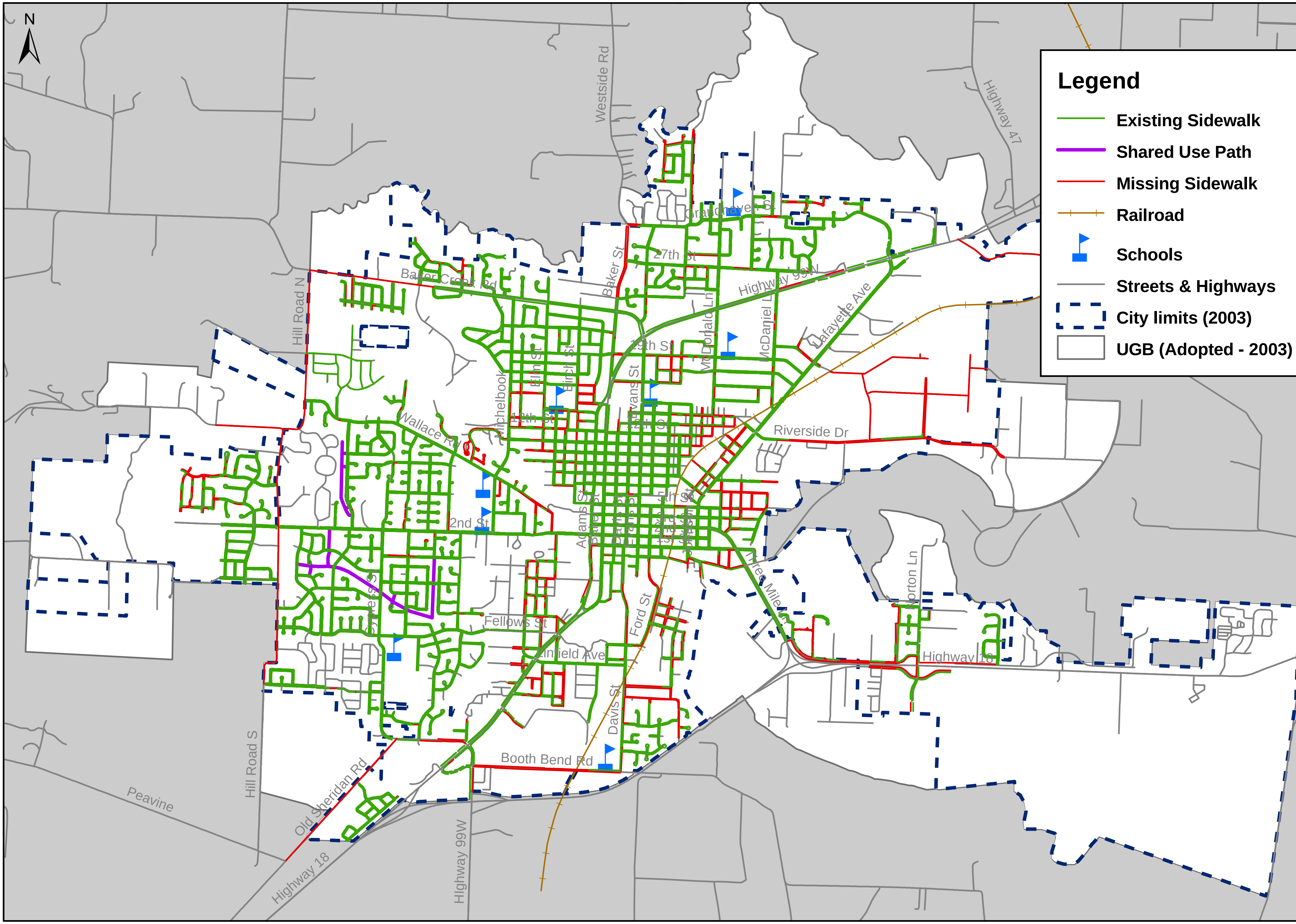
Missing Curb Ramp on 5th Street

The curb ramp inventory included identifying the curb ramp type and various curb ramp characteristics, as shown in **Exhibit 5-3**.

There are a variety of curb ramp types in McMinnville. As shown in **Exhibit 5-4**, the majority of curb ramps constructed in McMinnville are diagonal by design, with a single ramp oriented to the center of the street intersection.

Perpendicular curb ramps are found in the downtown and older residential neighborhood areas, where wider sidewalks or added planter strips provide sufficient space to align sidewalks to the street crossing. In recent growth areas, most new curb ramps have been constructed to standards with diagonal ramp designs.

Perpendicular Curb Ramp



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Sidewalk Inventory

McMinnville TSP

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Exhibit 5-2

Exhibit 5-3 Curb Ramp Types

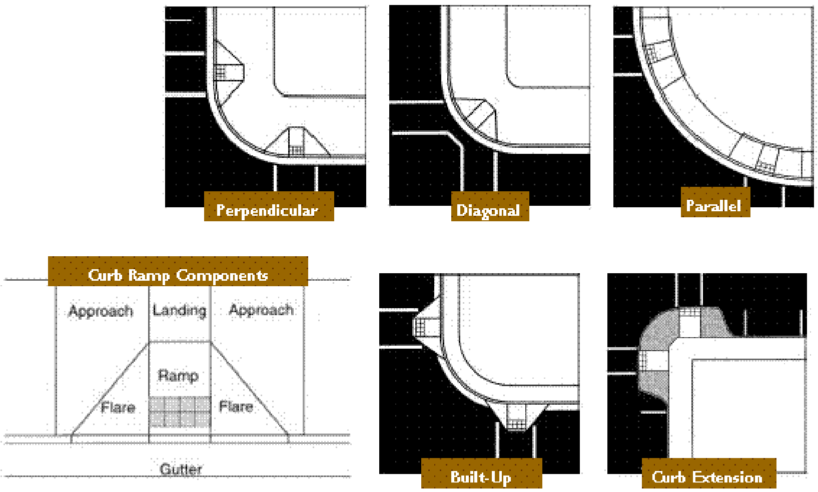
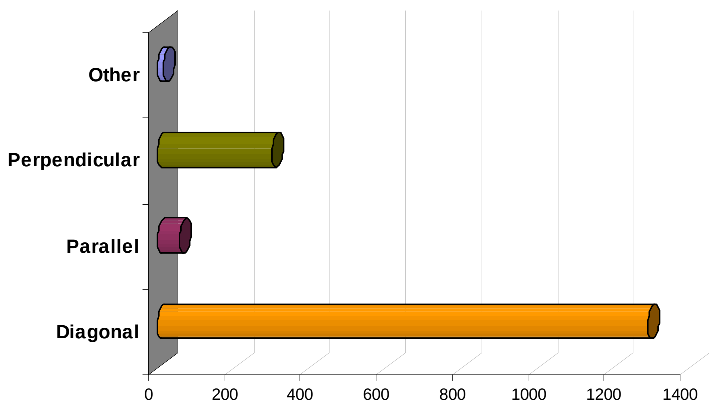


Exhibit 5-4 McMinnville Curb Ramps



Pedestrian Projects

Pedestrian System Plan projects take several forms in the TSP. New sidewalks are included in the recommendation for Complete Street projects, as are summarized in Chapter 4. This chapter and section identifies and recommends specific pedestrian system improvements in the form of Priority Sidewalk projects, new Curb Ramp Program, new Safe Pedestrian Crossings and subarea-specific improvements in the Adams and Baker Street Corridor, Third Street Streetscape Plan, and Second and First Street Corridors

Priority Sidewalks

An evaluation of McMinnville's existing pedestrian conditions as well as traffic operations, safety, and connectivity issues was conducted. A series of pedestrian accessibility measures were applied to the City's pedestrian system inventory to help identify critical sidewalk improvement projects, including access to: (a) transit routes, (b) major streets, (c) parks, (d) schools, and (e) civic centers. **Exhibit 5-5** illustrates a composite of these pedestrian accessibility measures, with reference to McMinnville missing sidewalks.

From this exercise a number of stand-alone sidewalk improvement priorities are identified and summarized in **Table 5-1**. It should be noted that these projects are "gap-fillers." Several streets have intermittent sidewalks, sometimes on at least one side of the street. New sidewalk installation helps create a *Complete Street*, resulting in enhanced pedestrian access and

Missing Sidewalk in a School Zone

circulation and improved pedestrian safety by reducing unnecessary pedestrian crossings. These projects help solidify a core system of continuously connected sidewalks, making important linkages between McMinnville neighborhoods, downtown McMinnville, schools and other important centers.

Table 5-1 Recommended Priority Sidewalk Improvements

Project Name	Project Limits	Project Description
27th St	Evans – McDaniel	Construct missing sidewalks & curb ramps
Evans St	Baker Cr Rd – 27th	
19th St	Hwy 99W – McDonald	
McDonald	Hwy 99W – 12th St	
McDaniel	Hwy 99W – Lafayette	
Michelbook	12th – 16th	
12th St	Michelbook – Cedar	
Wallace	2nd St-Wallace Way	
14th St	Elm – Birch	
16th St	Elm – Birch	
Birch St	14th St – 18th St	
Elm St	12th St – 17th St	
Adams St	South of 1st Street to "Y"	
Davis St	Wilson – College Av	
Ford St	1st St – Cozine Creek	
Cleveland	Davis – Villard	
5th St	Railroad crossing	
5th St	Lafayette – Macy	
Macy	5th St – 3rd St	

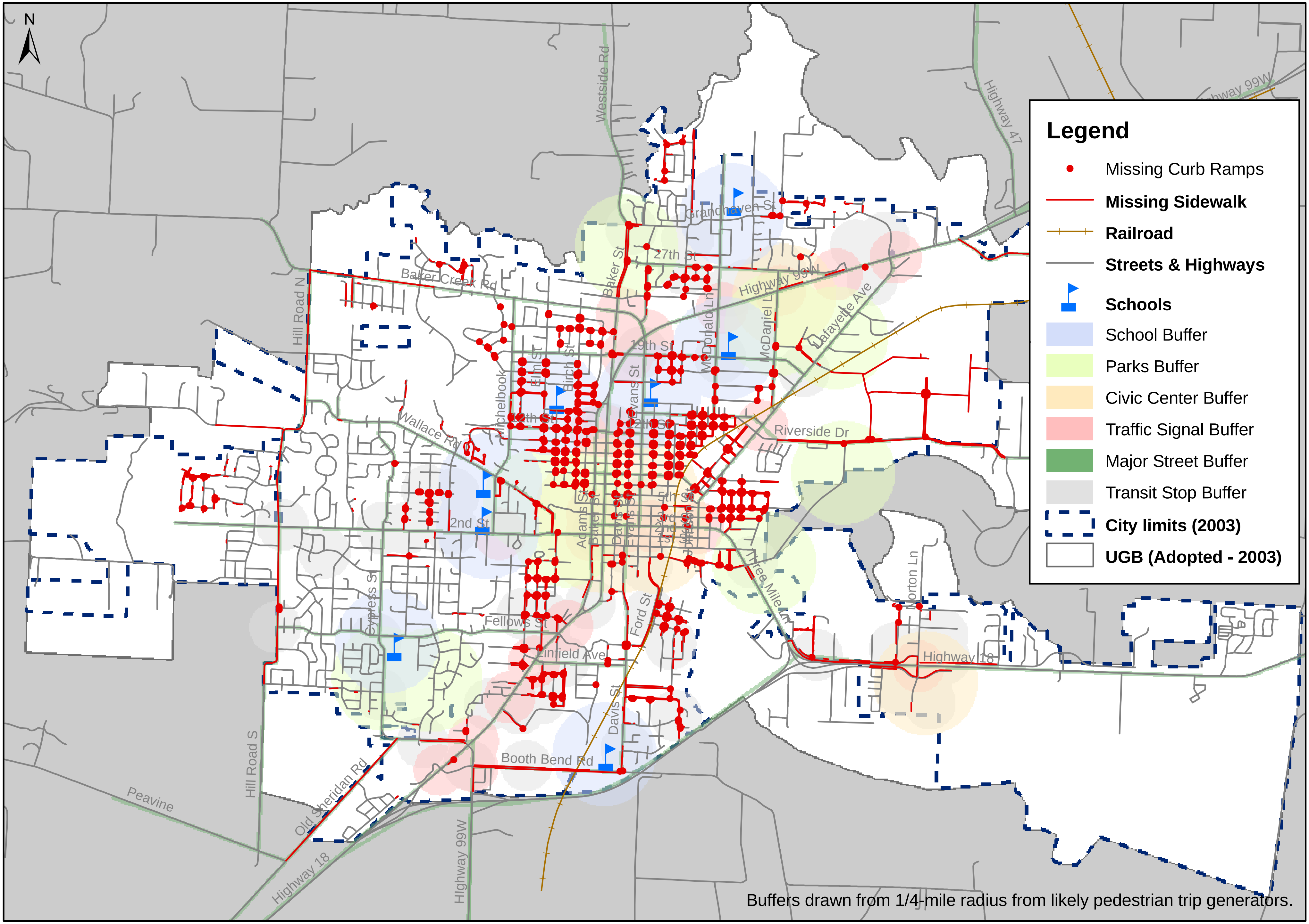
These priority improvements will add approximately four miles of new sidewalks. **Exhibit 5-6** maps the Pedestrian System Plan, including new sidewalk projects. See **Appendix D** for project cost estimates.

Curb Ramp Program

McMinnville should formalize a Curb Ramp Program for the installation of new curb ramps along existing sidewalks and replacement ramps where existing facilities do not meet new ADA design guidelines. These improvements will help assist pedestrians of all ages and capabilities better access streets and street crossings throughout the City. **Table 5-2** summarizes the curb ramp improvement needs within McMinnville. The City has successfully received funding from the American Recovery and Reinvestment Plan to construct approximately 150 new or replacement ramps along the City's arterial and collector street system.

Table 5-2 Recommended Curb Ramp Improvements

Type	Number	Example
New Curb Ramps	655	
Replacement Curb Ramps	51	



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Accessibility Measures to Help Prioritize Pedestrian Improvements

McMinnville TSP

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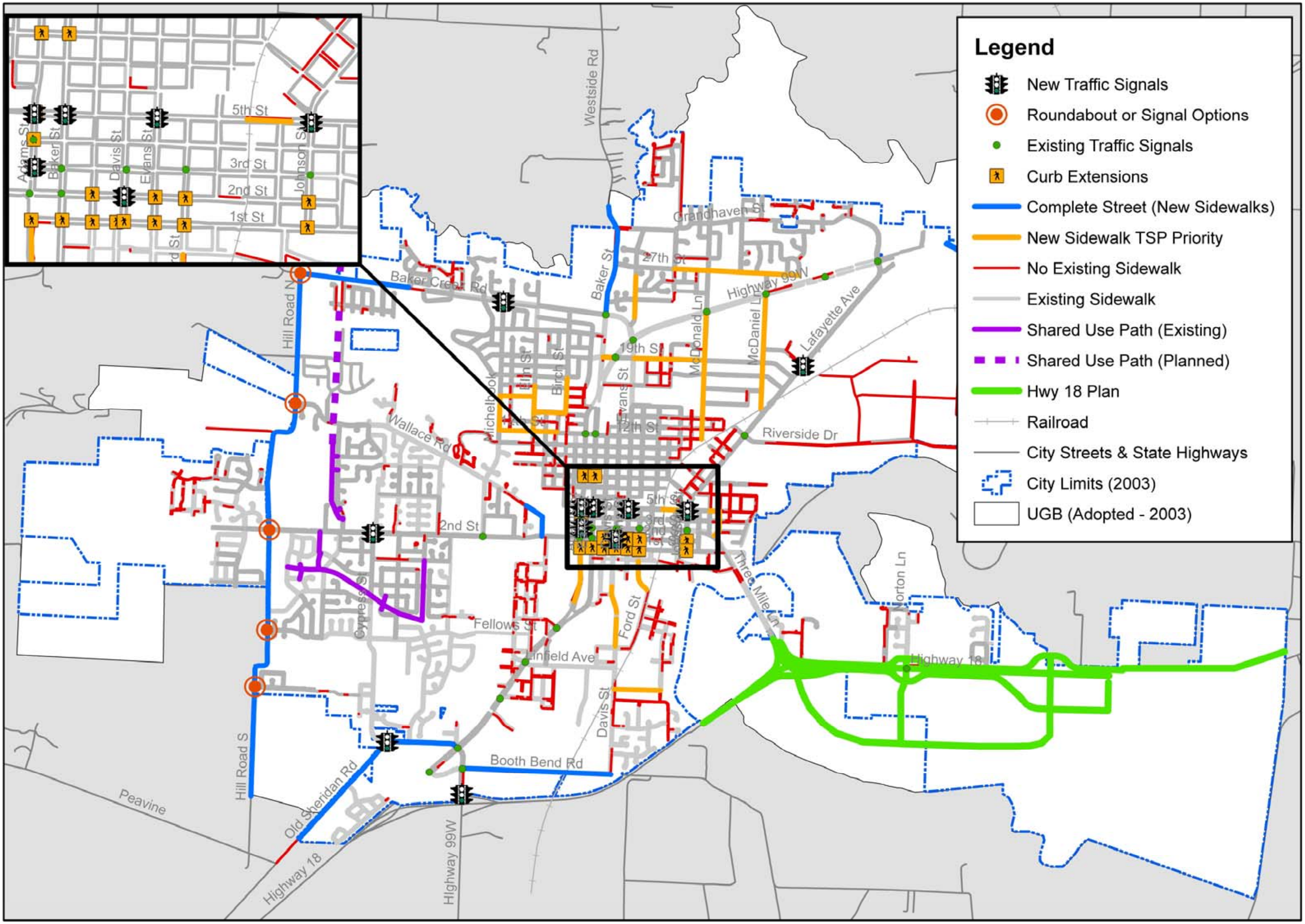
Exhibit 5-5



CITY OF McMinnville OREGON

Pedestrian System Plan

McMinnville TSP

transpoGROUP

Exhibit 5-6

Adams and Baker Street Corridor

The portion of Highway 99W through the downtown McMinnville area operates as a one-way couplet along Adams Street and Baker Street. Adams and Baker Streets are both classified as *major arterials*. By City standards, major arterials are intended to provide connection through McMinnville, carry higher traffic volumes, provide bicycle lanes and sidewalks, and provide planting strip as buffers (wherever possible).

Both Adams and Baker Streets include two travel lanes (for each direction of the one-way couplet) and on-street parking on both sides of the street. At some intersections there are special turn lanes and traffic signals. Sidewalks have been constructed along both sides of Adams and Baker Streets. Typically the sidewalks are located adjacent to the curb. From the pedestrian's perspective, the on-street parking stalls serve as a buffer to highway traffic. Intersecting streets along the one-way couplet also have sidewalk connections, linking neighboring land uses to or across the one-way couplet corridor.

Sidewalks and Curb Ramps on Baker Street

In general, while the sidewalks along Adams and Baker Streets are fairly contiguous and in decent shape, they are too narrow (four-five feet) to carry substantial pedestrian traffic, and there are many obstructions and obstacles within the sidewalk area that impede safe pedestrian travel. Several of the intersections along Adams and Baker Streets include curb ramps that do not meet Americans with Disabilities Act (ADA) guidelines.

Also, many of the intersections in the corridor have storm-water drain inlets near the apex of the curb. In addition, the utility poles that carry overhead power lines are often located in the middle of the sidewalk along the east side of Baker Street or at the corner of major intersections, and can impede pedestrian circulation and safety.

Land uses along the Highway 99W corridor include a mix of commercial, civic, park and residential activity. These uses have historically developed with orientation to automobile access and circulation within and through the corridor.

Within the last 10-15 years, vehicular traffic on Highway 99W in McMinnville has grown to levels that make pedestrian crossings more difficult. Today, the Adams and Baker Street one-way couplet carries more than 33,000 vehicles per day. From 8:00 AM until well after 6:00 PM, both Adams and Baker carry in excess of 1,000 vehicles per hour. The total distance to cross either street, from curb to curb, is about 60 feet. This wide area, coupled with the sheer volume of Highway 99W traffic, tends to intimidate pedestrians walking along or across the corridor.

Some of the major intersections along the couplet, like Second, Third and Twelfth Streets, have traffic lights that regulate highway traffic flow for pedestrian crossings. At unsignalized intersections, pedestrians must wait for gaps in traffic on Adams and Baker to cross.

With few exceptions, the street lights along Adams and Baker Streets are antiquated and designed primarily to illuminate intersections for automobile traffic.

A number of factors, when combined, form a barrier to pedestrian traffic accessing or crossing this Highway 99W corridor:

- heavy highway traffic volume
- physical width of Adams and Baker Streets
- absence of pedestrian amenities, and
- presence of physical barriers to pedestrian travel.

There is a need to better link and weave the Highway 99W corridor into the multi-modal fabric of greater McMinnville, with stronger pedestrian connections to Downtown. There is also the need to improve the pedestrian environment along Adams and Baker Streets by removing obstacles that impede safer travel and adding enhancements to the pedestrian environment.

As noted in the Street System Plan, pavement conditions have deteriorated on Adams and Baker streets. At some point in time, both streets will likely need to be reconstructed to safely carry future traffic demand. McMinnville should coordinate with ODOT to define and program the reconstruction of Adams and Baker streets in the future update of the Statewide Transportation Improvement Program (STIP), including with it a number of pedestrian and bicycle access and safety enhancements:

Pedestrian crossing enhancements. New curb extensions should be installed at the following major intersections along the Adams/Baker Street Couplet:

- First Street
- Third Street
- Fifth Street (see Street System Plan)
- Eighth Street
- Twelfth Street

Placement of the curbing improvements should adhere to the City's Street Functional Classification Policy. The curb extensions should meet ADA standards, adequately drain water run-off, and accommodate the possibility for striped bicycle lanes along Adams and Baker Streets

Overhead street illumination enhancements. The existing street lights are antiquated and should be replaced with new, pedestrian- and street-scale lighting. Intersection improvements to extend the existing curbs will require examination of a number of design elements. As part of the ODOT STIP project there should be some consideration to either relocate or bury the existing overhead utility lines. The removal of the existing utility poles will significantly improve pedestrian circulation and safety along Baker Street. This will result in improved visual sight lines in the corridor.

The **curb extension improvements** will also require careful design and reconstruction of storm water inlets and extensions to properly drain the highway. Detailed engineering analysis of the various traffic movements should be conducted to ensure that all vehicle types can make safe and efficient maneuvers at each intersection to be modified by the curb-extension improvements.

Improved overhead illumination will enhance motorist and pedestrian safety in the corridor.

The City will need to coordinate with ODOT to ensure that the Highway 99W STIP project is equipped with local design features that consistently integrates the downtown area. These include historic district and feature destination signing, special utility pole designs, and the possibility of decorative foliage, street furniture and other streetscape amenities.

Third Street Streetscape Plan

In 2005 the City completed a Streetscape Plan for Third Street in Downtown McMinnville[5]. A "Test Block" was identified in the Plan for the section of Third Street from Cowls to Davis Streets. The study acknowledged that Downtown McMinnville is largely a successful and vibrant center, but identified a series of problems associated with the existing streetscape:

- Several differing, non-complementary light fixtures
- Several variations in trash receptacles,
- The usual array of newspaper and periodical stands,
- Different and clashing paving patterns,
- Drainage difficulties due to multiple asphalt overlays,
- Plentiful, variety of street trees (asset), but several are non-appropriate species, some are over-mature and in some cases, awkwardly located, and
- Mid-block shelters at mid-block crossings are unique but awkward ("heavy in feel"), a design non-complimentary to presiding corridor.

The Study engaged a downtown Streetscape Committee that helped make recommendations for streetscape improvements on Third Street that could become standards for all downtown streetscapes (see First and Second Street Enhancement Plan below).

As illustrated in **Exhibit 5-7**, an example detailed project section was chosen for that portion of 3rd Street between Cowls and Davis Streets. Cost estimates for full streetscape enhancements range from $450,000-$625,000, per block. General Plan recommendations are summarized in **Table 5-3**. Since the Streetscape Plan was completed, private funding has allowed the City to replace the older streetlights on Third Street with ornamental light standards (poles) and fixtures better suited for the pedestrian environment.

Table 5-3 Recommended Third Street Streetscape Enhancements

Streetscape Amenity	Recommendations
Street Trees	Removal of existing trees at corners and mid-block crossing to open these areas up for light, views, and for separation of new street lights from high vegetation; replacement of some trees with appropriate species, some relocated for better placement with street lights, and gradual establishment of metal ornamental tree grates.
Crosswalks & Streets	Either zebra-striped or alternately, brick paver crosswalks, including retaining the diagonal orientation of mid-block crossings.
Street Lighting	New streetlights at diagonal corner locations and at one side of the mid-block, with arms for both additional flower baskets and irrigation tube, and for banners; and new lit steel bollards between corners and mid-block, for fill light under street trees, supplementing new street lights.
Shelters at Mid-Block Crossings	New mid-block ornamental steel and translucent glass shelters, open air coverings, designed to be far lighter and more urban in appearance, to serve as night "beacons" at the mid blocks. The north to south diagonal placement of the new shelters complements the diagonal mid-block crossings.
Landscaping	Concrete planter tubs at corners and mid-blocks, to add color, greenery and variety at the pedestrian level complementing the overhead tree canopy; and brick planters at the mid-block on the shelter side, with raised sitting surface and irrigation.
Benches & Bike Racks	New benches at corners and mid-block crossings and new bike racks at each corner, and at the mid-block.
Trash & Newspaper Units	Trash receptacles to match existing receptacles in City Park near Library; and brick newspaper and trash receptacle at the mid-block shelter, also containing utility boxes, valves and cutoffs.
Sidewalk Surfacing	Inlaid design(s) with possible decorative/historic themes at the center of Davis and Cowls intersections, and sidewalk surfacing sections of scored concrete and brick edging strips (accessible utilities) and brick cross-strips.

Exhibit 5-7 Third Street Streetscape Plan Summary

Streetscape Furnishings

Small Projects Description

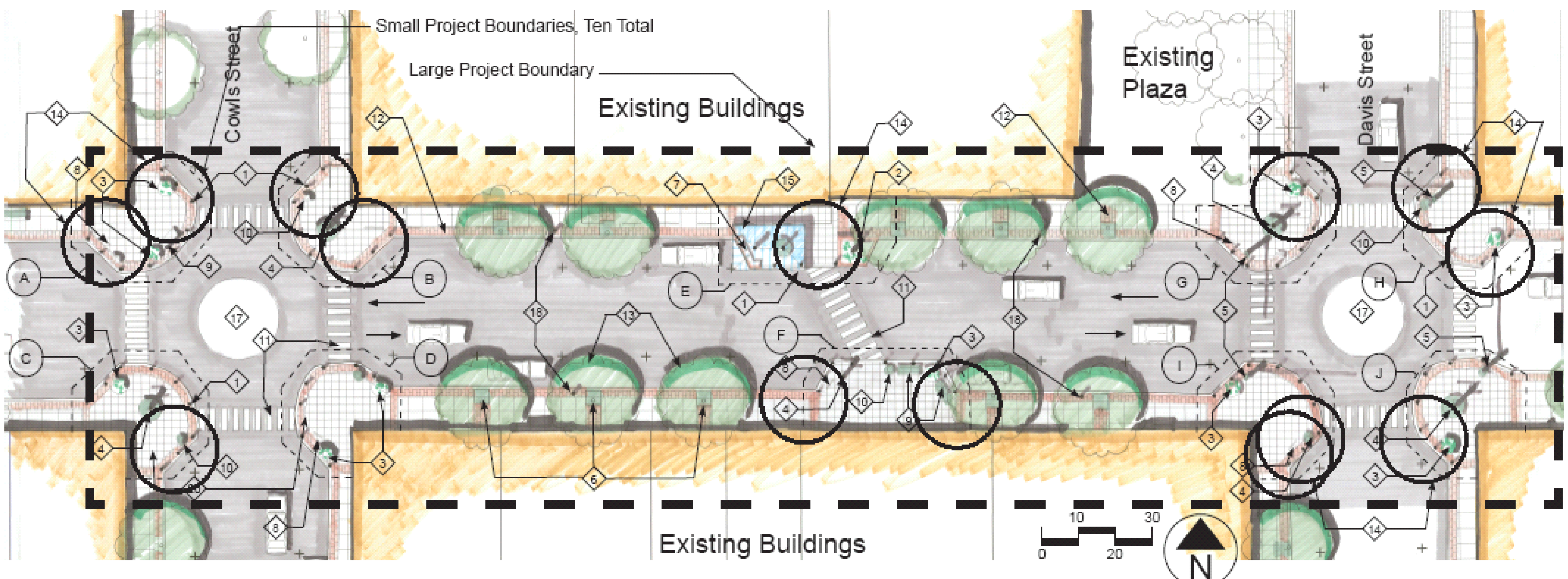
Small localized projects denoted by letters A-J are improvements that can be completed on a phased schedule. Projects require only asphalt patching at adjacent street, without street demolition and with only localized utility work.

Large Project Description

The large project encompasses all street improvements for one block including two intersections along Third Street. This includes street and side-walk repaving as well as the implementation of new crosswalks.

Keynotes

1. Bollards at Street corners and mid-block
2. Raised Planter Bed
3. Concrete Planter Tub
4. Street Lights with custom bench surrounding and street signage to match existing downtown Historic District signage.
5. Light Signal - remove Cobra Lights above traffic signal level - repaint traffic signal exposed steel uprights and arms to match finish of other streetscape elements
6. Open tree wells at all existing trees. Replace with 48" square tree grates when trees are replanted/ rotated.
7. Newspaper and trash receptacle surround
8. Bike Parking Rack
9. Bench
10. Trash Receptacle
11. Painted Zebra Stripe Crosswalk/ alternate of brick paving with same width
12. Brick sidewalk strips, 2' wide
13. Existing Trees to remain until rotated out for new trees, typical.
14. Existing Trees removed for project
15. Mid-block Shelter
16. Custom Bench surrounding street-light, typical.
17. Drivable Street Intersection Inlaid with Decorative or Historic Theme
18. Light Bollards between corner and mid-block for fill light
19. Concrete - 4' x 4' pattern
20. Concrete - 2' x 2' pattern, typical at street corner and mid-block



City of McMinnville
Third Street
Streetscape Plan

Seder Architects, pc 8

First and Second Street Corridors

As noted in the Street System Plan, both Second and First Streets are expected to carry greater levels of traffic in the future. To help moderate the impact of traffic, especially in terms of pedestrian safety, and better link downtown McMinnville with south McMinnville neighborhoods, a series of pedestrian improvements are needed along First and Second Streets, between Adams and Johnson Streets, including:

- Curb extensions to reduce the width pedestrians walk to cross the street
- Pedestrian scale street lighting
- Improved sight lines for motorists to see crossing and parallel pedestrian traffic
- Street design features which help to curb excessive downtown vehicular seed
- Some pedestrian crossings on 2nd and 1st streets that may include specialized pavers to better distinguish crosswalks

Need for Curb Extensions on 2nd Street

These curb extension improvements can also be designed to integrate the street design features of the 3rd Street Enhancement Plan. Other streetscape enhancements should be considered along First and Second Streets, consistent with the Third Street Streetscape Plan. For pedestrian safety reasons, however, new curb extensions should be considered the priority. Additional streetscape enhancements can be added as funding becomes available.

Safe Pedestrian Crossings

By law, every intersection is a legal crosswalk, whether marked or not. Drivers are required to stop for pedestrians in any crosswalk, again, whether or not it is marked. As it continues to grow the City will likely receive requests for marked crosswalks to improve safety. There are many studies that show marked crosswalks do not improve safety for a pedestrian. In many instances, the markings actually decrease safety. Marked crosswalks are very visible to the pedestrian, but in most circumstances drivers do not see them very clearly. Pedestrians get a false sense of security, expecting the driver to react to the crosswalk when the driver is not even paying attention to it. Studies have shown that this is particularly true for elderly and young drivers. Physical structures, such as curb extensions and medians, improve safety because they draw drivers' attention to that structure and to the pedestrian standing within the structure trying to cross the street.

McMinnville's policy for marking crosswalks should follow nationally recognized standards on installing traffic devices. The MUTCD[6] defines how traffic control devices (including marked crosswalks) are used throughout the United States. Under Section 7C.03 Crosswalk Markings, it states that, "Crosswalk lines should not be used indiscriminately. An engineering study should be performed before they are installed at locations away from traffic control signals or stop signs." As a guideline, the City should consider Seattle's General Crosswalk Installation Guidelines[7] as summarized below.

Marked pedestrian crosswalks may be used to delineate preferred pedestrian travel across roadways upon the City's evaluation of the following:

a. *At signalized locations where vehicular traffic might block pedestrian traffic when stopping for a red light;*
b. *At non-signalized locations where recommended elementary school routes cross arterial and residential streets; and*
c. *At non-signalized locations where other students often cross; this includes junior high school, high school and private school students; and*
d. *At non-signalized locations where, in the judgment of the City Engineer, the use of specially aligned crosswalks is desirable for traffic safety.*

Further procedural, safety and design guidelines for crosswalk installation are provided in *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations*[8]

Pedestrian Implementation Strategies

Sidewalk Construction

In implementing the TSP Pedestrian System Plan, several methods of providing sidewalks are currently available to the City:

- Private Development of Properties and Subdivisions. All new streets are required to have sidewalks. Most developing properties are required to construct sidewalks on abutting street frontages as part of the building permit process. The majority of new sidewalks are constructed in this manner.
- City-funded Complete Street improvement projects. The City will typically construct sidewalks as part of a street improvement project that brings a street up to urban standards.
- Assessed Projects. An assessed project involves the direct financial participation of abutting or nearby property owners to fund the construction of public improvements. This can be implemented through the creation of an assessment district called a Local Improvement District. Individual properties can also be assessed for the improvements required along their own frontage.
- State Coordination. Coordination with ODOT is essential to assure that adequate pedestrian facilities are included in all ODOT improvements to Highways 99W and 18.

All four of these methods will be used by the City in differing situations to complete construction of the sidewalk system.

[1] Carlos A. Alba and Edward Beimborn (2005), Analysis Of The Effects Of Local Street Connectivity On Arterial Traffic, Transportation Research Board Annual Meeting.

[2] Walter Kulash, Joe Anglin and David Marks (1990), "Traditional Neighborhood Development: Will the Traffic Work?" Development 21, July/August 1990, pp. 21-24.

[3] U.S. EPA (2004), Characteristics and Performance of Regional Transportation Systems, Smart Growth Program, U.S. Environmental Protection Agency.

[4] Marshall, Wesley E., Garrick, Norman, Street Network Types and Road Safety: A Study of 24 California Cities. New Urban News, 2008.

[5] Seder Architects, Third Street Streetscape plan, 2005.

[6] Manual of Uniform Traffic Control Devices, U.S. Department of Transportation - Federal Highways Administration, 2004.

[7] City of Seattle, Department of Transportation Director's Rule 04-01 (12/31/2004), Installation Criteria & Procedures for Responding to Requests for Safety Improvements regarding: Marked Pedestrian Crosswalks; General Traffic Control Signals; Pedestrian Traffic Signals; Pedestrian Traffic Signals for the Disabled or Senior Citizens; and Pedestrian Traffic Signals to Accommodate School Crossings.

[8] Federal Highway Administration (FHWA), *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations, Final Report and Recommended Guidelines,* September 2005. Publication HRT-04-100.

CITY OF McMinnville OREGON

Transportation System Plan

Chapter 6
Bicycle System Plan

transpoGROUP

6 Bicycle System Plan

McMinnville commuters reacted to recent increases in the price of gasoline in a couple of ways: some long-distance commuters joined carpools or switched to intercity bus services (see Chapter 7), while other local commuters switched to riding their bicycle to work. Historical bicycle volume counts are unavailable, but the rise in local bicycle traffic was noticeable, if even by anecdotal observation. Also noticeable were the concerns raised by commuter, recreational and student cyclists relating to the number of significant gaps in McMinnville's bicycle system.

Bike Lane Use on 2nd Street

Fluctuating gas prices are partly responsible for the increase in bicycle traffic. Given the city's relative compact geography, generally flat topography, future population (compared to larger cities), and increasing costs for driving, cycling will likely become a larger, more popular and viable alternative. Further, as growth generates more vehicle and bicycle traffic in the city there will be increased desire and need to complete McMinnville's bicycle system.

The Bicycle System Plan outlines recommended steps and projects to increase the role of the bicycle with a system of connected and well-maintained facilities in McMinnville.

Bicycle System Policies

The Bicycle System Plan goal for McMinnville emphasizes the importance of providing a completed system of direct on-street bicycle facilities, and on increasing the percentage of trips made by bicycle.

Bicycle System Goal

To provide a comprehensive system of connecting and direct on-street bicycle facilities that will encourage increased ridership and safe bicycle travel.

Three objectives are recommended in the TSP to help the City of McMinnville achieve its bicycle system goal:

- Create a comprehensive and connected system of bicycle facilities;
- Encourage programs that support bicycle systems and promote cycling activity; and,
- Encourage programs that enhance bicycle safety.

Each objective is to be met through applying policies that pursue particular strategies, develop specified programs, or engage in defined courses of action. The policies for McMinnville's bicycle system are developed consistent with federal policy guidelines and the Oregon Bicycle and Pedestrian Plan.

To increase the role of the bicycle as a viable mode of transportation a system of connected and well-maintained facilities should be provided.

- **Provide Bicycle Facilities** on Arterials and some Collector Streets – To the extent possible, arterial and some collector streets undergoing overlays or reconstruction will either be re-striped with bicycle lanes or sharrow (bicycle/auto shared-lane) routes as designated on the Bicycle System Plan Map (see Exhibit 6-3). Every effort will be made to retrofit existing arterials and selective collectors with bicycle lanes, as designated on the Bicycle System Plan Map.

- **Eliminate Barriers to Bicycle Travel** - The City will actively pursue a comprehensive system of bicycle facilities through designing and constructing projects, as resources are available, and implementing standards and regulations designed to eliminate barriers to bicycle travel. As a result of this policy, new developments or major transportation projects will neither create new, nor maintain existing, barriers to bicycle travel.

- **Bicycle Routes and Signage** - as resources are available, the City will periodically consult with local bicyclists to review existing and proposed bicycle lanes, and identify improvements needed to make these routes function better for bicyclists. These routes shall be identified by signage on the routes and shown on updates of the bicycle route map.

- **Complete the Major Bicycle System** - A completed system of major bicycle facilities is one of the most important factors in encouraging bicycle travel. The City will work toward annually completing a minimum 10 percent addition (measured in street centerline miles of newly-constructed bicycle lanes, bicycle lane striping and sharrow route designations) to the bicycle system, as designated on the Bicycle System Plan Map, with priority given to projects that fill critical missing links in the bicycle system or address an identified safety hazard.

- **Establish Minimum Standards for Bicycle Facility Maintenance -** the City shall develop minimum standards that will keep bicycle facilities clean of debris, properly striped, and clearly marked and signed.

- **Zoning Ordinance Requirements for Bicycle Parking** - the McMinnville Zoning Ordinance (17.60.140) contains bicycle parking supply requirements and standards that require new developments to provide a minimum amount of bicycle parking, based on the needs of the specific zone or land use type.

- **Bicycle Parking at Transit Facilities -** the City will work with the Yamhill County Transit Authority to encourage the installation of public bicycle parking facilities at transit stations and other inter-modal facilities, and encourage the provision of bicycle racks on all public transit vehicles.

- **Target and Eliminate Key Behaviors that Lead to Bicycle Accidents -** The City will encourage schools, safety organizations, and law enforcement agencies to provide information and instruction on bicycle safety issues that focus on the most important accident problems.

- **Safe Routes To School** - The City will work with the McMinnville School District to: evaluate existing bicycle access to local schools and supporting infrastructure (bicycle racks, lockers, etc.), estimate the current and potential use of bicycling as a travel mode, evaluate safety needs, and propose changes to increase the percentage of children and young adults safely using this mode.

Existing Conditions

Two fundamental building blocks are needed in understanding the study of McMinnville's bicycle system: (1) a baseline definition of the various terms and language used in describing bicycle facilities, and (2) understanding the various types of bicycle system users.

Revising the Bicycle Planning Language

The City of McMinnville can begin more proactive planning for bicycle facilities by first expanding upon and clarifying the definitions of the various bicycle facilities, especially for the on-street bicycle system. Historical plan documentation in McMinnville has concluded in text and mapping a "Bikeway" or "Bikeway Route" network, some of which is may be implied to mean on-street bicycle lanes. What are bikeway routes? Are they separate lanes for cyclists or a series of signs and painted symbols that indicate for both motorists and cyclists the need to share the outside travel lane? There is need for further clarity in these definitions, otherwise planners, engineers, policy officials and the general public might be unclear what the TSP full intentions are.

Exhibit 6-1 illustrates the basic forms of bikeway facilities as defined by AASHTO.[1] Pavement markings and signing guidance is provided by the Manual of Uniform Traffic Control Devices (MUTCD)[2]. Consistent with the MUTCD, the City of McMinnville should adhere to the following definition of terms concerning bicycle facilities:

Bicycle Facilities

This is a general term denoting improvements and provisions that accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically designed exclusively for bicycle use.

Bikeway

Bikeway is a generic term for any road, street, or path that in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for exclusive bicycle use or are to be shared with other travel modes.

Bicycle Lane

A bicycle lane is a portion of a roadway that has been designated by signs and pavement markings for preferential or exclusive use by bicyclists. Bicycle lanes are facilities that are placed on both sides of a street, and they carry bicyclists in the same direction as adjacent vehicle traffic. In addition to lane striping, pavement and signage identify lanes.

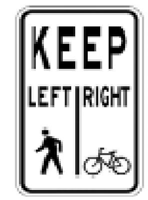
Designated Bicycle Routes

Designated bicycle routes consist of a system of bikeways designated by the roadway's jurisdictional authority with appropriate directional and informational route signs, with or without specific bicycle route numbers. Bicycle routes, which might be a combination of various types of bikeways, should establish a continuous routing. Designated bicycle routes can be divided into ***shared roadway*** and ***shared-use path*** facilities.

Shared Roadway

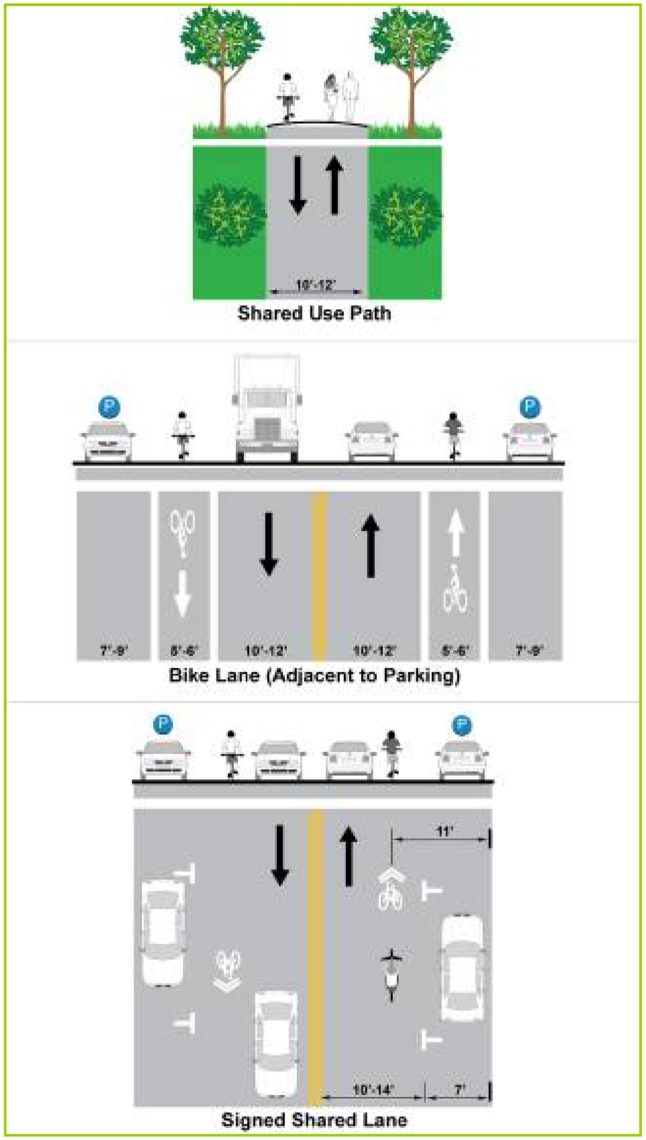
On a shared roadway, bicyclists and motorists use the same travel lane. Shared roadway bicycle routes can be placed on streets with wide outside travel lanes, along streets with bicycle route signing, or along local streets where motorists have to weave into the lane in order to safely pass a bicyclist.

Shared-Use Path



A shared-use path is a bikeway physically separated from motorized vehicular traffic by an open space or barrier, and is either within the public right-of-way or within an independent alignment. Shared-use paths are also used by pedestrians (including skaters, users of manual and motorized wheelchairs, and joggers) and other authorized motorized and non-motorized users. Shared-use paths primarily attract recreational users, because they typically wind through and connect destinations; they also offer an opportunity to function as emergency motorized transportation routes. Shared-use paths may be the preferred facility for any cyclist uncomfortable with riding on public roadways alongside motor vehicles.

Exhibit 6-1 Bikeway Facility Definitions



Implementation of these specific terms will help advance consistent dialogue between the City of McMinnville and the community regarding bicycle facility planning and design, within the context of multi-modal systems development.

Defining Bicycle Users

There are a variety of bicyclists traveling within the study area, depending on their skills, confidence and preferences. According to AASHTO,

> *"some riders are confident riding anywhere they are legally allowed to operate and can negotiate busy and high speed roads that have few, if any, special accommodations for bicyclists. Most adult riders are less confident and prefer to use roadways with a more comfortable amount of operating space, perhaps with designated space for bicyclists, or shared use paths that are away from motor vehicle traffic. Children may be confident riders and have excellent bike handling skills, but have yet to develop the traffic sense and experience of an everyday adult rider."*

For the purpose of this study the following categories of bicycle user types are applied as the impact of different bicycle facility types are determined:

Source: www.canada.com

Advanced or experienced riders are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with a minimum of detour or delay. They are typically comfortable riding with motor vehicle traffic; however, they need sufficient operating space on the traveled way or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position.

Basic or less confident adult riders may also be using their bicycles for transportation purposes, e.g., to get to the store or to visit friends. This category comprises the majority of bicycle riders in any jurisdiction. They prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared use paths and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets.

Source: www.contextsensitivesolutions.org

Children, riding on their own or with their parents, may not travel as fast as their adult counterparts but still require access to key destinations in their community, such as schools, convenience stores and recreational facilities. Residential streets with low motor vehicle speeds, linked with shared use paths and busier streets with well-defined pavement markings between bicycles and motor vehicles can accommodate children without encouraging them to ride in the travel lane of major arterials.

Source: www.indygreenways.org

Bicycle System Inventory

McMinnville's bicycle system has many excellent features but is lacking cohesiveness and connectivity. Older arterial streets were originally constructed without bicycle lanes while several of the newer arterial streets like Lafayette Avenue now have bicycle lanes. **Exhibit 6-2** maps the current bicycle system within the McMinnville urban area. As Exhibit 6-2 illustrates, several arterial streets such as Hill Road, portions of Old Sheridan Road and Highway 99W remain without designated bicycle facilities.

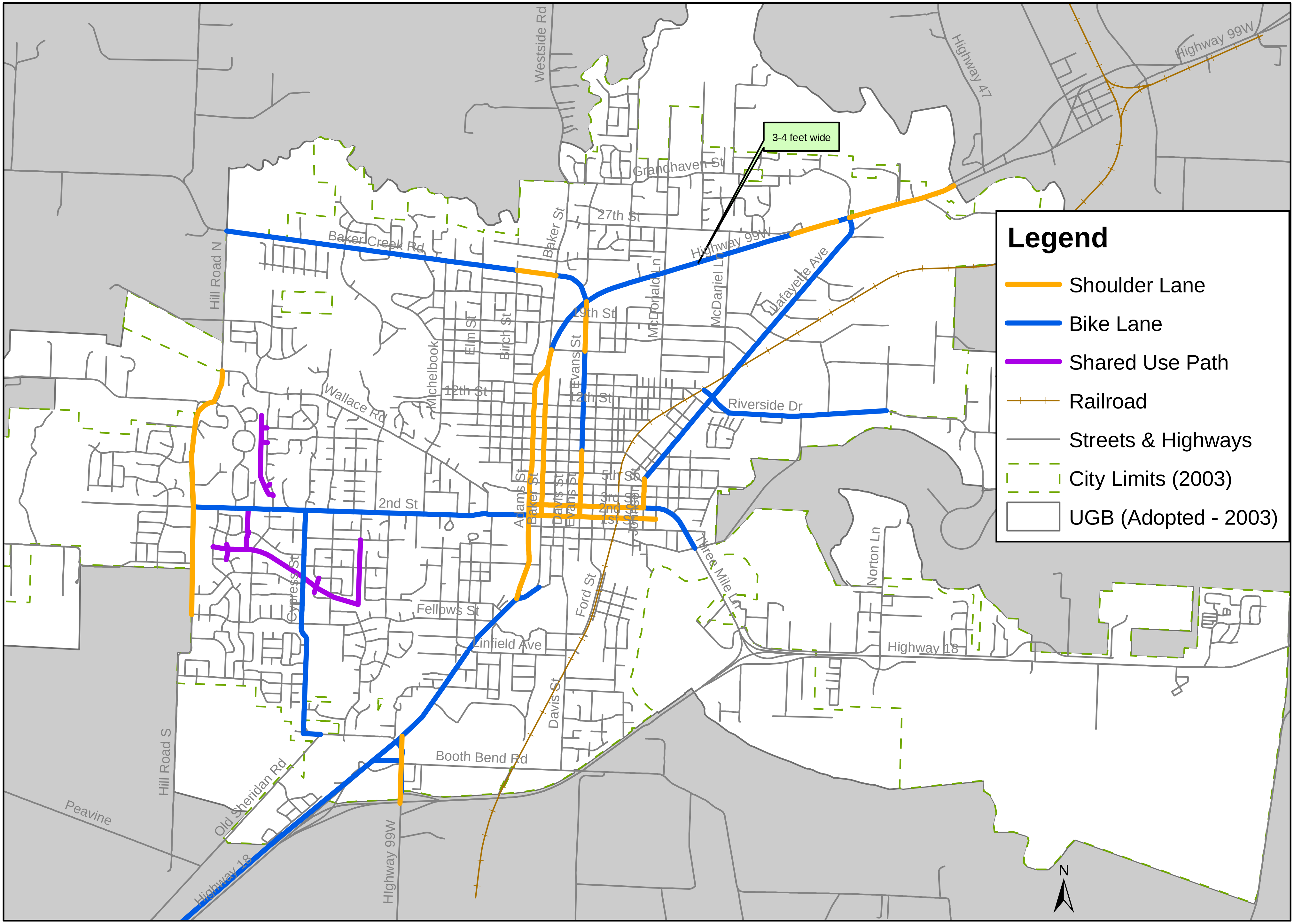
The McMinnville bicycle system has all three types of bicycle facilities (bike lane, shared-use path and unmarked shared roadway) illustrated in Exhibit 6-1, and these facilities are spread throughout the city.

Bicycle lanes are located throughout the City, mainly on major arterials such as Lafayette, Baker Creek Road, West Second Street and Highway 99W. There are almost seven miles of bicycle lanes on McMinnville arterial streets.

Bike Lane on Highway 99W

Although McMinnville's bicycle facilities cover most of the city, there are connections that need to be made and activity centers that should be served by adequate bicycle facilities. As mentioned above, Hill Road, Old Sheridan Road and Booth Bend Road do not have any bicycle facilities. This lack of connectivity is a large gap in McMinnville's bicycle system. Also, as schools often serve as community hubs in addition to educational facilities, the presence of bicycle facilities near schools is a priority. Older sectors of McMinnville have schools and activity centers disconnected from bicycle facilities.

Bike Lane on Baker Creek Rd



CITY OF McMinnville OREGON

Existing Bicycle Facilities

McMinnville TSP

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Exhibit 6-2

Shared-Use Paths

Shared-use paths can be used by both bicyclists and pedestrians. As noted in Chapter 5, there are two shared-use path facilities in McMinnville: (1) the Southwest Greenway, which was also designed and functions as a linear park and a stormwater detention facility, and (2) the newly constructed shared use path, located between West Second Street and Wallace Road Combined, these facilities provide good connectivity amongst southwest and northwest neighborhoods, but do not provide significant networking capacity for cross-town cycling., nor is there much opportunity to expand the shared-use path system., except for that portion planned for extension north of Wallace Road through the Shadden Claim to Baker Creek Road

Safety Conditions

One way to improve safety conditions for cyclists is to ensure that the transportation network allows for the appropriate separation of modes. For cyclists, modal separation along high volume arterials could improve safety and increase the efficiency of the non-motorized transportation system. Some recommendations for these types of improvements are discussed in the next section.

Bicycle Projects

A recommended list of bicycle improvement projects is generated to improve the overall safety and efficiency of McMinnville's system. An evaluation of existing bicycle conditions as well as traffic operations, safety, and connectivity issues all contributed to producing the project list.

These projects are intended to make better connections within McMinnville for all types of bicycle users. Together, these projects help complete McMinnville's bicycle system, as shown in the Bicycle System Plan Map in **Exhibit 6-3** (Appendix D summarizes the project cost estimates). There are three types of projects that include bicycle elements.

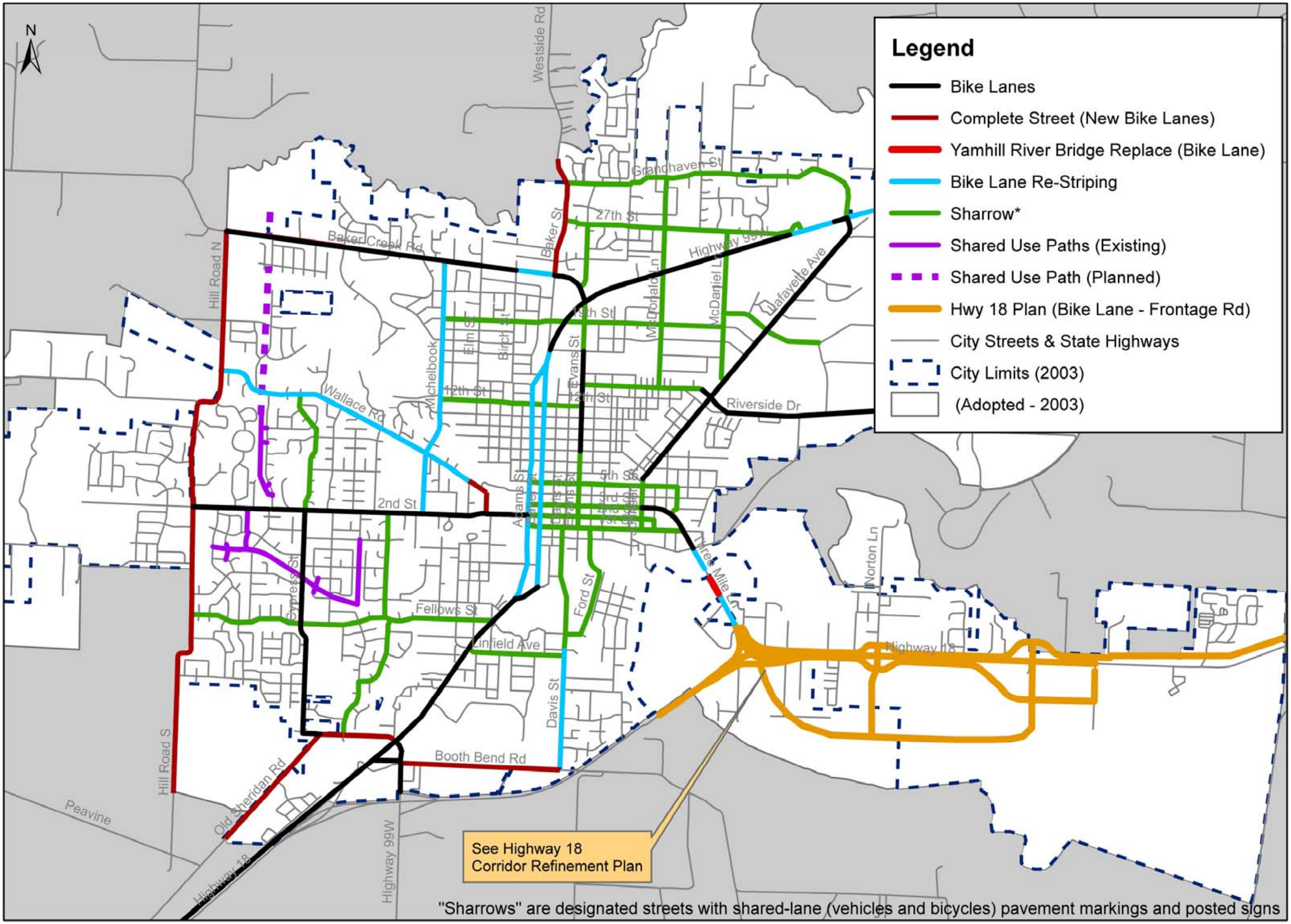
Complete Street Projects – New Bicycle Lanes

As noted in Chapter 4, a number of *Complete Street* projects are recommended for reconstruction of minor arterials to include pedestrian facilities and on-street bicycle lanes. These projects add slightly more than five miles (street centerline miles) of bike lane facilities. Hill Road, Old Sheridan Road, Booth Bend Road and North Baker Street are *Complete Street* projects that will include new bicycle lanes.

Road Diets – Re-Striping Streets to Add Bicycle Lanes

As the City considers re-striping some of its arterials with on-street bike lanes it may encounter the need to reduce travel lane widths and parking space. An excellent guide for consideration when reducing travel lane widths is Institute of Transportation Engineer's *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.* Several existing arterial and collector streets have sufficient width that, with minor re-striping of existing travel lanes and on-street parking, can be retrofitted with on-street bicycle lanes. These re-striping projects are sometimes referred to as *Road Diets*. Approximately 5.5 miles of collector and arterial streets are recommended for re-striping.[3]

Candidate for Bike Lane Striping: Michelbook



CITY OF McMinnville OREGON

Bicycle System Plan

McMinnville TSP

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Exhibit 6-3

A range of streets are well-suited for Road Diet improvements. **Exhibit 6-4** shows a "before and after" example of re-striping Baker Creek Road at the Baker Street intersection. New bike lanes can be added to a short section of Baker Creek Road to complete the corridor, by reducing the travel lane widths[4].

Exhibit 6-4 Road Diet – Baker Creek Road

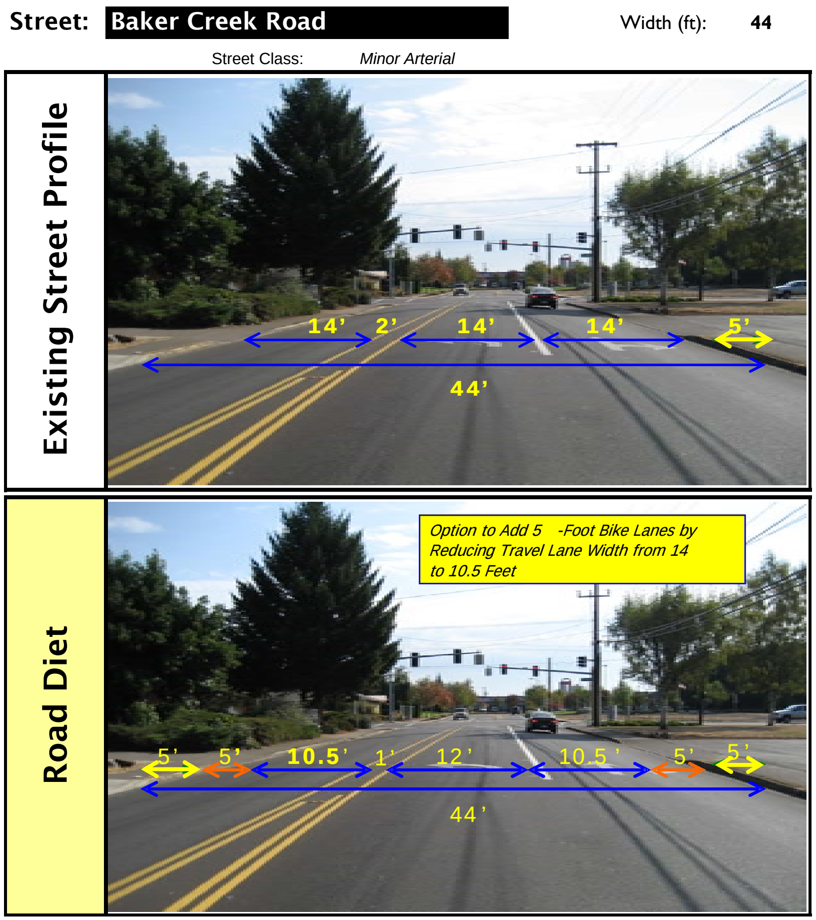


Exhibit 6-5 illustrates a similar Road Diet application on Wallace Road. Wallace Road serves largely residential traffic. The Road Diet application would yield new bicycle lanes, and with reduced travel lane widths the presiding traffic speeds may also slow to desired levels.

Exhibit 6-5 Road Diet – Wallace Road

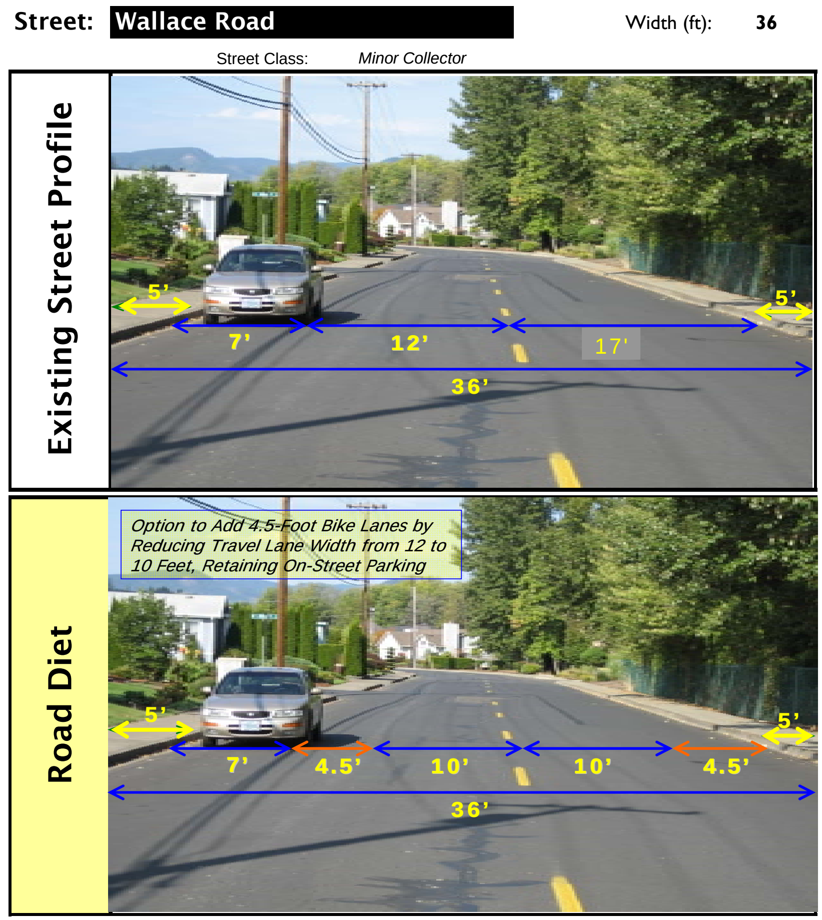
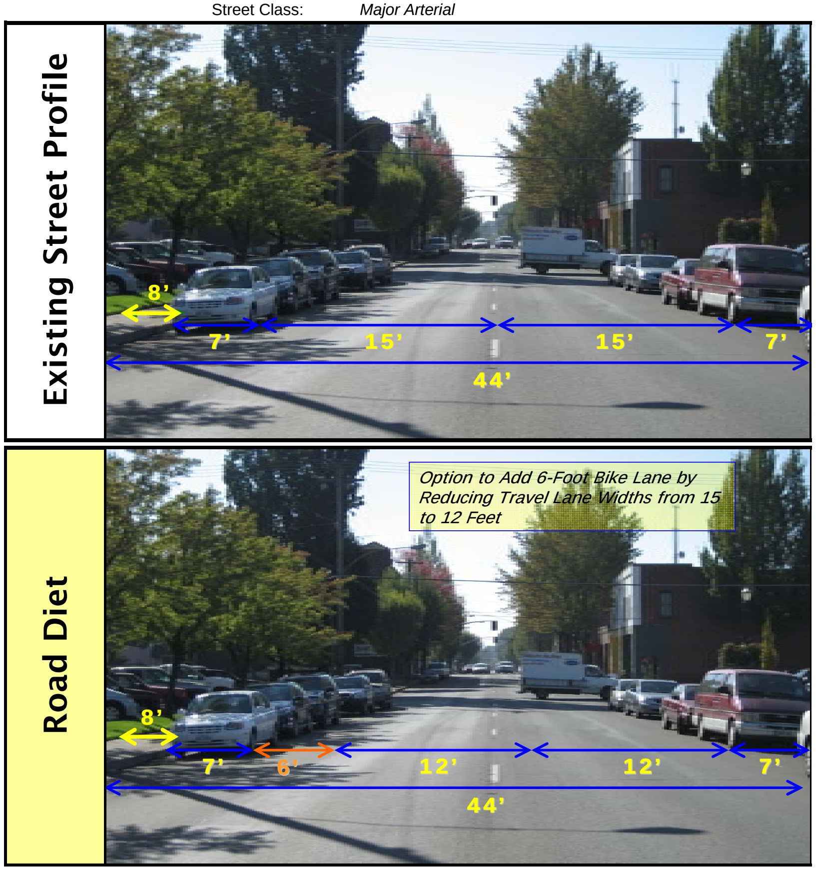


Exhibit 6-6 illustrates another Road Diet application, in this example on Highway 99W (Baker Street) within the one-way couplet section. By reducing travel lanes from 15 to 12 feet, a new 6-foot bike lane can be added.

Exhibit 6-6 Road Diet – Highway 99W (Baker Street)

Street: **Highway 99W (Baker St)** Width (ft): **44**

Street Class: *Major Arterial*



Re-Striping "Sharrows" – Shared-Lane Facilities

Many other collector street and important "connector" streets in McMinnville provide direct connections for cyclists, linking neighborhoods and important activity centers. These routes, however, lack sufficient width to accommodate bicycle lanes even by employing *Road Diet* modifications. The combination of both vehicle and bicycle traffic will require additional route designation signing and markings as shared-lane facilities, routes where motor vehicles and bicyclists share the travel lane. Examples of candidate routes for sharrow designation are shown in **Exhibit 6-7**.

Exhibit 6-7 Candidate Sharrow Routes

3rd Street

5th Street

Grandhaven

19th Street

These types of route designations are described further in the Bicycle Design Guide section below, and illustrated in **Exhibit 6-8**.

Bicycle Design Guide

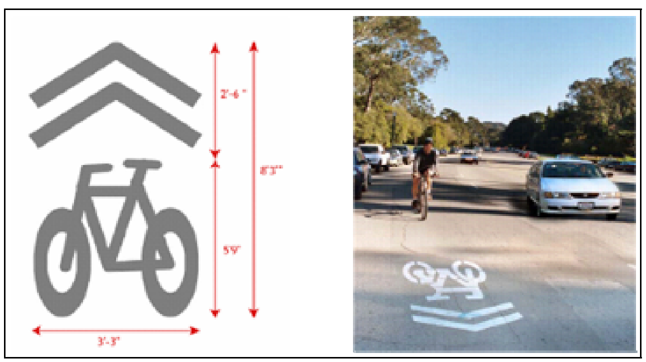
This chapter also includes recommendations for new or revised bicycle facility design guides as part of the McMinnville TSP.

Shared-Lane Symbols and Markings

In the absence of sufficient space to include on-street bicycle lanes on several of McMinnville's major streets, it is important to provide greater route designation for shared travel lanes. These shared lanes, if posted and marked appropriately, indicate presence of bicycle traffic to both the motorists and cyclists. The use of "sharrow" pavement markings has been adopted by the state of California for these conditions. Example "sharrow" pavement markings are illustrated in **Exhibit 6-8**. ODOT is expecting to include sharrows in the update of the Oregon Bicycle and Pedestrian Plan[5].

Further statewide policy consideration may be required before application and appropriate designation of sharrow pavement markings within the City of McMinnville. The City should exercise caution in "sharrow" pavement marking placement, particularly along streets with on-street parking. See San Francisco's research and findings in report titled "San Francisco's Shared-Lane Pavement Marking Study[6]."

Exhibit 6-8 "Sharrow" Symbol and Pavement Marking



Source: San Francisco's Shared-Lane Marking Study, February 2004.

Bike Lane Symbols and Markings

The City's current design standards for bike lane symbols and markings require some minor refinement for consistency with the MUTCD. **Appendix G** summarizes the recommendations of the MUTCD.

Bicycle Route Signing

Auxiliary signs may be used with standard bicycle route signs to inform cyclists of route continuity and major cycling attractions. Examples are also shown in Appendix G. These types of signs can be effectively coordinated through a new wayfinding system.

Other Bicycle Design Features

Bicycle Parking

Some potential bicyclists are hesitant to ride for utilitarian trips because they fear their bicycles will get stolen. There is a perception that any bicycle rack or hardware is not very helpful in deterring theft. The real and perceived fear of bicycle theft is an impediment to greater bicycle ridership.

The City of McMinnville should review and consider appropriate revisions to its building code and development ordinance to help ensure the appropriate placement (convenient and safe) and number of bicycle racks through the following measures:

- Placement — an adequate number of bicycle parking racks and/or lockers as needed at the appropriate destinations, such as schools and colleges, public gathering places, transit stations, bus stops, and shopping centers.
- Design—the recommended style of bicycle rack is the inverted "U" Bike Rib bicycle rack or the equivalent.
- Security—encourage employers and property owners to either provide secure bike parking near building entrances

and protected from rain, or allow secure storage inside buildings.

- Convenience—encourage merchants to provide secure, practical bicycle parking for customers (e.g. unique design requirements for the downtown McMinnville).

Difficult Intersections

Most conflicts between bicycles and motor vehicles occur at intersections and, not surprisingly, most accidents occur there. Care should be taken to design intersections that allow safe movement of cyclists. There are numerous intersection design treatments for consideration. At the very least, intersections on arterials and collectors should have clearly marked crossover zones where right-turning vehicles can mix with through bicycle traffic (see MUTCD). See Appendix G for further discussion of possible "bike box" treatments.

Drainage Grates

Drainage grates are part of the street drainage system. They capture storm water runoff that has flowed from the roadway into the gutter to be taken away via a subsurface system of pipes or to enter the groundwater through a sump. The City has already revised their street construction standards to include bicycle-safe drainage grates. A "bicycle safe" grate must let water pass without allowing routine types and amounts of debris to clog the inlets--and without trapping bicycle wheels. McMinnville should continue its system-wide replacement of older drainage grates with bicycle-safe grates.

Transit Access

YCAP provides bicycle racks on the front of all of their buses serving McMinnville. On the typical weekday, depending on weather conditions, these racks are often full indicating a high level of utilization. The City should continue to coordinate with YCAP to ensure that YCAP's bus fleet maintains bicycle rack access.

Bicycle Implementation Strategies

In implementing the non-motorized section of the TSP, several methods of providing bicycle facilities are currently available to the City:

- Inclusion in STIP. McMinnville should recommend to ODOT that future updates of the Statewide Transportation Improvement Program include re-striping of Highway 99W (especially the Adams-Baker one-way couplet) with bike lanes, which are prioritized in the TSP.
- Conduct further operational studies in follow-up to recommended Road Diet and Sharrow projects to document motorist and bicycle volume, speed and safety characteristics. These data can be used to determine if other sharrow designations should be replaced with on-street bicycle lanes, which will likely require removal of some on-street parking (one or perhaps both sides of street).
- In coordination with Yamhill County and other major employers (both public and private), consider establishing a bike facility (secure parking, showers, and changing rooms) and other bicycle amenities in the downtown core area and at other major activity and employment centers.

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[1] Association of American State Highway Transportation Officials. Guide for the Development of Bicycle Facilities, Washington, D.C. 1999.
[2] Manual of Uniform Traffic Control Devices, U.S. Department of Transportation - Federal Highways Administration, 2004.
[3] *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, Institute of Transportation Engineers, 2006*.
[4] National Cooperative Highway Research Program Report 3-72. Harwood, Douglas 2008. The research found no general indication that the use of lanes narrower than 12 feet on urban and suburban arterials increases crash frequencies. This finding suggests that geometric design policies should provide substantial flexibility for use of lane widths narrower than 12 ft.
[5] Oregon Bicycle and Pedestrian Plan, 1995, Oregon Department of Transportation.
[6] Shared-Lane Pavement Marking Study, City of San Francisco, February 2004.

CITY OF McMinnville OREGON

Transportation System Plan

Chapter 7
Transit System and TDM Plan

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7 Transit System and Transportation Demand Management Plans

As the costs of fuel and street projects increase, there will be greater demand and emphasis on public transportation services to address the mobility needs of McMinnville's residents. Furthermore, as a member of the Western Climate Initiative, Oregon is considering statewide policies to reduce greenhouse gas emissions. Local planning efforts will likely be encouraged and perhaps required to further emphasize transportation and land use plans, programs and policies that help reduce (single-occupant) vehicle miles traveled (VMT) and lower vehicle emissions per capita.

Through the Transit System and Transportation Demand Management (TDM) Plans, the City can simultaneously help relieve future traffic congestion and improve its environment by reducing drive-alone travel and their emissions.

As discussed in Chapter 3, future traffic congestion between the Highway 18 corridor and downtown and west McMinnville is generally attributed to peak hour commuting from new jobsites in and around the Airport area. Greater use of transit service and deployment of TDM measures offer viable alternatives to drive-alone travel in these corridors.

Pedestrian, bicycle and transit travel are key modal elements of McMinnville's TSP, and will become increasingly more important mobility options for McMinnville residents as the costs of transportation increase. Transportation demand management (TDM) measures, combined with the growing role for transit in McMinnville will also help to reduce VMT and carbon emissions. Both the public transit and TDM elements of the TSP are described below.

Transit System Plan

Transit service in McMinnville and the surrounding Yamhill County area comes in several forms: fixed-route bus services, dial-a-ride and commuter link bus service to other Willamette Valley cities. Yamhill Community Transit Area (YCTA) operates the local fixed-route, dial-a-ride and inter-city bus services in McMinnville. While the City does not directly own and operate public transit, there are many ways in which it supports transit through multi-modal system operations and project and program development. McMinnville's goal to support transit is:

Transit System Goal

To support YCTA in their goal to provide a city-wide street and sidewalk system that result in efficient transit operations (current and future) as well as safe and convenient pedestrian and bicycle access to public transportation services and facilities.

Transit Policies

Additional policies are identified to help guide the Transit System Plan, supplementing policies already included in the McMinnville Comprehensive Plan and summarized in Chapter 2 of the TSP.

- **Transit-supportive Street System Design** - the City will include the consideration of transit operations in the design and operation of street infrastructure.
- **Transit-supportive Urban Design** - through its zoning and development regulations, the City will facilitate accessibility to transit services through transit-supportive streetscape, subdivision, and site design requirements that promote pedestrian connectivity, convenience, and safety.
- **Transit Facilities** - the City will continue to work with YCTA to identify and help develop supportive capital facilities for utilization by transit services, including pedestrian and bicycle access to bus stop and bus shelter facilities where need is determined and right-of-way is available.
- **Pedestrian Facilities** - the City will ensure that arterial and collector streets' sidewalk standards are able to accommodate transit amenities as necessary along arterial and collector street bus routes. The City will coordinate with YCTA on appropriate locations.
- **Intermodal Connectivity** - the City of McMinnville will encourage connectivity between different travel modes. Transit transfer facilities should be pedestrian and cyclist accessible.

1997 McMinnville Transit Feasibility Study

In 1997 McMinnville completed its Transit Feasibility Study[1]. The Study assessed local travel and land use patterns, from which it identified and recommended a phased-plan to increase fixed-route transit service hours and expand geographic coverage. In 1997 YAMCO (predecessor to YCTA) operated only two local routes within McMinnville, with limited service hours, and only two inter-city link routes (one each to Newberg and Sheridan/Willamina). The Plan recommended adding a third route in McMinnville, linking west McMinnville and the Willamette Valley Medical Center near Highway 18.

Existing Transit and Public Transportation

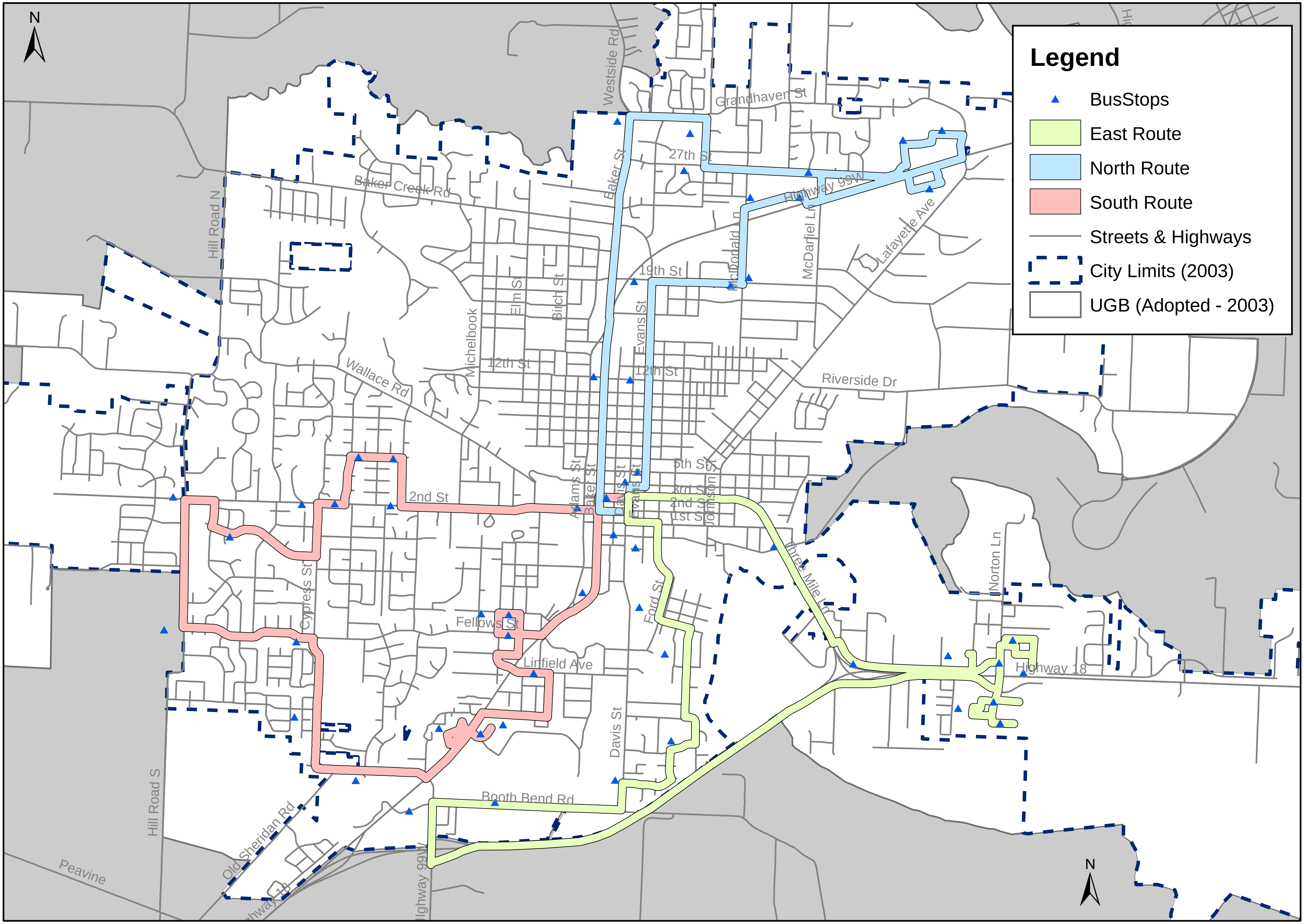
YCTA has essentially implemented the 1997 Transit Feasibility Study recommendations, and has increased county-wide services as well. This section describes the current transit services and facilities affecting the City of McMinnville. Included in the description is a summary of current fixed routes and service levels, effective March 2009.

Transit and public transportation facilities in the McMinnville area are operated by YCTA, a private non-profit organization serving Yamhill County. YCTA transit began as a service for the elderly and residents with physical or mental challenges. Transit operations have expanded to offer service to all residents. YCTA provides transit service in McMinnville through (1) bus transit, (2) dial-a-ride and (3) intercity commuter linking service.

McMinnville Bus Routes

YCTA currently operates three bus transit routes within McMinnville. **Exhibit 7-1** shows the YCTA bus routes. All routes are "loop" routes, where buses travel in a one-way direction around each loop. Each route operates on half hour headways on weekdays, and 90-minute headways on Saturdays. All transit routes operate between the hours of 6:00am and 7:00pm Monday through Friday and 8:00am to 7:00pm on Saturdays. There is no Sunday service.

Fares are $1 each way, $2 for a day-pass, or $30 for a monthly pass. Some riders qualify based on income for a free bus pass.



CITY OF McMinnville OREGON

YCTA Current Transit Routes (2008)

McMinnville TSP

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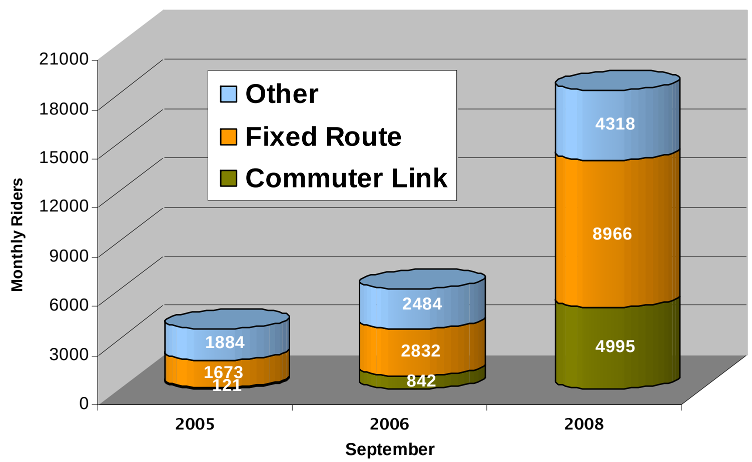
Exhibit 7-1

Exhibit 7-2 summarizes and compares YCTA's ridership for September in 2005, 2006 and 2008. In 2006, YCTA increased its operating hours significantly, the results were a near doubling of fixed-route ridership in McMinnville. As a result of additional service improvements, and to some degree the impact of higher gasoline prices, ridership across YCTA's system increased dramatically (again) in 2008.

Exhibit 7-2 YCTA Transit Ridership



Commuter Linking Transit

YCTA's commuter linking service is provided on four major routes, three linking to other transit systems in Hillsboro, Salem and Newberg. The commuter linking services also provide transit access to other Yamhill county communities: Amity, Carlton, Dayton, Sheridan, Willamina and Yamhill.

Fares for commuter linking service are also \$1 each way, \$2 for a day-pass, or \$30 for a monthly pass.

Transit Center

YCTA currently converges its three-route and commuter linking route service on 5th Street at the Yamhill County Courthouse. Yamhill County, in support of YCTA, is currently conducting a feasibility study to locate and develop a long-term site for local and regional transit center operations In addition, Yamhill County received a large allocation of federal funding through the American Recovery and Reinvestment Act (ARRA) to include the purchase of larger buses and develop the transit mall.

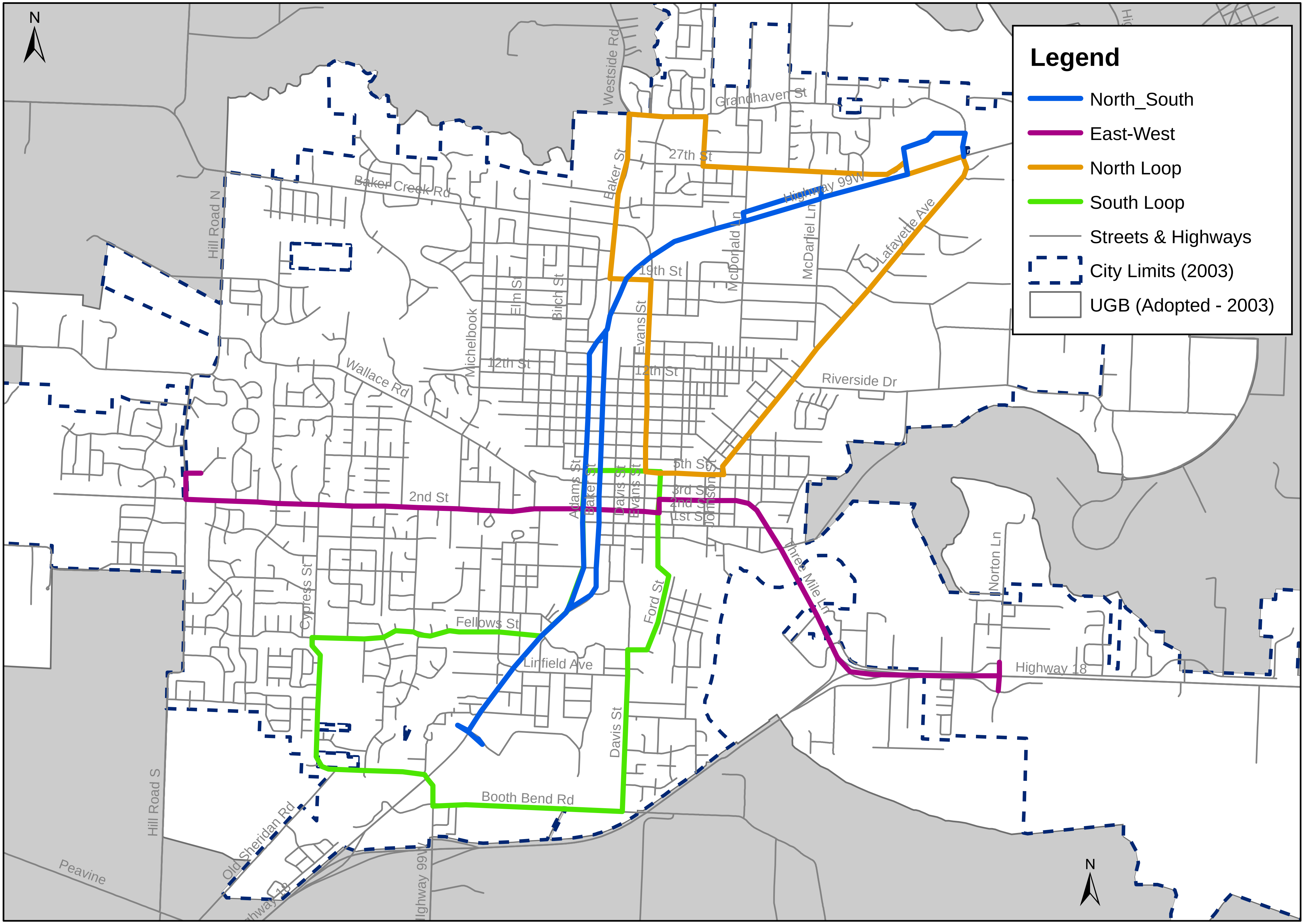
Dial-A-Ride

YCTA also operates dial-a-ride service for curb-to-curb, pick-up and drop-off service throughout Yamhill County. Dial-a-ride fares are \$1.50 general public and \$1.00 senior/disabled. Dial-a-Ride operates from 8am to 4:30pm, Monday through Friday. Dial-a-ride scheduling requires a 24-hour notice and request.

Future Transit Service

In April/May 2009 YCTA revised its fixed-route bus service in McMinnville, modifying two of its three looping routes to bi-directional, direct service. **Exhibit 7-3** maps the proposed YCTA fixed-route service plan. Compared to the current "loop" routes, the bi-directional routing along 2nd Street and Highway 99W will significantly reduce transit trip travel times, and should help to attract additional commuter travel in the future.

Along the new bi-directional routes YCTA and the City can begin an assessment of the type and location of designated bus stops and other important pedestrian and bicycle access features.



CITY OF McMinnville OREGON

Transit System Plan: Fixed Route Bus Service

McMinnville TSP

transpoGROUP

Exhibit 7-3

Bus Stops & Related Amenities

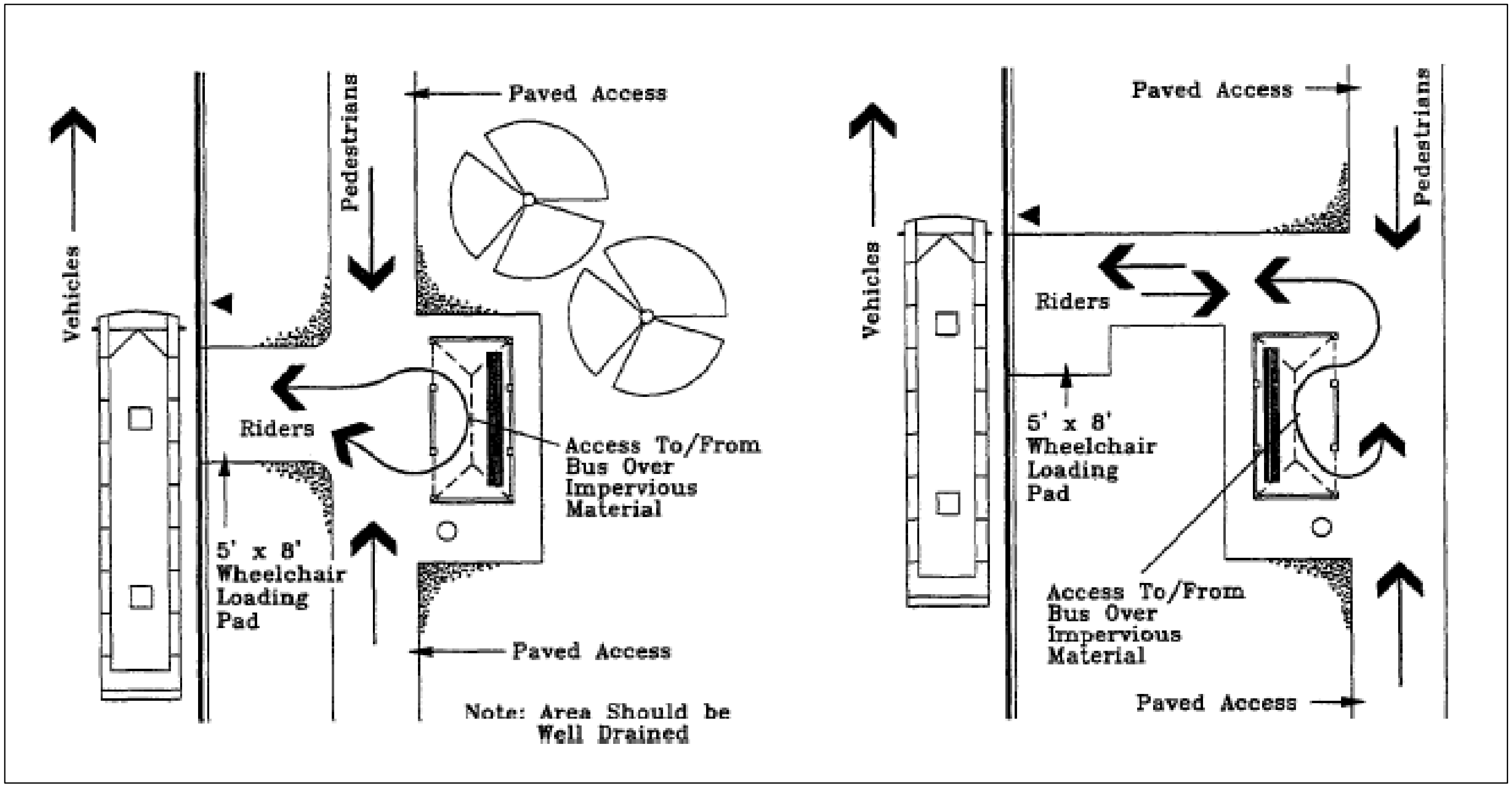
Within a transit system, additional factors that users consider in their travel decisions are curb-side factors. These factors affect transit users' comfort, safety, and convenience. Bus shelter design and placement are important examples of curb-side factors.

In order to implement the City's transportation policies from the Comprehensive Plan and TSP, McMinnville should consider increasing the City's curb-side factors in collaboration with YCTA. The locations at which the City may consider these factors are along the two new, bi-directional routes: Second Street and Highway 99W.

Amenities that would make transit a more attractive travel option include: shelters, benches, shade trees, and adequate sidewalks (see Chapter 5). All of these amenities should comply with the Americans with Disabilities Act (ADA). The federal Transit Cooperative Research Program (TCRP) outlines several of these design options in its report, *Guidelines for the Location and Design of Bus Stops*.[2] **Exhibit 7-4** displays options from this report that have accessibility for all users between the bus shelter and the curb.

While there is a possible new role for the City in support of these bus stop amenities, the installation and maintenance of these facilities should be administered by YCTA.

Exhibit 7-4 Bus Stop Design Examples



Transportation Demand Management Plan

Transportation Demand Management (TDM) is a general term for various strategies that increase transportation system efficiency. TDM treats mobility as a means to an end, rather than an end in itself. It emphasizes the movement of people and goods, rather than motor vehicles, and so gives priority to more energy and cost efficient modes (such as walking, cycling, ridesharing, public transit and telecommuting), particularly when the major street system will be heavily congested in the future.

As noted earlier in the TSP, the option to build more arterial streets and lanes are simply not available or desirable from a capital cost and environmental impact perspective. As McMinnville continues to grow, like other larger cities it will need to look more toward travel management programs and measures to help alleviate traffic congestion. In addition to the goals and policies identified the Comprehensive Plan, McMinnville should adopt a specific goal in support of TDM:

Transportation Demand Management Goal

To help educe single-occupant vehicle demand in McMinnville through a variety of transportation demand management strategies.

TDM Policies

As McMinnville's population has reached 30,000, the need to consider, develop and implement more specific TDM measures or programs arise. Consistent with the Street, Pedestrian and Bicycle System Plan elements, for the City to achieve its overall transportation goals it will have to seek additional ways to abate future traffic congestion in ways it hasn't had to in the past. New policies are included here as the basis for McMinnville to consider and implement effective TDM measures.

The City of McMinnville can establish several strategies to reduce transportation demand, and thereby address the city's transportation congestion. The objectives of the TDM program are to reduce the number of vehicles on the area's roads, which reduces the demand on the existing transportation network.

Coordination with Yamhill County

- The City should coordinate with Yamhill County to promote and support Transportation Demand Management investments that may include, but are not limited to, the following strategies:
  - Ride-sharing coordination with regional partners,
  - Parking management, and
  - Transit-oriented and pedestrian-friendly design.
- The City should support Yamhill County who provides assistance to employers in designing and implementing trip reduction plans at their work sites. Trip reduction plans will include strategies to encourage employees to use alternative transportation modes and discourage them from commuting in SOVs. Alternative work hours and tele-commuting will also be recommended as a way of reducing peak hour congestion.

Assisting Yamhill Community Transit Area (YCTA)

- The City should coordinate with YCTA to promote the use of transit and vanpools, in support of vehicle trip reduction strategies.

- The City of McMinnville should coordinate with and encourage YCTA to administer its county-wide TDM Program where it affects McMinnville. The Program may include, but is not limited to, the provision of:
    1. 24-hour rideshare matching hotline;
    2. carpool and vanpool match lists;
    3. information and referrals to the public on McMinnville and intercity transit service, vanpools, bicycle routes, tele-commuting, park-and-ride lots, other ridesharing agencies, and transportation services for special needs;
    4. assistance in the formation of vanpools;
    5. public outreach;
    6. school outreach;
    7. services to employers, including commuting surveys and individualized trip-reduction plans;
    8. coordination with other agencies and organizations with similar goals; and
    9. marketing of alternative transportation modes.

- Support YCTA in the application for adequate and consistent funding of the Regional TDM Program.

TDM Plan

Effective TDM programs are typically focused on reducing drive-alone commuter travel. Two available sources of data are useful in examining McMinnville work commuting travel behavior: (1) the U.S. Census[3] and (2) local transit ridership data.

Exhibit 7-5 summarizes the year 2000 mode-share of McMinnville resident commuters, compared to other Oregon cities in the Willamette valley or outside of the Portland metropolitan area. These data reflect only the mode of travel to work. For McMinnville, this is a summary of all working McMinnville residents who work either in McMinnville, Salem, Portland or other cities and locations outside the McMinnville urban area.

By comparison, McMinnville is generally in the middle of the pack in terms of the percentage of workers who drive-alone on their trip to work. Bend and Canby have a larger proportion of tele-commuters (work from home). Newberg has a larger portion of workforce that walk to work. Bike, walk and transit mode-share in Corvallis makes up a significantly larger portion of travel than other cities.

McMinnville has a significant portion of commuters carpooling and an average portion who bike and tele-commute. However, the portion of McMinnville workers who ride transit and walk to work is very small.

Exhibit 7-5 Work Commute Comparative - Mode Share

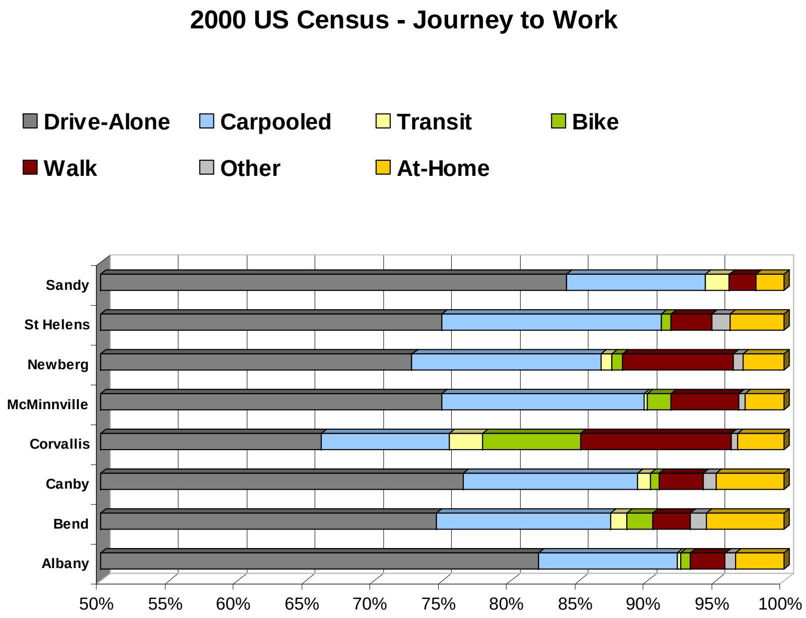


Exhibit 7-6 summarizes YCTA's historic ridership on their fixed-route and commuter link services, and a comparison to the historical price of gasoline. Two significant points are to be made in review of this historical data:

(1) commuter transit ridership rises and falls dramatically, commensurate with the cost of gasoline (or more generalized, the cost of drive-alone travel) – indicating that many commuters will chose transit if and when the cost of drive-alone travel becomes too great; a common characteristic found in many other U.S. cities.

(2) current, fixed-route ridership is much less affected by gasoline price, as the predominant share of local bus riders are non-commuters.

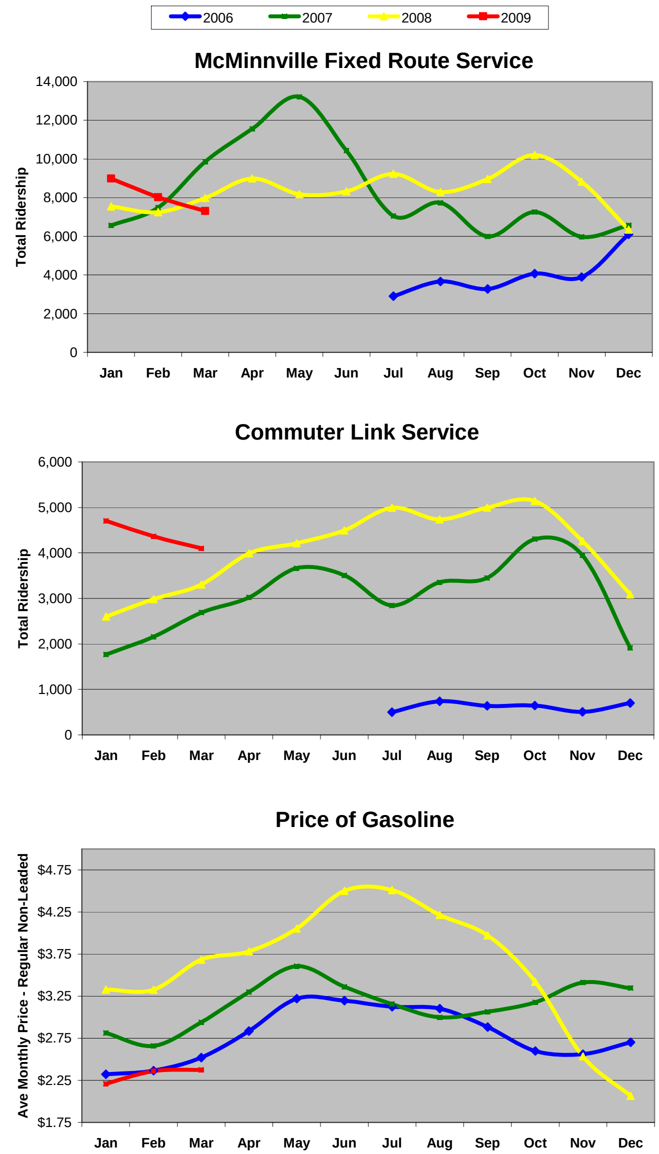
[Note: The dramatic increase in fixed-route service between February and May 2007 was the result of fare-free test program, which has since been terminated.]

Gasoline prices have declined dramatically since the summer of 2008, as has intercity transit ridership. Fixed route service in McMinnville has not been directly impacted by gasoline price; an indication that commuters are not yet a large portion of the fixed-route passenger profile.

Other elements of McMinnville's TSP supplement the City's support of public transportation, mainly:

- Complete Street improvements (see Chapter 4) with space to incorporate transit stops and amenities, and
- Enhance non-motorized modes travel systems with improved linkages to transit[4] by walking (see Chapter 5) and bicycle (see Chapter 6).

Exhibit 7-6 Transit Ridership vs. Gas Prices



The City of McMinnville has a strong basis for transit growth in the coming years. The City's coordination with Yamhill County regarding future improvements will be instrumental in serving a growing community. With the appropriate TDM strategies in place, McMinnville could significantly reduce the number of single-occupant vehicles on the transportation network and in turn reduce VMT per capita and emissions.

Transit and TDM program and plan improvements can have a significant affect on McMinnville's congested corridors, especially the links to the planned employment center near the McMinnville Airport (see Chapter 3).

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[1] McMinnville Transit Feasibility Study, 1997, David Evans & Associates.
[2] TCRP, *Report 19- Guidelines for the Location and Design of Bus Stops.* Washington, DC: National Academy Press, 1996. See online copy at: http://www.trb.org/news/blurb_detail.asp?id=2597
[3] U.S. Census Bureau, 2000 Journey-To-Work patterns for Willamette Valley Cities, U.S. Census website.
[4] City of McMinnville Comprehensive Plan.

CITY OF McMinnville OREGON

Transportation System Plan

Chapter 8

Freight Mobility, Air, Rail and Pipeline Plan

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8 Freight Mobility, Air, Rail and Pipeline Plans

Introduction

The safe and efficient movement of freight and goods is vital to the economy of McMinnville and the larger Yamhill County area. McMinnville is center to a major source of agricultural and timber commodities which are shipped by truck and in some cases rail. Cascade Steel ships both raw material and finished steel products by rail. Trucking also services other industrial uses within McMinnville's Industrial areas. The roadways that provide access to these facilities are vitally important to the successful movement of freight.

Historically, there has been a strong local perception that trucks should not route through downtown McMinnville. The goal has been to link Highway 99W and Highway 18 from the southwest, through the central city to its Industrial Park east of Lafayette Avenue. Downtown McMinnville streets were built in a compact grid street system, with small intersection corner radii. Longer and multi-unit trucks have a very difficult time negotiating the downtown grid, which can easily cause significant traffic back-ups.

McMinnville owns and operates the McMinnville Airport and has invested significantly in its long-range planning and facility development. The McMinnville Municipal Airport Layout Plan (Master Plan) was completed and adopted in 2004. The City is about to implement many of the Plan recommendations.

This chapter focuses on four key areas:

- Policies
- Truck Routes and Priority Projects
- Rail Service and Rail Crossings
- Air, Water and Pipeline Transport

Policies

Additional policies are identified to help guide the freight mobility, air and rail plans, supplementing those policies already included in the McMinnville Comprehensive Plan and summarized in Chapter 2 of the TSP. General guiding policies include:

- **Truck routes -** Identify and designate truck routes that tie inter-modal facilities and industrial zones to the designated through routes.
- **Airport** – Encourage safe aviation facilities that benefit local commerce.
- **Airport area land use -** Do not permit land uses within airport noise corridors that are not noise compatible, and avoid the establishment of uses that are physical hazards to air traffic at the McMinnville Airport.
- **Railroad** - Encourage railroad infrastructure to support current and future economic activities.
- **Railroad crossings** - Encourage gate controls and sidewalk facilities at primary railroad crossings of streets.

Freight Mobility

State Highways 18 and 99W serve as statewide and regional highway routes into and through McMinnville (see Chapter 2, Functional Classification).

Highway 99W

Highway 99W is not designated on the State's *Freight Route* system, but serves locally as McMinnville's major arterial and a local truck route.

Highway 18

Highway 18 is designated in the Oregon Highway Plan (OHP) on the National Highway System as a *Freight Route.* ODOT's criteria for designating freight routes includes freight volume, tonnage, connectivity, linkages to regional freight routes, percent of trucks on state highways and connectivity to other freight generating sites. Within urban areas like McMinnville, the policy and design objectives for freight routes are to function as expressways.

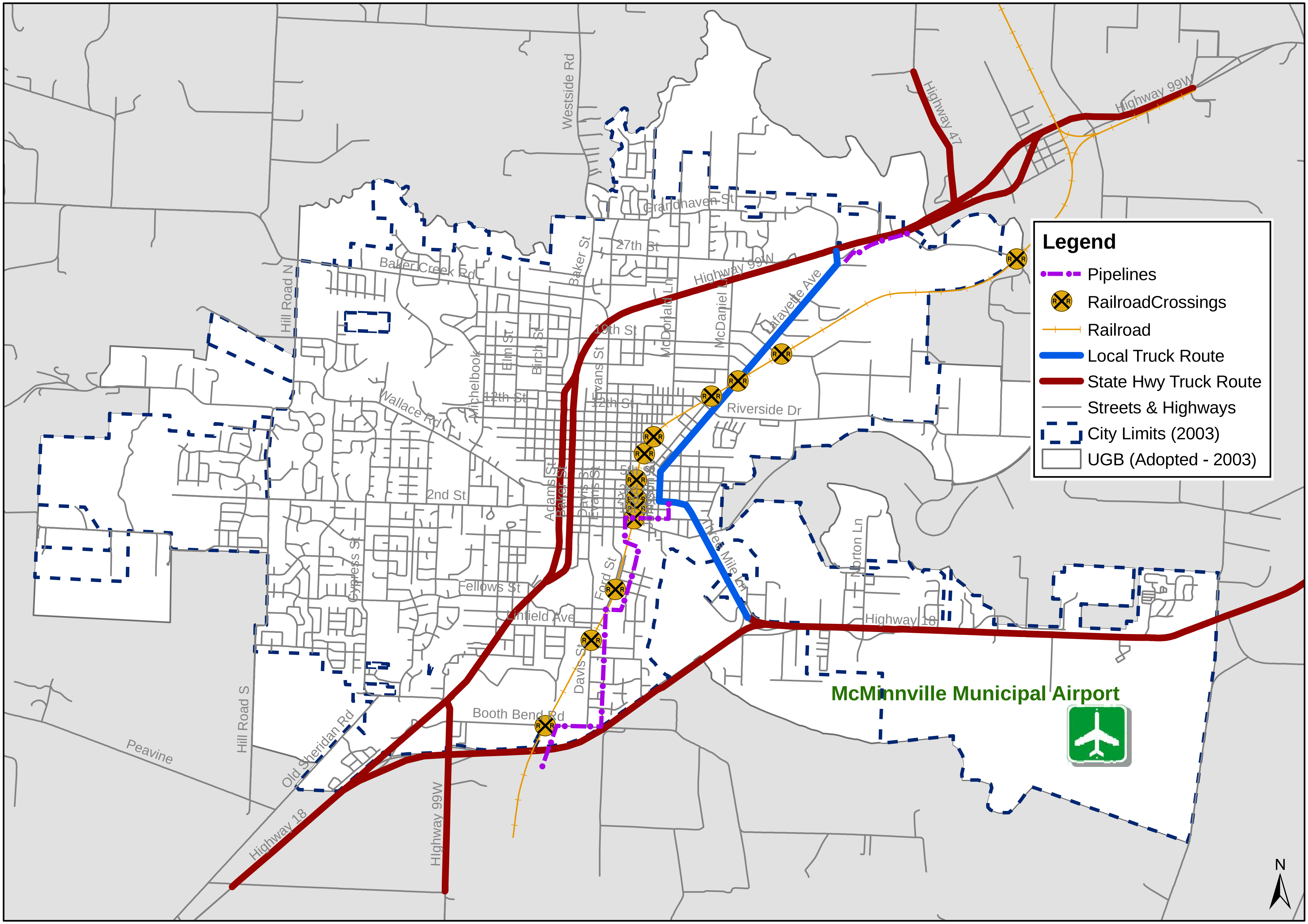
ODOT's and McMinnville's completion and adoption of the Highway 18 Corridor Plan is consistent with the OHP recommendation: eventual grade separation of Highway 18 to operate and function as an expressway. The Highway 18 freight route mobility standards and access management policies are noted in Chapter 2.

State and Local Truck Routes

Exhibit 8-1 illustrates the recommended Truck Route map for McMinnville, including the following:

- State Highways 18 and 99W
- Three Mile Lane between Highway 18 and Johnson Street
- Johnson Street / Lafayette Avenue from Third Street to Highway 99W.

Trucks on Lafayette Avenue



Truck Route, Railroad, Pipeline and Air

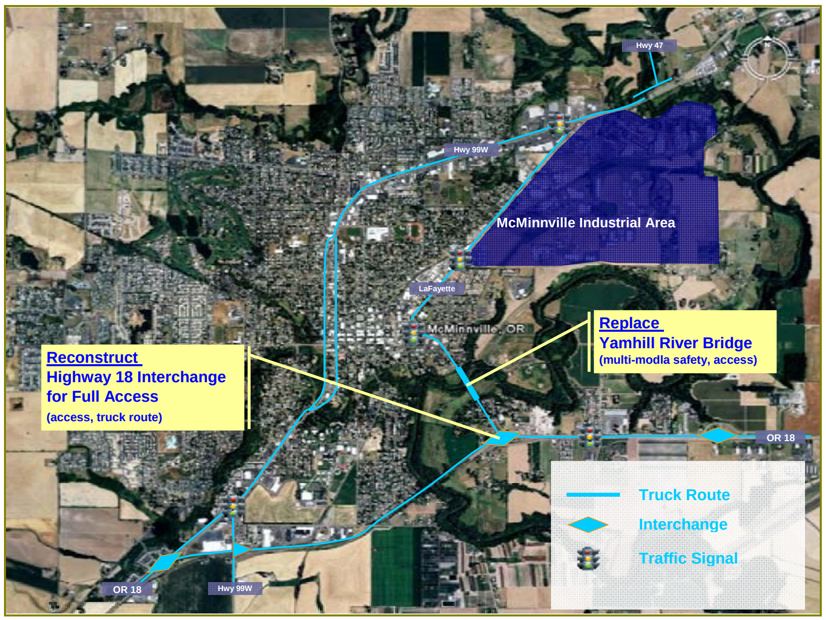
McMinnville TSP

Exhibit 8-1

Truck Priority Projects

As noted above, and in working with the Transportation Advisory Committee, the TSP effort identified new local truck routing along Three Mile Lane and Lafayette Avenue for improved truck access to one of McMinnville's industrial areas. This truck routing system will require advancement of Highway 18 interchange improvements, sooner than anticipated in the phasing plan from the *Highway 18 Corridor Refinement Plan*, and replacement of the Yamhill River Bridge. Each of these improvements are recommended in the Street System Plan (Chapter 4), and shown in **Exhibit 8-2**.

Exhibit 8-2 Recommended Truck Route Improvements



County Road Connectors

Several county roads, like Westside Road, carry local truck traffic into and through the McMinnville area, mainly the hauling of timber and agricultural products. Truck traffic varies seasonally on these routes. The TSP does not recommend designating these routes as truck routes, as it encourages greater trucking on undersized city streets and through residential neighborhoods.

Rail

Rail transportation is a key component in the movement of freight and goods. Rail lines safely and efficiently carry millions of tons of freight through McMinnville on an annual basis. Without rail access, more trucks would be needed to transport freight which would further increase congestion and cause increased wear to the existing roadway system.

Exhibit 8-1 shows the existing rail route and at-grade crossings. The Portland and Western Railroad provides short-haul freight service in McMinnville. This line connects Portland with Albany where it meets the Burlington Northern-Sante Fe Railroad (BNSF). The railroad runs through the east side of McMinnville passing through a portion of the Linfield College campus, and continuing northward through the downtown, and extending northeasterly ultimately passing behind Cascade Steel Rolling Mills, a major rail shipper; a rail spur projects west into this site specifically to serve the steel mill. Freight business on this line is generally increasing and is an important component of McMinnville's economy.

The railroad presently carries two freight trains a day on a regular basis. The railroad also provides additional switching runs in high volume areas such as near the Cascade Steel Rolling Mills site. These switching runs are also near the City's one non-gated railroad crossing located at Riverside Drive, north of and adjacent to the steel mill. The industrial land-rail connection removes trucks from the local highway system; the railroad crossings impede east-west mobility.

Railroad Crossings

At grade railroad crossings in the City, as illustrated in **Exhibit 8-1,** are points of friction between rail traffic and vehicular, pedestrian, and bicycle traffic. Delays for vehicular traffic and trucks are increased when trains are crossing the roadway. Buses are required to stop and check for rail traffic at railroad crossings before proceeding even when no warnings are active causing delays for motorists behind them. At grade rail crossings can be hazardous for pedestrians and cyclists because of the uneven nature of the roadway.

There are fourteen at-grade railroad crossings within the McMinnville UGB. Many of the downtown and major street railroad crossings were reconstructed and modernized in 2002, at which time both the 4th Street and Washington Street crossings were closed. These improvements included rail bed structural improvements, and replacement or new advanced warning signs, signals and crossing arms. Some of the improvements included new sidewalks crossing the rail line on both sides of the street crossing, others did not or were isolated to only one side.

A review of the Federal Railroad Administration's[1] safety records revealed that there was one reported rail-related accident within the McMinnville UGB, located at the McDaniel Street crossing in 2006. The accident involved a motorist who drove around the crossing gate at about 10 mph and was struck by the train which was traveling at about 5 mph. This accident was the cause of the driver's failure to obey traffic law, and resulted in no injuries.

In Chapter4 (Street System Plan) there are two street projects that include new railroad crossings improvements, with new traffic control (signal arms) signs and sidewalk crossing improvements: Riverside Drive and Booth Bend Road. Chapter 4 also recommends a new sidewalk on north side of the 5th Street railroad crossing.

Recommended railroad crossing improvements are shown in **Exhibit 8-3**.

Signal, Crossing Arms and Sidewalks at 3rd Street Rail Crossing

Additional sidewalk improvements are recommended at the following railroad crossings:

- McDaniel Street
- 8th Street
- 5th Street

Exhibit 8-3 Recommended Railroad Crossing Improvements

	Traffic Control				Sidewalks			
Crossing / Street	**Cross-buck sign**	**Pavement Marking**	**Advanced Warning Signal**	**Crossing Arm**	**Both sides**	**One side**	**None**	**Plan Recommendation**
RIVERSIDE DR	x						x	See Chapter 4, Street Projects - new crossing roadbed and signal with arms, and new sidewalks
ORCHARD AVE	x	x		x			x	New sidewalks, both sides
LAFAYETTE AVE	x	x	x	x	x			
MCDANIEL LN	x	x		x		x		New sidewalks, one side
NE 13TH ST	x	x	x	x	x			
NE 8TH ST	x	x		x		x		New sidewalks, one side
NE 5TH ST	x	x		x		x		See Chapter 4 Street Projects - New sidewalks, one side
NE 3RD ST	x	x	x	x	x			
NE 2ND ST	x	x		x	x			
NE 1ST ST	x	x		x	x			
WASHINGTON ST	x					x		
STOREY ST	x	x		x	x			
DAVIS ST	x	x		x	x			
BOOTH BEND RD	x	x		x			x	See Chapter 4, Street Projects - new crossing roadbed and signal with arms, and new sidewalks

Missing Sidewalk at 8th Street

Missing Sidewalk at 5th Street

Air

The McMinnville Airport Layout Plan[2] (MALP), including its findings and recommendations, are included in the TSP by direct reference.

Background

McMinnville Municipal Airport (MMV) is owned and operated by the City of McMinnville, Oregon. Approximately 710 acres in size, the airport has a triangular configuration, formed by two major runways and a connecting taxiway.

The FAA classifies the airport as a general aviation (GA) facility. A general aviation airport does not receive scheduled commercial passenger service but serves other commercial purposes such as charters. The McMinnville Airport receives private business and recreational trips. The airport is also an important pilot training facility for numerous airline and aircraft operators. Commercial passenger service is available via Portland International Airport approximately 75 minutes away.

McMinnville's airport is the only airport located in Yamhill County that is eligible for federal funding through the National Plan of Integrated Airport Systems (NPIAS), administered by the FAA. NPIAS airports are eligible for federal funding of improvements through FAA programs such as the current Airport Improvement Program (AIP). The FAA requires that all NPIAS airports periodically update their airport plans to maintain effective long-term planning.

MMV is included in Oregon's "Core System of Airports" as defined in the Oregon Aviation Plan (OAP).[3] [4] Core system airports are defined as having "a significant role in the statewide aviation system." MMV is included in the "Business/High General Aviation (GA) Airport" category based on its current functional role. Business/High Activity airports typically accommodate corporate aviation activity, including business jets, in addition to a wide range of general aviation users.

The OAP-defined minimum facility standards for Business/High Activity GA airports include the provisions of all-weather capabilities, instrumentation, a runway-taxiway system and services capable of accommodating a wide variety of aircraft activity. Business/High Activity GA airports are significant components in the statewide transportation system and generate both direct (employment, etc.) and indirect economic benefits for the local community or region through commercial-related aviation businesses and other non-aviation businesses that rely directly on general or business aviation.

Plan Conclusions

The major MALP study conclusions are noted here:

- MMV is included in the National Plan of Integrated Airport System (NPIAS), making it eligible for federal funding through the Federal Aviation Administration (FAA).
- MMV is categorized as a "Business/High Activity General Aviation Airport" in the 2000 Oregon Aviation Plan and is included in Oregon's core system of airports, which denotes its significance in Oregon's aviation system.
- MMV is recognized as one of the northwest's premier glider training facilities, with currently more than twenty locally based sailplanes/gliders.
- MMV has two paved runways (4/22 and 17/35). Runway 4/22 is served by a full-length parallel taxiway. An access taxiway was recently removed and an infield taxiway is to be constructed in 2009.
- The 1989 Airport Layout Plan (ALP) indicated that the "existing" airport reference code (ARC) was B-II, which is consistent with multi-engine or small business jet aircraft. The ALP identified the "future" ARC as D-III, which includes transport category aircraft.
- The majority of McMinnville Municipal Airport is located entirely within the City of McMinnville's city limits and Urban Growth Boundary (UGB), in the General Industrial (M-2) Zone. The extreme northeast corner of airport property, in the vicinity of the intersection of Oregon State Highway 18 and Cruickshank Road, is outside the city limits and UGB and is subject to Yamhill County's zoning jurisdiction. The City's M-2 (General Industrial) Zone allows airports as an outright permitted use.

Plan Recommendations

The City of McMinnville has or is in the process of implementing many of the MALP recommendations. The Plans major recommendations are summaized here:

- Regular scheduling of pavement maintenance.
- Revised design standards for Runway 4/22 based on FAA airport reference code (ARC) B-II Runway 17/35.
- Expansion of the outer section of the terminal apron to provide additional parking for aircraft
- Expansion/replacement of airport terminal building
- Closure of Taxiway D (completed)
- Reconstruction of runway 17/35 (completed)
- Acquisition of approximately 12 acres within the future runway (35) protection zone (RPZ) to meet FAA RPZ clearance and control guidelines.
- Lighting Runway 17/35 to increase day/night operational capabilities and safety.
- Reconfiguration of glider staging area located along the east side of Runway 17/35 to eliminate conflicts with several FAA-defined clearances
- Hangar reconfiguration, location and expansion
- New internal airport access road to serve future aviation and related development in the eastern and infield areas of the airport.
- Ensure that the City of McMinnville, Yamhill County, and the City of Dayton revise or amend their land use airport overlay zoning to reflect updated boundaries of the FAR Part 77 airspace surfaces that fully comply with Oregon state law (ORS Ch. 836.600-630). The ordinance language and mapping developed and maintained by the individual land use jurisdictions should be consistent to ensure overall compatibility.
- The City of McMinnville should require that applicants for all leases or development proposals involving construction of structures on the airport demonstrate compatibility with the airport's protected airspace surfaces. The applicant should be required to provide all documentation necessary for the sponsor to obtain "no objection" finding by FAA resulting from the review of FAA Form 7460-1 – Notice of Proposed Construction or Alteration, prior to approval of ground leases. Any proposal that receives an objection by FAA should not be approved without first addressing FAA concerns.
- Local (City or County) planning and building officials should require that applicants for all proposed development within the boundaries of the airport overlay zone (as defined by the updated Airport Airspace Plan) demonstrate a finding of "no objection" by FAA resulting from review of proposed development (FAA Form 7460-1) prior to approval.
- Recommendation that any proposed changes in land use or zoning within the boundaries of the airport overlay zone be coordinated with the Oregon Department of Aviation (ODA) to ensure consistency with Oregon airport land use guidelines.

The physical relationship that exists between MMV, the adjacent Evergreen International complex, and the Evergreen Air Museum/Captain Michael King Smith Education Institute creates an extremely valuable asset that should be preserved and enhanced whenever possible for the continued benefit of the entire community. The unique combination of public and private aviation-related investment has resulted in substantial job creation, increased tourism, and significant overall contribution to the local economy.

Water

Within McMinnville there are no navigable waterways. The South and North Yamhill Rivers form portions of the McMinnville UGB and city limit line. Neither of these rivers however are used for shipping, as they are used only recreational purposes. No new policy or action plans are included or recommended in McMinnville's TSP regarding water transport.

Pipeline

A 6-inch natural gas pipeline runs through McMinnville. The pipeline is owned and operated by Northwest Natural Gas Company. The gas line currently runs under capacity. There are no foreseeable needs or plans to either expand or relocate this line within the next 20 years (as reported by NW Natural Gas). The natural gas line is also shown in **Exhibit 8-1**.

[1] Federal Railroad Administration, website data records – 1995-2009. http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/
[2] McMinnville Airport Layout Plan, City of McMinnville, prepared by Century West, 2004.
[3] Oregon Aviation Plan (Dye Management/Century West), © Oregon Department of Transportation 2000.

CITY OF McMinnville OREGON

Transportation System Plan

Chapter 9

Funding Plan and Capital Improvement Plan

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9 Funding Plan and Capital Improvement Plan

The McMinnville TSP Funding Plan includes:

- a goal and set of planning principles to help guide the City to a successful Funding Plan,
- a summarization of planning-level cost estimates for the transportation facilities and major investments identified in the TSP (intended to provide an estimate of the fiscal requirements to support the land uses in the acknowledged comprehensive plan(s) and allow McMinnville to assess the adequacy and feasibility of existing and possible alternative funding mechanisms),
- a list and general estimate of the timing for planned transportation facilities and major improvements – termed the Capital Improvement Plan, and
- a discussion of existing and potential funding sources to fund the development of each transportation facility and major improvement (which can be described in terms of general guidelines or local policies).

This chapter summarizes the assessment of transportation funding options of the McMinnville TSP. It summarizes the transportation improvement projects, identifies general timing and rough cost estimates of transportation system improvements, and summarizes the existing and potential future funding resources to pay for these improvements, to serve as a general policy guideline.

Overview

As shown in **Exhibits 9-1** and **9-2**[1], McMinnville, like all other Oregon cities and the State, are facing a significant challenge to fund its transportation capital, maintenance and operation programs. Oregon's major transportation revenue comes in two forms: gasoline taxes and vehicle license fees. Oregon's tax and fee rates are the lowest in the western United States. Compounding this problem has been the significant rise in the cost in raw material (which has recently leveled off or decreased some), which has outpaced the increase in transportation revenue over the past decade.

Exhibit 9-1 Comparative Transportation Taxes & Fees

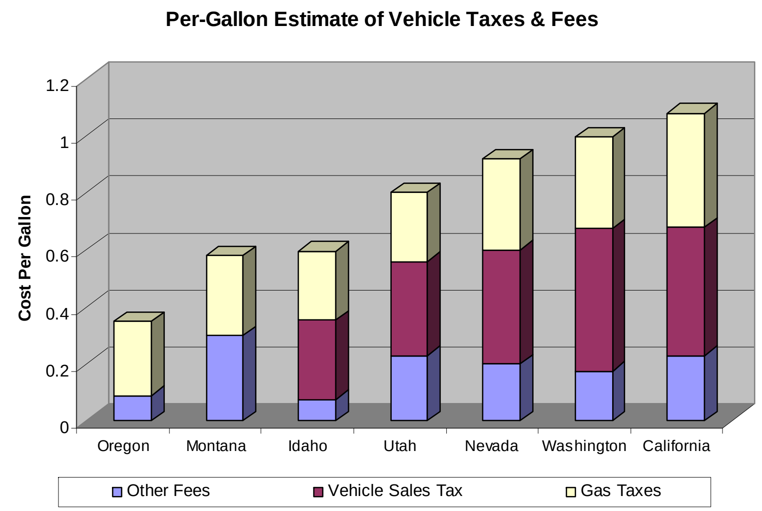
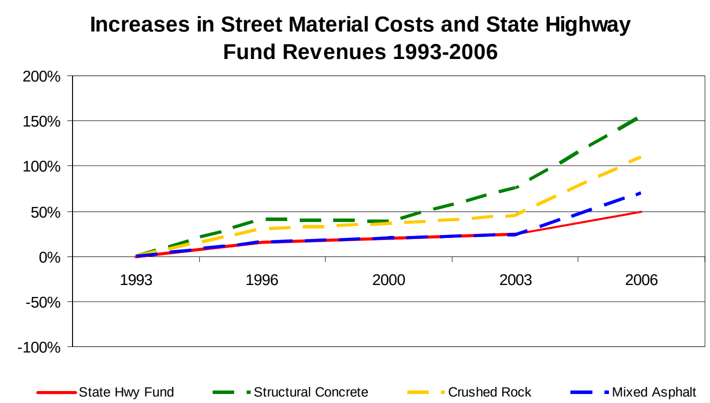


Exhibit 9-2 Comparative Material Costs and Highway Fund Revenue



Oregon per capita revenues are in decline. Transportation construction costs are growing at significantly higher rates than statewide revenue. Simply put, McMinnville purchasing power for transportation capital and maintenance programming is severely diminished.

McMinnville's needs, however, have not diminished. The *Complete Street* projects, new sidewalk and curb ramps, and new bicycle facilities outlined in previous chapters of the TSP all have a price tag. Complicating matters, the availability of Federal and State funding assistance is not yet fully known. Further, McMinnville does not yet know the full implications of its short-term priorities and long-term pavement maintenance and preservation needs, the combination of which may consume most or all of the City's current annual receipts from the State Highway Fund. The TSP provides the initial guidance for the City to tackle its transportation funding issues.

Funding Policy

Additional policies are outlined here to guide the TSP Funding Plan. Emphasis is placed in the City's ability to pursue Federal and State grants and traditional funding programs, and consider and implement appropriate local funding programs to fund local projects in the McMinnville urban area.

Transportation Funding Plan Goal

A transportation funding plan for the McMinnville urban area that helps identify funding to meet the City's current and future capital, maintenance, and operations needs.

Capital Improvements

- **Motor Vehicle Fuel Tax.** The City should continue to use a combination of Motor Vehicle Fuel Tax and Vehicle License Fee revenue to fund capital improvements to, and maintenance of, the transportation system.

- **Systems Development Charge.** The City should continue to consider the impacts of future growth on the McMinnville transportation system and determine what level of development charges should be collected by the City to mitigate impacts placed on area-wide transportation facilities by expected future development.

- **Development Exactions.** The City should require new developments to mitigate their impacts on the transportation system.

- **Bicycle and Pedestrian System Funding.** The City should consider a new allocation and set aside of its Motor Vehicle Fuel Tax funds for creation of on-street bicycle facilities and curb ramp replacements.

- **Pursuing Federal and State Grants.** The City should continue to aggressively pursue Federal, State, and private grants to augment street and non-motorized capital improvements.

Pavement Management

- **Primary Maintenance Funding Sources.** Assuming no changes in State funding mechanisms, the primary funding sources for street system maintenance activities will be the City's allocation of the Motor Vehicle Fuel Tax.

- **Seeking Additional Funding Sources for Maintenance.** The City should seek additional funding sources to meet the long term financial requirements of sustaining a perpetual life street operations and maintenance program, including the consideration of a street utility fee and utility franchise fee.

- **Responsibilities for System Maintenance.** The City should continue to participate in cooperative agreements with the State for maintenance of traffic signal systems on City streets and State highways based on equitable determinations of responsibility and benefit. The City should continue to participate in cooperative agreements with the County for the maintenance of county roads within the city.

- **Primary Funding Sources for Operations.** Assuming no changes in state funding mechanisms, transportation system operations activities will likely be funded primarily from the City's allocation of the Motor Vehicle Fuel Tax. Other funding sources should be pursued to augment the financial requirements of providing adequate future system operations.

- **Pursuing Federal and State Grants.** The City should pursue federal and State grants to augment operations activities, especially in the planning and engineering functions.

The timing and funding provisions in the transportation funding program are not considered a land use decision as defined by the Transportation planning Rule (TPR) and ORS 197.712(2)(e) and, therefore, cannot be the basis of appeal under State law. In addition, the transportation funding program is to implement the comprehensive plan policies which provide for phasing of major improvements to encourage infill and redevelopment of urban lands prior to facilities which would cause premature development of developable, urban areas or conversion of rural lands to urban uses.

Capital Improvement Plan

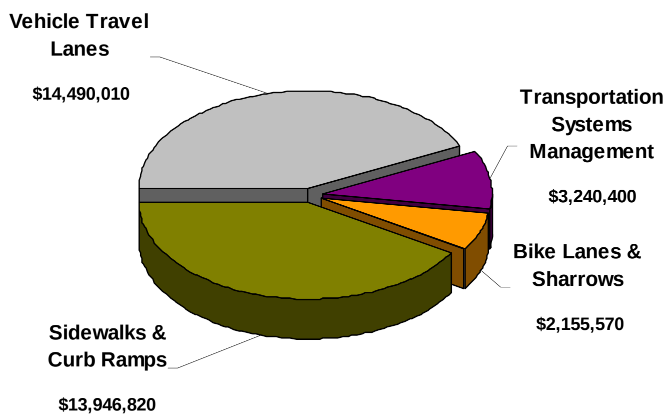
The City of McMinnville, like other cities in Oregon, is faced with the need to improve and expand its transportation system for greater multi-modal safety, access and mobility. Based on the examination of McMinnville's transportation system, as summarized in Chapters 3-8 of the TSP, the City's Transportation Capital Improvement Plan (TCIP) is inclusive of long-range improvements for auto, bicycle, pedestrian, and transit facilities on both City streets and State highways.

Planning-level Cost Estimates

A summary of the TSP planning-level cost estimates is shown in **Exhibit 9-3**. Nearly half of the TSP total is targeted to bicycle, pedestrian and transportation system management improvements in the form of new traffic and intersection control treatments.

See **Appendix D** for detailed summaries of each project, including their planning-level cost estimates.

Exhibit 9-3 Summary of TSP Planning-Level Costs



Some of the CIP projects are growth related, others are identified to complete streets with appropriate vehicle, pedestrian (and hence transit) and bicycle facilities.

A detailed listing of the CIP is shown in **Exhibit 9-4**. The McMinnville CIP identifies over $33.8 million (2008 dollars) in proposed transportation improvements over the next twenty years and beyond. Additional funding for a set of proposed improvements is expected to come from the Oregon Department of Transportation (ODOT) on critical, state highway facilities.

It is likely that residents of McMinnville will be faced with the need to consider additional local funding if it chooses to implement the TSP findings and recommendations for *complete streets*, and new traffic management and bicycle and pedestrian systems.

Transportation Funding Sources

Federal and State

Under current Federal and State legislation, there are several methods of funding available to the City of McMinnville for street system studies, capital improvements, programs, and operations and maintenance:

Federal Surface Transportation Program (STP) Funds

These are Federal funds available through SAFETEA-LU legislation that are theoretically available to the City of McMinnville through ODOT. These funds, if available, are flexible and can be used for different types of capital improvements and transportation programs.

Federal Enhancement Funds

Federal funds are available to complete capital improvements and programs related to pedestrian, bicycle, and other alternative travel modes to the automobile. This program can also be used for historic preservation of transportation facilities.

City Allocation of State Highway Fund

The State Highway Fund is comprised of statewide (1) motor vehicle fuel taxes, (2) motor vehicle registration fees, and (3) weight-mile tax. The City's share of these revenues is used in McMinnville to build, operate and maintain the City's street system. These funds are also used to provide transportation engineering and planning support. The state of Oregon allocates the State Highway Fund to cities based on population and counties based on number of registered motor vehicles[2]. The current formula for the State Highway Fund distribution is:

Exhibit 9-4 McMinnville's Capital Improvement Plan

CAPITAL IMPROVEMENT PROJECTS					USER									COST	PARTNERSHIP					
			Traffic Signals		Need					Benefit					City					
Street	From	To	New	Modify / Replace	Safety	Capacity	Access	Operations	Freight	Auto	Pedestrian	Bicycle	Transit		General	SDC	Private	Grant	County	State
Complete Streets																				
2nd Street	Adams	Cowls		2	+	+	+	+		Primary	Secondary	Secondary	Secondary	$1,097,000	✖	✖		✖		
5th Street	Hwy 99W	Lafayette	4	1	+	+	+	+		Primary	Secondary	Secondary	Secondary	$1,203,500	✖	✖				
Baker Creek	North Baker	Hill Rd	1		+	+	+	+	+	Primary	Primary	Primary	Secondary	$414,000	✖	✖				
Booth Bend Road	Hwy 99W	School Site			+	+	+	+	+	Primary	Primary	Primary		$2,850,000	✖	✖	✖			
North Baker Street	24th Street	Burnett			+	+	+	+		Primary	Primary	Primary		$801,800	✖	✖			✖	
Hill Road - North	2nd Street	Baker Cr Rd			+	+	+	+		Primary	Primary	Primary		$5,817,400	✖	✖			✖	
Hill Road - South	Alexandria	2nd Street			+	+	+	+		Primary	Primary	Primary		$3,675,000	✖	✖			✖	
Old Sheridan Road	Cypress	Hwy 99W	1		+	+	+	+		Primary	Primary	Primary		$2,371,400	✖	✖		✖	✖	
Riverside Drive	Hwy 99W	RR Crossing			+	+	+	+	+	Primary	Secondary	Secondary		$2,911,100	✖	✖				
3rd Street Streetscape				1	+		+	+		Secondary	Primary	Primary	Primary	$2,325,000	✖		✖	✖		
Systems Management																				
Central Traffic Signal System Control	**Hwy 99W & central city**		system		+	+		+	+	Primary	Secondary	Secondary	Primary	$640,400		✖		✖		✖
Bicycle System																				
Bike Lane Signing/Striping		System			+	+		+		Secondary		Primary		$237,500	✖			✖		
Bike "Sharrow" Signing/Striping		System			+	+		+		Secondary		Primary		$312,000	✖			✖		
Pedestrian System																				
1st and 2nd Street Pedestrian Crossings	1st	Johnson	1		+	+	+	+			Primary		Secondary	$996,500	✖		✖	✖		
Curb Ramp Program		System			+	+	+	+			Primary		Secondary	$1,765,000	✖		✖	✖		
New Priority Sidewalks		System			+	+	+	+			Primary		Secondary	$6,415,200	✖		✖	✖		
					TOTAL COST									**$33,832,800**						

Primary
Secondary

ODOT Program Coordination	*Current State Transportation Improvement Program?*	Safety	Capacity	Access	Operations	Freight	Auto	Pedestrian	Bicycle	Transit	Cost	General	SDC	Private	Grant	County	State
Hwy 99W/McDonald & McDaniel Signal Replacement	yes	+	+	+	+	+	Primary	Primary	Primary	Primary	funded						✖
Yamhill River Bridge Replacement	no	+	+	+	+	+	Primary	Primary	Primary	Primary	$8,778,000						✖
Adams/Baker One-Way Couplet (Hwy 99W) Reconstruction	no	+	+	+	+	+	Primary	Primary	Primary	Secondary	$745,800				✖		✖
Highway 18/99W South Interchange Access Management Plan	no	+	+	+	+	+	Primary	Primary	Primary	Secondary	$3,112,600		✖	✖			✖
Highway 18 Corridor Plan	no	+	+	+	+	+	Primary	Secondary	Secondary	Secondary	$25,500,000		✖	✖			✖

Recipient	Percent	Basis for Distribution
State	60.05%	
Cities	15.57%	Population (ORS 366.805)
Counties	24.38%	Vehicle Registration (ORS 366.764)

McMinnville's portion of the State Highway Fund is based on its current population as a proportionate share of total city population in Oregon.

In 2008, McMinnville's State Highway Fund allocation was roughly $1,213,000.

State Transportation Program Grants

The State provides grant funds to local jurisdictions to conduct transportation studies, improve bicycle and pedestrian facilities, and participate in State-sponsored transportation activities.

State Transportation/Growth Management Grants

These grant funds are jointly administered through the DLCD and ODOT. The City of McMinnville may use these funds to conduct planning and transportation studies related to managing growth and reducing reliance on the single-occupant vehicle SOV.

Local

General Obligation Bonds (Property Tax Supported)

Bonds are a funding mechanism for constructing capital improvement projects in the City. Voter-approved bonds are sold to fund street improvement projects. Transportation projects are usually grouped in "bond packages" that go before the public for voter approval. Voter-approved General Obligation Bonds are then supported through the City's property tax base.

Capital Funding Limitations

General Obligation Bonds are financed with property taxes. When these bonds are issued, the community pledges its "full faith and credit." This means that the local government has the unlimited power to levy property taxes to ensure that the principal and the interest on these bonds are paid. Because of this broad power, voter approval is required for each bond issue.

The revenues are collected by a special property tax levy called a "debt service levy."

Subject to State limitations, the City has the unlimited power to levy property taxes to repay principal and interest for the term of the bonds. Because this is an unlimited pledge, the State imposes a legal debt ceiling which does not permit outstanding bonds of more than 3 percent of a City's true cash value.

Transportation System Development Charges (SDC)

The City of McMinnville adopted its transportation SDC in 1994. These funds are collected from developers as new development occurs in the City. Charges (fees) are roughly based on trip generation rates by different types of land uses (i.e., single family residential, commercial, industrial, etc.). These funds may only be used to fund transportation improvements caused through the impacts of new growth and may not be used to fix existing capacity deficiencies.
The City has a nominal amount of transportation SDC's awaiting project allocation, but currently lacks other transportation funding to match the SDC's for full project development and construction.

Development Exactions

To provide adequate infrastructure in response to site-specific growth, capital improvements can be exacted as conditions of approval for building permits, subdivisions, and zoning actions. Developers are usually required to complete frontage street improvements and other off-site transportation improvements to mitigate traffic impacts. The majority of the city's new neighborhood, local routes and some collector streets are created and improved as a result of development exactions (exactions are to be related to the project's measured impact on the infrastructure, known as "rational nexus").

Local Improvement Districts

This method allows neighboring property owners to group together to improve public facilities and then pay for them over time through individual assessments. These districts are generally used to complete local street improvements, sidewalk improvements or improvements to business districts.

Street Utility Fee

A transportation system utility fee is an option for funding street maintenance. This method charges city residents and nonresidential users a monthly or yearly fee for use of the city road system--similar to water and sewer utility fees. The fees would be calculated based on the estimated number of vehicle trips generated for each land use.

The principle behind a street utility fee is that a street is a utility used by the citizens and businesses of a city just like a water or a sewer line that supplies a connection to a home or business. A fee would be assessed to all businesses and households by the City for use of City streets based on the amount of use typically generated by that particular use. For example, a single-family home typically generates 10 trips per day, so the fee is based on that amount of use. A small retail/commercial use typically generates 130 trips per day per 1,000 square feet of gross building area, so the fee for the retail/commercial use would be significantly greater than the fee for a single-family residence.

Revenue from a street utility fee can only be used for existing maintenance purposes, not for capital improvement projects. However; this money could be used to supplement revenue from the State Highway Trust Fund, which could then be used for capital improvement projects.

The cities of Tualatin, Medford, Ashland, and LaGrande currently have transportation system utility fees.

Utility Franchise Fees

Public utilities that use the public right-of-way to convey their services can be charged a fee for that privilege.

City General Funds

Though seldom available for transportation purposes, the City may choose to use general property tax revenues to build or operate transportation facilities. However, using general fund revenues places transportation system funding in direct competition with other City services which are already obligated, such as police, fire, libraries, and parks.

Recommended Funding Strategy

McMinnville's TSP and CIP identify about $33.8 million in multi-modal transportation capital improvement needs, or $1.74 million annually. Notwithstanding inflation, these capital needs significantly surpass the City's total State Highway Fund annual receipts (2008) of $1.21 million, which must also fund the City's transportation operations and maintenance program. Clearly, McMinnville will need to seek additional funding to balance its capital and operation/maintenance needs.

To address its long-range funding needs, the McMinnville TSP emphasizes a funding strategy through ODOT partnering and local supplement funding.

ODOT Partnering

Most Federal funding is passed through ODOT to the local jurisdictions. A good working relationship with ODOT Region 2 is important to successfully define and include McMinnville transportation improvement projects as part of the STIP, as it is updated every two years. ODOT maintains interstate and state highways - in McMinnville this includes Highways 18 and 99W. State and federal funds administered through ODOT are the primary sources of funding for improvements to these facilities.

ODOT's contribution towards transportation improvements in McMinnville are needed within the next 20 years. Five significant projects include partnering with McMinnville to:

(1) Coordinate, implement and administer the city-wide traffic signal system control program,
(2) Replace the Yamhill River Bridge,
(3) Replace the Highway 18/Three-Mile Lane Interchange,
(4) Reconstruct Highway 99W along the Adams-Baker one-way couplet, and
(5) Complete the Highway 18/99W South Interchange Access Management Plan.

Rough Pavement on Adams Street

Local Supplement Funding

The City of McMinnville will likely look to local measures to fund additional operations and maintenance and future capacity projects. Potential funding sources are typically judged based on a number of criteria, including:

- legal authority
- financial capacity
- stability
- administrative feasibility
- equity
- political acceptability

The McMinnville TSP includes an assessment of the following measures which could be used to fund McMinnville's share of needed transportation system improvements:

- Street Utility Fee
- Street Improvement Bonds
- System Development Charges (SDC) (update or expansion)

Street Bond Measure

Local property taxes could be used to fund transportation improvements. Street capital improvements are typically funded by a serial levy that implements property taxes for a set period of time, often for a specific set or list of projects. Voter approval is required for serial levies. Property tax levies are primarily used to support General Obligation bonds that finance transportation improvements, because levies for bonded indebtedness are exempt from property tax limitations.

Since 1995, McMinnville voters approved of a $ 7,415,000 million bond levy, from which the following street projects were completed:

- Lafayette Avenue Improvements
- West 2nd Street
- 2nd and Michelbook Signal
- Baker Creek Road Extension
- Fellows Street Pedestrian Improvements

System Development Charge

SDCs 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 adopted their SDC in 1994 for transportation SDCs by Ordinance.

Street Utility Fee

A new street utility fee could be adopted by the City to help off-set the annual costs of maintenance and operations, thereby enabling the City to apply a larger portion of State Highway Fund revenues towards needed capital improvements. The fee would be assessed to all businesses and households by the City for use of City streets based on the amount of use typically generated by that particular use, similar to how SDC's are applied to new land uses using the ITE Trip Generation Manual rates.

Summary Funding Strategy and Sources

The range of transportation funding mechanisms was reviewed to determine the most feasible methods available to meet the identified funding needs. A funding package combining current State revenues, SDCs, general obligation bond financing and local street utility fees appears to represent the most feasible funding strategy available to the City to meet expected, long-range capital and maintenance funding needs.

Table 9-1 summarizes the recommended strategy to enhance local funding options in support of the McMinnville TSP.

Additional evaluation of the economic impact of any new tax and bonding measures, particularly a street utility fee and general obligation bond, should be completed before holding a public vote and eventual implementation (assuming voter approval). Furthermore, the introduction of new local funding measures will require significant public support, and the City needs to define the local program to administer the street utility fee.

Table 9-1 Recommended Funding Strategy

Local Funding Source	Targeted TSP Projects
Transportation SDC Update	Capital Improvements that Add Capacity to meet Growth Demand
City-Wide Street Bond	Complete Street Projects of City-wide Benefit
Street Utility Fee	Supplement Funding of Maintenance and Operations Programs, Enables Redirection of City's State Highway Funds to CIP

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 a total of over $33.8 million in needed city transportation system improvements, the City must develop a strategy for funding its share of the need.

The City of McMinnville should coordinate with ODOT and the Governor's office to enhance the State's investment levels for Highways 18 and 99W and critical bridge replacements in and through McMinnville. Further State investment on these McMinnville projects are consistent with the state policy to maintain and enhance downtown areas, with direct and effective growth management and livability policy.

A combined funding package that includes the use of general obligation bonds, street utility fees and system development charges represents the preferred funding strategy. The City of McMinnville should conduct additional funding analysis of all of its programs to determine an appropriate type and mix of transportation funding program enhancements.

[1] City Streets: Investing in a Neglected Asset, League of Oregon Cities, 2007.
[2] See www.oregon.gov/ODOT/CS/FS/

Transportation System Plan

Chapter 10

McMinnville TSP Implementation

10 McMinnville TSP Implementation

Need for Implementation

Once developed, a plan is just a collection of words and good intentions. It has no effectiveness unless its goals and policies it proposes are adopted as a foundation for decision-making. Its recommended projects and programs will not be undertaken unless designed and funded. In essence, a plan is only as good as the actions taken to implement it.

Implementation Policies

The McMinnville TSP will best help guide future, multi-modal transportation system improvements based on the following goal and implementation policies:

TSP Implementation Goal
To implement the adopted goals policies, implementation strategies, projects, and programs of the McMinnville TSP (TSP).

- **TSP as Legal Basis.** The City of McMinnville shall use the McMinnville TSP as the legal basis and policy foundation for actions by decision-makers, advisory bodies, staff, and citizens in transportation issues. The goals, objectives, policies, implementation strategies, principles, maps, and recommended projects shall be considered in all decision-making processes that impact or are impacted by the transportation system.

- **TSP Policies.** The City of McMinnville shall use the McMinnville TSP to:
  - Describe the classification or function of all streets within the McMinnville planning area. Policies found in the Plan shall be used to supplement or support current policy develop connective local street circulation patterns.
  - Require new development to provide adequate accessibility, as defined by the ***McMinnville Zoning Ordinance***, for all travel modes within a development and in coordination with existing and other proposed development. Street design standards in the ***McMinnville Zoning Ordinance*** are to be used to secure adequate public street and sidewalk facilities.
  - Identify measures and programs to be undertaken to enhance mobility for all travel modes.
  - Form the basis from which identified projects are placed into the State Transportation Improvement Program (STIP).
  - Establish funding and project construction priorities when preparing funding scenarios and measures.

- **Capital Improvement Plan.** The City of McMinnville shall derive, in part, the projects in the Capital Improvement Plan (CIP) from the McMinnville TSP. Transportation projects contained in the CIP shall be consistent with the goals, policies and needs identified in the Plan.

- **State and Federal Funding.** The City of McMinnville shall include those projects and programs in the McMinnville TSP that are of regional or statewide significance (within the McMinnville urban area), or require the use of state or federal funding, in the Oregon Statewide Transportation Improvement Program (STIP).

- **TSP Use in Review of Land use Actions.** The City of McMinnville shall consider and apply the goals, policies, planning principles, recommended projects, implementation strategies, and maps contained in McMinnville TSP in the review of land use actions and development applications.

- **TSP Update.** Every five years, or as may otherwise be warranted, the City of McMinnville shall conduct a reassessment of the planning assumptions, analysis methods, and findings and recommendations. The McMinnville TSP shall be updated, accordingly, based on the study reassessment.

Legal Basis of the McMinnville TSP

Implementing the McMinnville TSP begins with the establishment of its legal standing through adoption. Elements of this Plan required to satisfy the TPR will be adopted by City Council as an element of the ***McMinnville Comprehensive Plan.*** The McMinnville TSP is considered a detailed component of the Comprehensive Plan; and, therefore, has the same weight, or legal standing, as the Comprehensive Plan. The goals, objectives, policies, maps and projects contained in both the Comprehensive Plan and TSP are legally adopted and binding.

When new studies or neighborhood plans develop recommendations that would improve upon the McMinnville TSP, the Plan can be amended to reflect those changes. Amendments to the Plan require a public hearing and approval by City Council.

Policy Foundation for Decision-Making

The McMinnville TSP provides the policy foundation for City decision-makers, staff, advisory bodies, and citizens. The goals, objectives, and policies of the Plan are to be considered in all decision-making processes that impact, or are impacted by, the transportation system. Specifically, the Plan is to guide decisions involving:

The Function and Location of Streets

The Plan describes, through the use of maps and descriptions the classification, or function, the public streets within the McMinnville planning area. It also describes the approximate alignment of planned arterial and collector streets.

Land Use Development

The Plan contains policies and recommendations that require new development to provide adequate accessibility for all travel modes within the development, and system coordination with existing and planned development. The Plan also guides the development of new street system elements as development occurs.

Transportation Programs

This Plan identifies measures and programs to be undertaken to increase mobility for all travel modes.

Capital Investments

The recommendations contained within the McMinnville TSP and CIP (Chapter 9) include projects on the state highway system and bridge improvements as part of the State bridge program. State highway and bridge improvements are scheduled and funded through Statewide Transportation Improvement Program (STIP), which is regularly updated with guidance and input from an advisory committee to ODOT Region 2, called the Mid-Willamette Valley Advisory Committee on Transportation (MWACT).

Recommended projects on the City transportation system are also identified in the TSP and CIP (Chapter 9)

Funding Priorities

The projects and programs recommended in the Plan are prioritized based on need and general timeframe. These priorities should be considered when preparing funding scenarios and measures. It is understood that priorities may change over time, and other factors need to be considered when preparing funding and construction priorities.

Relationship with Land Use Actions and Development Review

In accordance with requirements contained in the McMinnville Municipal Code, the adopted goals, objectives, policies, projects and maps of the McMinnville TSP must be considered and applied in the review and approval of land use actions and development applications.

Central Traffic Signal System Technology Coordination

The recommended new central traffic signal system involves communication and technology coordination with ODOT, who would likely manage the signal system. The new system should also be coordinated with Yamhill Communications Agency (YCOM) to ensure efficiencies and mutually supportive investments between transportation, fire and police services.

Amending the McMinnville TSP

With the detailed elements of the 20-year plan and the broader principles contained in the long-range strategy, the McMinnville TSP is designed to be relevant for the 20 year planning horizon. However, like all plans, circumstances change, assumptions become modified, and new priorities are developed. As a living document, the McMinnville TSP has been prepared for an efficient amendment process to address ongoing transportation issues.

One of the plan's objectives is to establish a process to regularly update the McMinnville TSP. Policies for the regular review and update of the plan, including annual technical policy workshops and full plan reassessments (every five years), are provided in the plan to help achieve this objective.

Strategies for Further Consideration

The projects and programs recommended in the Plan are prioritized based on need and general timeframe. These priorities should be considered when preparing funding scenarios and measures. It is understood that priorities may change over time, and other factors need to be considered when preparing funding and construction priorities.

- Coordinate with Yamhill County in the study to determine an appropriate location for the public transit center in McMinnville.

- Conduct additional assessment and analysis of possible funding measures, including (1) feasibility and public support for a Complete Street bond levy, (2) full-cost recovery assessment of systems development charge project eligibility, and (3) feasibility and cost analysis of a possible street utility fee to supplement the City's maintenance and operations program and existing funding.

- Monitor existing public and private parking utility and determine if there is a need to conduct a downtown McMinnville Parking Plan, possibly considering acquisition and construction of added space.

- Coordinate with Yamhill County to determine the appropriate transfer of rights-of-way, ownership, maintenance and funding responsibilities for those streets within the McMinnville UGB under current County ownership.

- Coordinate with ODOT to define and prioritize TSP projects for inclusion in the Oregon Statewide Transportation Improvement Program (STIP). This effort will require the City's direct participation in the Mid-Willamette Valley Area Commission on Transportation,[1] who advises ODOT in the development and annual updates of the STIP. Projects include:
  - New signals on Adams and Baker Streets at 5th Street and 3rd Street as part of a downtown signal system, and

replacement of existing signals to reduce traffic delay, improve pedestrian and bicycle mobility, and reduce vehicle emissions.
- Design, funding and construction to replace the Yamhill River Bridge.
- Design, coordinated State/City/Private funding and construction to replace the Highway 18 interchange at Three Mile Lane, including new frontage street connection south of Highway 18.
- Street, intersection and Highway 18 interchange improvements on Highway 99W from Old Sheridan Road to Highway 18.
- Reconstruction of Adams and Baker Street one-way couplet, including curb bulbouts at critical intersections to improve pedestrian safety and mobility.
- Possible integration of downtown and Highway 99w traffic signals into a city-wide traffic signal control system to reduce traffic delay and vehicle emissions.

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[1] Area Commissions on Transportation (ACT) are advisory bodies chartered by the Oregon Transportation Commission (OTC). ACTs address all aspects of transportation (surface, marine, air, and transportation safety) with primary focus on the state transportation system. ACTs consider regional and local transportation issues if they affect the state system. They work with other local organizations dealing with transportation-related issues.

ACTs play a key advisory role in the development of the Statewide Transportation Improvement Program, which schedules funded transportation projects. ACTs establish a public process for area project selection priorities for the STIP. Through that process and following adopted project eligibility criteria, they prioritize transportation problems and solutions and recommend projects in their area to be included in the STIP.

See: http://www.oregon.gov/ODOT/COMM/act_main.shtml

The Mid-Willamette Valley ACT is composed of the following:

Area: Marion, Polk and Yamhill counties

History: Initial Charter approved by OTC on Oct. 16, 1997.

Membership: 17 voting members:

- 1 tribal council
- 3 county commissioners (one from each county)
- 1 City of Salem
- 1 City of Keizer
- 5 small cities (selected by highway corridor)
- 1 Yamhill County Transit District
- 1 transit district
- 3 private sector (each county selects one)
- 1 ODOT area manager

CITY OF McMinnville OREGON

Transportation System Plan

Appendix A
Glossary of Terms

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A Glossary of Terms

ADT: **A**verage **D**aily **T**raffic. The term used to describe the number of vehicles on a roadway segment during a non-holiday week day.

Bike Lane: A lane devoted to non-motorized bicycles.

DOT: **D**epartment **o**f **T**ransportation. Most state departments of transportation place one or two letters before the DOT in their name. For instance, Oregon DOT is ODOT.

Geometric Improvements: Improvements to roads such as widening, adding signals to intersections, or adding turning lanes. These are required to mitigate traffic impacts and maintain a required level of service (LOS).

ITE: **I**nstitute of **T**ransportation **E**ngineers. Organization for professional transportation engineers. ITE publishes the Trip Generation Manual, which provides information on trip generation for land uses and building types. For instance, if an individual needs to know the number of trip ends (see definition below) produced by an industrial park, the report provides a trip rate based upon the size of the building. The report also divides the trip rate into peak hour rates, weekday rates, etc.

ISTEA: **I**nter-modal **S**urface **T**ransportation **E**fficiency **A**ct of 1991. This Congressional act requires states to develop a Statewide Transportation Plan and a Statewide Transportation Improvements Program (STIP) that identifies short-term project needs and priorities. It has also been a major source of funding for transportation planning and encourages the linking of transportation and community planning. (See also TEA-21 and SAFETEA-LU below).

Level of Service (LOS):

Intersection. This is a measure of the average delay experienced by each vehicle passing through an intersection. It can be measured for the vehicles making each directional turning movement, using each approach leg, or as a composite average value for all vehicles using the intersection. Similar to roadway level of service, it is reported with a letter grade designation ranging from A to F. An LOS A represents insignificant delay (less than 10 seconds per vehicle); LOS F represents significant waiting .This means more than 50 seconds per vehicle for intersections with non-existent or inadequate signals or more than 80 seconds per vehicle for intersections with signals.

Roadway/Street. This is a measure of roadway congestion ranging from LOS A--least congested--to LOS F--most congested. LOS is one of the most common terms used to describe how "good" or how "bad" traffic is projected to be. LOS serves as a benchmark to determine whether new development will comply with an existing LOS or if it will exceed the preferred or adopted LOS. As part of planning for new projects or developments, transportation professionals conduct a Traffic Impact Study (TIS). The TIS determines how specific streets and intersections will function with increased traffic volumes either with or without improvements.

There are six levels of service letter grades typically recognized by transportation planners and engineers. They are as follows:

Level of Service A
Level of Service A describes a condition of free flow, with low volumes and high speeds.

Level of Service B
Level of Service B is the zone of stable flow, with operating speeds beginning to be restricted

somewhat by traffic conditions. Drivers still have reasonable freedom to select their speed and lane of operation.

Level of Service C
Level of Service C is the zone of mostly stable flow, but speeds and maneuverability are more closely constricted by the higher volumes.

Level of Service D
Level of Service D is a zone that approaches unstable flow, with tolerable operating speeds, however driving speed is considerably affected by changes in operating conditions.

Level of Service E
Level of Service E is a zone that cannot be described by speed alone. Operating speeds are lower than in Level D, with volume at or near the capacity of the highway.

Level of Service F
Level of Service F is a zone in which the operating speeds are controlled by stop-and-go mechanisms, such as traffic lights. This is called forced flow operation. The stoppages disrupt the traffic flow so that the volume carried by the roadway falls below its capacity; without the stoppages, the volume of traffic on the roadway would be higher, or in other words, it would reach capacity.

It should be noted that LOS is a measure of a roadway segment's (zone's) efficiency at moving automobiles through the zone. By definition, it places a high emphasis on the free-flowing speeds of autos and does not give consideration to the comfort or safety other roadway users such bicyclists or pedestrians.

Link Volumes: The number of vehicles using a specific street segment. It is typically expressed as average daily traffic (ADT) or vehicle per peak hour (VPH).

Linked Trip/Trip Chain: The sequence of grouping stops between the origin and ultimate destination. The intermediate stops made while enroute to the ultimate destination are referred to as pass-by trips. The term is used in the evaluation of the operation of the accesses or driveways serving the uses at the intermediate stops.

Median: A physical divider separating lanes of traffic that typically are traveling in opposite directions. A median is often installed to prohibit unsafe turning movements. It can also be used to beautify a streetscape.

MPO: **M**etropolitan **P**lanning **O**rganization. The agency which administers the federally required transportation planning processes in a metropolitan area. An MPO must be in place in every urbanized area with a population over 50,000, and is responsible for the 20-year long-range plan and the Transportation Improvement Program (TIP). The MPO is the coordinating agency for grants, billings and policy-making for transportation.

Multimodal: More than one mode of transportation in the same geographic area.

NHS: **N**ational **H**ighway **S**ystem.

Peak Hour: The one hour period during which the roadway carries the greatest number of vehicles. Traffic impacts are typically evaluated during the morning and afternoon peak hours when the greatest number of motorists are traveling to and from work.

Pedestrian LOS: Level of service for pedestrians can also be studied as part of a transportation or traffic analysis. This is less common. It is typically only an issue in larger urban areas. Exhibit 1 illustrates the congestion of a proposed pedestrian walkway LOS.

Platoon: A grouping of vehicles traveling in the same direction at the same approximate speed.

Reverse Commute: The travel from the city center to suburban locations, moving counter to the primary or major volume of traffic flow.

SAFETEA-LU: On August 10, 2005, the Federal "**S**afe, **A**ccountable, **F**lexible, **E**fficient **T**ransportation **E**quity **A**ct: A Legacy for Users" (SAFETEA-LU) was signed into law. SAFETEA-LU authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005-2009.

Stacking: The process of vehicles forming a line or queue. If the stacking extends into the through-lanes, delays and unsafe conditions become prevalent.

SOV: **S**ingle **O**ccupant **V**ehicle or one person per vehicle.

Street Cross-Section: A term used to describe the total number of lanes on a street. For instance, a street that has two lanes of north bound traffic, two lanes of southbound traffic, and a refuge lane is commonly referred to as a five-lane cross-section.

Traffic Calming: The process of designing streets or adding design elements to tame fast traffic and address unsafe traffic conditions. Design elements include, for example, speed humps, narrowed streets, added traffic circle. Good initial design and street layout can prevent the need to install traffic calming measures after the street is built.

Traffic Impact Study (TIS): A study conducted by a transportation professional using transportation modeling and analysis software to predict the volumes and associated impacts from traffic generated by a proposed land use or development project. The study analyzes the impacts to roads and intersections and include recommendations for roadway improvements that may be needed to mitigate unsafe situations and comply with the regulations of the reviewing jurisdiction.

TAZ: **T**ransportation **A**nalysis **Z**one. A geographic area that identifies land uses and associated trips that is used for making land use projections and performing traffic modeling.

TEA21: **T**ransportation **E**quity **A**ct of the 21st Century. TEA 21 was enacted June 9, 1998 as Public Law 105-178. TEA-21 authorizes and funds the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period 1998-2003. The TEA 21 Restoration Act, enacted July 22, 1998, provided technical corrections to the original law. (See also ISTEA above).

Trip End: The term used to describe trips in terms of their common origins or destination.

Turn Lane: A lane devoted to vehicles making a turning movement to go in a different direction. Turn lanes are necessary to ensure the free-flow of traffic in the through lanes by providing a separate area/lane for turning traffic to slow down and complete the turning maneuver without impeding the through traffic.

VMT: **V**ehicle **M**iles **T**raveled. Increases in VMT from existing residents are occurring every year, contributing to added congestion on roadways.

VPH: **V**ehicle **p**er peak **h**our. This relates to Link Volumes (see above).

Volume-to-Capacity Ratio: Expressed as v/c, this is a measure of traffic demand on a facility (expressed as volume) compared to its traffic-carrying capacity. A v/c ratio of 0.7, for example, indicates that a traffic facility is operating at 70 percent of its capacity. In evaluating the performance of a roadway, v/c ratios should be considered together with the letter grade system, which is more of a qualitative assessment based heavily on speeds and travel time. With traffic moving at an acceptable rate of speed, roadways will perform at favorable Level of Service grades. However, even with an acceptable LOS grade, a v/c ratio may indicate that the same facility is operating at or near full capacity (e.g., 0.95 to 0.99). Conversely, road segments operating at deficient levels of service (e.g., peak-hour LOS E and F) may have an acceptable v/c ratio in cases where the adjoining intersections are not operating efficiently (e.g., cycle lengths on the traffic signals are long or the signal progressions are poor). Consequently, a high v/c ratio does not always imply that a facility has more volume than it can handle nor does a deficient LOS grade necessarily indicate that there is insufficient roadway capacity available.

Weaving: The process of exiting a site and merging across multiple lanes "with traffic" to reach an intersection and go in a different direction.

CITY OF McMinnville OREGON

Transportation System Plan

Appendix B
Summary of Federal, State and Regional Plans

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B Federal, State and Regional Plan and Policy Review

This appendix summarizes the plans and policies at the federal, state and regional level that may influence transportation planning in the City of McMinnville. Although each document reviewed contains many policies, only pertinent policies and information were chosen relevant to the McMinnville TSP development. This section provides an initial policy framework for relevant portions of the McMinnville TSP. New policies in the McMinnville TSP were defined with consideration of state and regional plans and policies.

Documents Reviewed

The following federal, state, regional, and local documents were reviewed. The general intent of these documents and the relevance to system and facility plans are summarized in the remainder of this section of the plan.

- Federal
  - Safetea-LU
  - 23 CFR 450
  - 49 CFR 613
- State
  - Statewide Planning Goals
  - 1992 Oregon Transportation Plan
  - 1999 Oregon Highway Plan
  - Oregon Highway Plan Implementation Handbook
  - 1995 Oregon Bicycle and Pedestrian Plan
  - 2001 Oregon Rail Plan
  - Freight Moves the Oregon Economy (1999)
  - 1997 Oregon Public Transportation Plan
  - 1995 Oregon Transportation Safety and Action Plan
  - Transportation Planning Administrative Rule
  - Transportation System Planning Guidelines
  - Access Management Administrative Rule
- Regional
  - Willamette Valley Transportation Strategy (1995)
  - Portland to Lincoln City Corridor—Oregon Highways 99W and 18 [from] I-5 to U.S. 101: Interim Corridor Strategy (1997)
  - Yamhill County Transportation System Plan (1995)

Federal Policies

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), signed by the President in 2005, guaranteed funding for highways, highway safety, and public transportation totaling $244.1 billion. SAFETEA-LU represents the largest surface transportation investment in U.S. history. SAFETEA-LU was pre by the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and the Transportation Equity Act for the 21st Century (TEA-21).

SAFETEA-LU was intended to address many challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment – as well as laying the groundwork for addressing future challenges. SAFETEA-LU promotes more efficient and effective Federal surface transportation programs by focusing on transportation issues of national significance, while giving State and local transportation decision makers more flexibility for solving transportation problems in their communities.

SAFETEA-LU continues a strong fundamental core formula program emphasis coupled with targeted investment, featuring:

Safety – SAFETEA-LU establishes a new core Highway Safety Improvement Program that is structured and funded to make significant progress in reducing highway fatalities. Other programs target specific areas of concern, such as work zones, older drivers, and pedestrians, including children walking to school, further reflect SAFETEA-LU's focus on safety.

Equity **–**The new Equity Bonus Program has three features – one tied to Highway Trust Fund contributions and two that are independent. First, the Equity Bonus program helps ensure that each State's return on its share of contributions to the Highway Trust Fund (in the form of gas and other highway taxes) was at least 90.5 percent in 2005, and building toward a minimum 92 percent relative rate of return by 2008. In addition, every State is guaranteed a specified rate of growth over its average annual TEA-21 funding level, regardless of its Trust Fund contributions. Selected States are guaranteed a share of apportionments and High Priority Projects not less than the State's average annual share under TEA-21.

Innovative finance – SAFETEA-LU makes it easier and more attractive for the private sector to participate in highway infrastructure projects, bringing new ideas and resources to the table. Innovative changes such as eligibility for private activity bonds, additional flexibility to use tolling to finance infrastructure improvements, and broader TIFIA and SIB loan policies, will all stimulate needed private investment.

Congestion Relief -- SAFETEA-LU gives States more flexibility to use road pricing to manage congestion, and promotes real-time traffic management in all States to help improve transportation security and provide better information to travelers and emergency responders.

Mobility & Productivity – SAFETEA-LU provides a substantial investment in core Federal-aid programs, as well as programs to improve interregional and international transportation, address regional needs, and fund critical high-cost transportation infrastructure projects of national and regional significance. Improved freight transportation is addressed in a number of planning, financing, and infrastructure improvement provisions throughout the Act.

Efficiency – The Highways for LIFE pilot program in SAFETEA-LU will advance longer-lasting highways using innovative technologies and practices to speed up the construction of efficient and safe highways and bridges.

Environmental Stewardship – SAFETEA-LU retains and increases funding for environmental programs of TEA-21, and adds new programs focused on the environment, including a pilot program for non-motorized transportation and Safe Routes to School. SAFETEA-LU also includes significant new environmental requirements for the Statewide and Metropolitan Planning process.

Environmental Streamlining – SAFETEA-LU incorporates changes aimed at improving and streamlining the environmental process for transportation projects. These changes, however, come with some additional steps and requirements on transportation agencies. The provisions include a new environmental review process for highways, transit, and multimodal projects, with increased authority for transportation agencies, but also increased responsibilities (e.g., a new category of "participating agencies" and notice and comment related to defining project purpose and need and determining the alternatives).

Federal Plan/Policy Implications for McMinnville

McMinnville is not part of a Metropolitan Planning Organization (MPO) and is therefore not subject to SAFETEA-LU planning requirements for MPOs.

However, many of the McMinnville TSP components are directly consistent with SAFETEA-LU policy direction: multi-modal planning for “Complete Streets” and emphasis on pedestrian, bicycle, transit and transportation system and demand management policy, strategies and projects.

State Policies

Statewide Planning Goals

Since 1973, Oregon has maintained a strong statewide program for land use planning. The foundation of that program is a set of 19 statewide planning goals. The Transportation Planning Rule (TPR) and the transportation system plans identified in the TPR are the results of implementation of Goal 12—Transportation. Oregon's statewide goals are achieved through local comprehensive planning, of which transportation system plans must be made a part. The goals which apply to transportation system planning are described below; other goals may apply depending on the area addressed by a particular transportation system plan or facility plan.

- **Goal 1—Citizen Involvement:** Develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.
- **Goal 2—Land Use Planning:** Establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land to assure an adequate factual base for such decisions and actions.
- **Goal 6—Air, Water and Land Resources Quality:** Maintain and improve the quality of the air, water and land resources of the state.
- **Goal 9—Economic Development:** Provide adequate opportunities for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.
- **Goal 11—Public Facilities and Services:** Plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.
- **Goal 12—Transportation:** Provide and encourage a safe, convenient, and economic transportation system.
- **Goal 13—Energy Conservation:** Conserve energy.
- **Goal 14—Urbanization:** Provide for an orderly and efficient transition from rural to urban land use.

1992 Oregon Transportation Plan

The Oregon Transportation Plan (OTP) is a policy document developed by the Oregon Department of Transportation (ODOT) in response to federal and state mandates for systematic planning for the future of Oregon's transportation system. It recognizes the need to integrate all modes of transportation and encourages the use of the mode that is the most appropriate for each type of travel. The Plan defines goals, policies, and actions for the state over a 40-year horizon. The Plan's System Element identifies a coordinated multimodal transportation system, to be developed over the first 20 years of that timeframe, which is intended to implement the goals and policies of the Plan. The goals and policies of the OTP cover a broad range of issues. The goals and policies most directly applicable to transportation system and facility plans are as follows:

- Goal 1: Characteristics of the System
  - Policy 1A – Balance
  - Policy 1B – Efficiency
  - Policy 1C – Accessibility
  - Policy 1D – Environmental Responsibility
  - Policy 1E – Connectivity among Places
  - Policy 1F – Connectivity among Modes and Carriers
  - Policy 1G – Safety
- Goal 2: Livability
  - Policy 2A – Land Use
  - Policy 2B – Urban Accessibility
  - Policy 2C – Relationship of Interurban and Urban Mobility
  - Policy 2D – Facilities for Pedestrians and Bicyclists
  - Policy 2E – Minimum Levels of Service
  - Policy 2H – Aesthetic Values
- Goal 3: Economic Development
  - Policy 3B – Linkages to Markets
  - Policy 3E – Tourism
- Goal 4: Implementation
  - Policy 4G – Management Practices
  - Policy 4K – Local Government Responsibilities
- Local governments shall define a transportation system of local significance adequate to meet identified needs for the movement

of people and goods to local destinations within their jurisdictions; and

- Local government transportation plans shall be consistent with regional transportation plans and adopted elements of the state transportation system plan.
  - Policy 4M – Private/Public Partnership
  - Policy 4N – Public Participation

The OTP identifies the Highway 99W/18 corridor, which extends from Portland to Lincoln City and passes through McMinnville, as a Corridor of Statewide Importance.

1999 Oregon Highway Plan

The 1999 Oregon Highway Plan (OHP) is one modal element of the Oregon Transportation Plan. The OHP defines the policies and investment strategies for Oregon's state highway system over the next 20 years. Regional and local transportation system plans (TSPs) must be consistent with the State Transportation System Plan, which includes the OHP. OHP policies requiring consistency in TSPs are as follows:

- **Policy 1A: State Highway Classification System.** The state highway classification system includes six classifications: Interstate, Statewide, Regional, District, Local Interest Roads, and Expressways. The OHP emphasizes designation of Expressways as a subset of Statewide, Regional and District Highways to provide a high level of access control along highway segments (long access spacings and limited turning movements).
  - State classified highways in McMinnville include the following
    - OR Highway 18—Statewide highway on the National Highway System (NHS)
    - OR Highway 18 (McMinnville spur)—District highway
    - OR Highway 99W—Regional highway
- **Policy 1B: Land Use and Transportation.** This policy recognizes the role of both state and local governments regarding the state highway system and calls for a coordinated approach to land use and transportation planning. The policy identifies the designation of highway segments as Special Transportation Areas (STAs), Commercial Centers, and Urban Business Areas (UBAs), where appropriate. Within STAs and UBAs, highways may be managed to provide a greater level of access to businesses and residences than might otherwise be allowed. Commercial Centers encourage clustered development with limited to access to a state highway.
  - The City of McMinnville and ODOT have not designated any STAs, UBAs, or Commercial Centers within the McMinnville UGB. ***(The TSP recommends designation of a portion of Highway 99W as an STA).***
- **Policy 1C:** State Highway Freight System. This policy calls for balancing the need to move freight with other highway users by minimizing congestion on major truck routes.
  - OR Highway 18 is a designated State Highway Freight System route; OR Highway 99W is not.
- **Policy 1F: Highway Mobility Standards Access Management Policy.** This policy provides specific mobility standards for the state highway sections, signalized intersections, and interchanges. Alternative standards are provided for certain locations and under certain conditions.
- **Policy 1G: Major Improvements.** This policy identifies the state's priorities for responding to highway needs. Specifically: protect the existing system; improve efficiency and capacity of existing system; and, add capacity to existing system.
- **Policy 2G: Rail and Highway Compatibility.** This policy emphasizes increasing safety and efficiency through reduction and prevention of conflicts between railroad and highway users.
  - In McMinnville, the Portland and Western Railroad crosses 14 roadways at grade.
- **Policy 3A: Classification and Spacing Standards.** This policy addresses the location, spacing and type of road and street intersections and approach roads on state highways. It includes standards for each highway classification.

- **Policy 3B: Medians**. This policy establishes the state's criteria for the placement of medians.
    - **Action 3B.1:** Plan for a level of median control for the safe and efficient operation of state highways, consistent with the classification of the highway. Transportation system plans shall identify planned median treatments.
    - **Action 3B.2:** Design and construct nontraversible medians for modernization of all rural, multi-lane Expressways, including Statewide (NHS), Regional and District.
    - **Action 3B.3:** Consider construction of nontraversible medians for moderization of all urban, multi-lane Statewide (NHS) Highways.
- **Policy 4A: Efficiency of Freight Movement.** This policy emphasizes the need to maintain and improve the efficiency of freight movement on the state highway system.

The recommended TSP mobility standards for the McMinnville urban area (see Chapter 2) and Access Management Policy (see Appendix F) are consistent with the Oregon Highway Plan and Division 51, which implement the OHP policies and strategies.

2008-2011 Statewide Transportation Improvement Program

The Statewide Transportation Improvement Program (STIP) identifies the transportation projects that the state will fund during its next four-year program. The STIP is updated every two years. The 2008-2011 STIP includes a project in McMinnville on Highway 99W to replace the McDonald and McDaniel intersections traffic signals, the installation of median traffic separators and traffic signal interconnect equipment to better coordinate the two existing traffic signals.

1995 Oregon Bicycle and Pedestrian Plan

The Oregon Bicycle and Pedestrian Plan provides guidance to regional and local jurisdictions for the development of safe, connected bicycle and pedestrian systems. The plan is a modal element of the Oregon Transportation Plan. The plan includes two major sections: policies and implementation strategies; and design, maintenance and safety information. The plan also outlines the following elements of the bicycle and pedestrian plan required for transportation system plans:

- Statement of purpose
- Existing facilities inventory
- Bicycle and pedestrian needs
- Implementation strategies
- Standards
- Bikeway and walkway projects
- Bicycle parking

The goal of the plan is "To provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking."

2001 Oregon Rail Plan

The 2001 Oregon Rail Plan includes two major elements: freight and passenger. The 2001 Rail Plan identifies federal and state policies applicable to passenger and freight rail planning, but does not identify any additional policies specific to the plan.
The freight element describes existing conditions in the different regions of the state and improvements that are needed. Freight rail through McMinnville is operated by the Portland & Western Railroad (formerly the Willamette and Pacific Railroad) on a line known as the Westside Branch. Freight moved over this line includes lumber products, agricultural goods, fertilizer, and steel or rolling mill products. The P&W's major customer at McMinnville is the Cascade Steel Rolling Mills, which receives inbound metal scrap and provides outgoing finished steel products. The Westside Branch includes segments of Federal Rail Administration Class 2 track, which is limited to speeds of 25 mph, and Class 3 track, which is limited to 40 mph. The line does not have any weight or dimensional restrictions. When the 2001 Oregon Rail Plan was prepared, approximately $46.5

million was needed for rail renewal, bridge repair, cross-tie renewal, and turnout renewal on P&W railroad lines. However, the Plan did not indicate where those funds were needed.

The passenger element identifies the need or feasibility of certain passenger and commuter rail improvements within Region 2; Region 2 incorporates McMinnville, Yamhill County and most of northwest Oregon. The plan references unspecified commuter rail studies that have been conducted which show a potential for service between the Portland metropolitan area and McMinnville. The Plan also references the Yamhill County Commuter Rail Study (January 1998). The study outlined the commuter rail potential between a light rail transfer station in Milwaukie and suburban communities reaching to Newberg and McMinnville. Due to the condition of the freight rail line, a capital investment of $112 million would be required to bring the line up to acceptable standards for commuter rail operations.

The 2001 Oregon Rail Plan also identifies issues that should be considered in rail planning during local land use planning such as preparation of a TSP and supportive comprehensive plan policies.

Freight Moves the Oregon Economy (1999)

This plan's stated purpose is to demonstrate the importance of freight to the Oregon economy and to identify concerns and needs regarding the maintenance and enhancement of current and future mobility within the state of Oregon. The plan discusses the relationship among freight, the economy, and transportation planning, as well as road, rail, waterway, and pipeline facilities, and intermodal facilities. Although the report does not identify any general freight policies to be addressed by transportation system plans or facility plans, it does identify improvements needed in the State freight system.

As mentioned previously, OR 18 is part of the State Highway Freight System. Freight Moves the Oregon Economy does not identify any highway improvements needed to support freight on OR 18.

Oregon Public Transportation Plan (1997)

The Oregon Public Transportation Plan (OPTP) forms the transit modal plan of the Oregon Transportation Plan (OTP). The vision guiding the public transportation plan is as follows:

- A comprehensive, interconnected and dependable public transportation system, with stable funding, that provides access and mobility in and between communities of Oregon in a convenient, reliable and safe manner that encourages people to ride.
- A public transportation system that provides appropriate service in each area of the state, including service in urban areas that is an attractive alternative to the single-occupant vehicle, and high-quality, dependable service in suburban, rural, and frontier (remote) areas.
- A system that enables those who do not drive to meet their daily needs.
- A public transportation system that plays a critical role in improving the livability and economic prosperity for Oregonians.

The plan contains goals, policies, and strategies relating to the whole of the state's public transportation system. The plan is intended to provide guidance for ODOT and public transportation agencies regarding the development of public transportation systems.

The plan identifies expanded public transportation services that are needed in ODOT Region 2 to meet state and federal mandates. The plan specifically calls for new or additional fixed-route bus service in McMinnville. Other, general improvements include additional valley rail and Thruway bus service (motorcoaches which connect communities to the national AMTRAK system), additional senior and disabled public transportation, and additional service for citizens dependent on public transportation and those who use it by choice.

The OPTP also identifies minimum levels of service, by size of jurisdiction, for fulfilling its goals and policies. **The OPTP also recognizes, however, that the achievement of these levels of**

service is dependent upon the availability of resources and <u>are therefore not to be understood as performance mandates placed upon other jurisdictions</u>. Nevertheless, the minimum desirable levels of service, as per the OPTP, applicable to McMinnville are listed below. Those elements shaded in gray have already been implemented locally, mostly by Yamhill County.

- Offer services to the general public to provide a modal alternative to single-occupant automobile travel.
- Provide open access to intercity passenger terminals for all intercity carries.
- Provide dial-a-ride services to the general public on weekdays
- Provide peak period commuter services
- Provide hourly off-peak public transportation service
- Provide a guaranteed ride home program to all users of the public transportation system and publicize it well. (partially implemented)
- Incorporate local public transportation services into local land use development, where appropriate
- Provide at least 1.7 annual hours per-capita of public transportation with fixed-route, dial-a-ride or other service types
- Provide at least one (ADA) accessible vehicle for every 40 hours of service
- Provide ridematching and demand management programs[1]

The Public Transportation Plan also has minimum level of service standards for intercity public transportation, intercity bus, and intercity rail in 2015. The minimum levels of service applicable to McMinnville are as follows:

- Intercity public transportation services would:
  - Provide intercity passenger terminals subject to public control to assure open access to all intercity carriers throughout the state.
  - Provide direct connections, where possible, between intercity services and local public transportation services.
  - Provide services in compliance with the ADA requirements for all modes and transfer facilities.
  - Maintain vehicles and corresponding facilities in a cost-effective manner and replace vehicles when they reach the manufacturers' suggested retirement age.
- Intercity bus services would:
  - Provide hourly service to major communities within the Willamette Valley in conjunction with passenger rail service.
  - Provide service on a daily basis for round trip purposes, for an incorporated city or group of cities within 5 miles of one another having a combined population of 2,500 and located 20 miles or more from the nearest city with a larger population and economy.
  - Coordinate intercity bus services with intercity senior and disabled services, local senior and disabled services and local public transportation services.
- Intercity rail services would:
  - Provide regional rail service offering frequent schedules, through trains, extensive feeder bus networks with convenient connections, and an aggressive marketing and passenger amenities program to stimulate changes in transportation preferences and a per-capita reduction in highway travel.
  - Coordinate with intercity bus and local public transportation services to ensure timely and convenient connections.

Yamhill Community Transit Authority (YCTA) provides public transportation in McMinnville. Its services are described in Chapter 7 of the TSP.

[1] Demand management programs are designed to change travel behavior by promoting travel modes that are an alternative to the single-occupancy vehicle, such as ridesharing and vanpools. Ridematching is a program that matches people together for carpooling.

1995 Oregon Transportation Safety Action Plan

The Oregon Transportation Safety Action Plan forms the safety element of the Oregon Transportation Plan (OTP). The intent of the plan is to improve safety on Oregon's highways for all users. The policy for safety in the OTP (Policy 1G) is as follows: "It is the policy of the State of Oregon to improve continually the safety of all facets of statewide transportation for system users including operators, passengers, pedestrians, recipients of goods and services, and property owners." Many of the actions identified in the plan are programmatic in nature and may not be best addressed through transportation system or facility plans. The following lists the actions that TSPs and corridor plans could address:

- Action 19—Safety Considerations in Transportation Planning Documents - Consider the roadway, human, and vehicle elements of safety in modal, corridor, and local system plan development and implementation. These plans should include the following:
  - Involvement in the planning process of engineering, enforcement, and emergency service personnel as well as local transportation safety groups
  - Safety objectives
  - Resolution of goal conflicts between safety and other issues
  - Application of access management standards to corridor and system planning
- Action 20—Access Management - In planning, consider access management techniques that show significant improvements in safety for the roadway user. Access management techniques, which can stand alone or be combined, may include:
  - Appropriate access and public street spacing and design
  - Proper spacing and coordination of traffic signals
  - Installation of non-traversable medians
  - Proper spacing and design of median openings
  - Provision of lanes for turning traffic
  - Interparcel circulation
  - Use of city and county road infrastructure as an alternative to increase access
  - Protection of the functional area of an intersection
  - Proper spacing of interchanges

An Access Management Plan has been prepared for the Highway 18/99W south interchange and Highway 18 Corridor Refinement Plan, each is mutually adopted by ODOT and the City of McMinnville.

- Action 27—Airports and Surrounding Land Uses - Continue to consider land use when siting airports to reduce the potential for a crash involving aircraft hitting persons on the ground. Ensure that corridor and local system plans identify existing and proposed public use airport facilities and services and provisions for compatibility with surrounding land use activities.

McMinnville has a municipal airport adjacent to Highway 18.

- Action 64—Rail Crossing Safety - Reduce the potential of crossing crashes by eliminating redundant highway-rail intersections. Upgrade warning devices or construct grade separations at the most heavily traveled intersections.

As mentioned previously, the City of McMinnville has approximately 14 at-grade railroad crossings.

Transportation Planning Rule (OAR 660-012)

The Transportation Planning Rule (TPR), OAR 660 Division 12, implements Oregon's Statewide Planning Goal 12 (Transportation) and promotes the development of safe, convenient, and economic transportation systems that reduce reliance on the automobile. The TPR requires the preparation of regional transportation systems plans by metropolitan planning organizations (MPOs) or counties and local TSPs by counties and cities. TSP requirements vary by type (regional vs. local) and community size.

Through TSPs, the TPR provides a means for regional and local jurisdictions to identify long-range (20-year) strategies for the development of local transportation facilities and services for all modes, to integrate transportation and land use, to provide a basis for land use and transportation decision-making, and to identify projects for the State Transportation Improvement Program. TSPs need to be consistent with the State TSP and its modal and multimodal elements.

Access Management Rules (OAR 734-051)

OAR 734-051 states that the purpose of the rules is to govern the issuance of permits for approaches onto state highways. The policy promotes the protection of emerging development areas rather than the retrofit of existing built-up roadways. The rules also provide access management spacing standards for approaches for various types of state roadways and for interchanges. OAR 734-051-0190 specifies that theses standards are to be used in planning processes involving state highways, including corridor studies, refinement plans, state and local TSPs, and local comprehensive plans. The access management rules also describe the development of access facility management plans and interchange area management plans. Access management rules for statewide highways on the State Freight System and for regional and district highways will be used in preparation of this TSP.

An Access Management Plan has been prepared for the Highway 18/99W south interchange and Highway 18 Corridor Refinement Plan, each is mutually adopted by ODOT and the City of McMinnville.   Additional access management policies are recommended as part of the McMinnville TSP, see Appendix E.

Regional Plans and Policies

Willamette Valley Transportation Strategy (1995)

The Willamette Valley Transportation Strategy (WVTS) is a multimodal element of the OTP. The WVTS identifies strategies for addressing eleven key issues influencing transportation development in the Valley. As part of the OTP, the WTVS identifies the types of projects that ODOT sees as priorities for the Valley's transportation systems. In turn, local communities can promote their projects that address these strategies for state funding. The WTVS strategies are more generally defined for the Willamette Valley major highway system. Notwithstanding this more regional perspective, McMinnville's TSP is largely consistent with the WVTS, which addresses the following issues:

- Highways/Roadways
  - o Select highway projects that maximize the net benefits to the Valley's transportation system as a whole.
  - o Coordinate highway projects with land use policies and other transportation improvements.
  - o Make strategic capacity enhancements to controlled access highways.
  - o Make strategic capacity enhancements intercity highways to nonaccess-controlled highways in the state network and to key local facilities such as urban arterials.
  - o Maintain regional highway linkages upon which rural communities depend to build viable communities.
  - o Improve north-south and east-west links to the existing state highway system.
- Local/Regional Transit
  - o Provide transit service from metropolitan centers to neighboring cities with populations of 2,500 or more.
- Freight
  - o Improve local and state highway networks that provide direct connections to industrial areas and intermodal facilities such as rail/truck reload centers and air and marine ports.
- Aviation
  - o Consider consolidation of some general aviation facilities where necessary to reduce operational costs and improve efficiency. [This goal does not apply to McMinnville, but statewide]
  - o Through public-private partnerships, improve freight and passenger access to commercial airports by highway, transit and rail. [This goal does not apply to McMinnville, but statewide]

  - o Manage land uses adjacent to airports to minimize conflicts with airport operations and public safety.
- Bicycles and Pedestrians
  - o Include provisions for bicycle and pedestrian use in all new facilities and major construction.
  - o Build a stronger network of bicycle and pedestrian facilities, including routes off highway rights-of-way.
- Interchange Development
  - o Encourage local governments to adopt land use policies and implement transportation strategies that help achieve planned interchange utilization.
- Transportation Demand Management Programs (TDM)
  - o In cooperation with the state, local jurisdictions develop transportation demand management programs which educate and inform the public about motor vehicle use.
  - o Institute or expand programs such as ridesharing, park-and-ride, transit promotion and parking management, especially in metropolitan areas.
  - o In partnerships between public and private sectors, expand programs such as trip reduction (commute options), flex time, telecommuting and parking "cashout" programs, especially in metropolitan areas for both public and private employees.
  - o Coordinate employer-based programs with community transportation plan objectives.
  - o Expand prepaid group transit pass programs in local communities. [note: TDM policy and program implementation is sponsored by Yamhill County includive of the McMinnville urban area]

The strategies emphasize connections between places and modes, reduction of reliance on the automobile, development of facilities with maximum benefit for the Valley, and compact development.

Portland to Lincoln City Corridor—Oregon Highways 99W and 18 [from] I-5 to U.S. 101: Interim Corridor Strategy (1997)

This interim corridor strategy addresses the operation, preservation, and improvement of transportation facilities in the Highway 99W/18 corridor from I-5 to U.S. 101 over a 20-year planning horizon. It is intended to guide future plans and serve as the basis for selecting improvement projects and implementing new or expanded transportation services. The strategy identified goals and objectives for each issue addressed by the Oregon Transportation Plan. There are numerous objectives, so only those objectives specific to McMinnville have been included below each goal. Those objectives that have already been met by local (City or County) action are highlighted in gray.

Transportation Balance

- **Goal:** Provide for a balanced mix of transportation modes within the corridor in order to provide a range of modal choice for urban and rural users of the transportation system.
- **Objectives:**
  - o Expand intra-urban public transit service in McMinnville if feasibility is demonstrated in the studies currently underway.
  - o Support improvement of the Westside branch line to Federal Rail Administration (FRA) Class 3 standards between McMinnville and Tigard. [Not applicable to the City of McMinnville]
  - o Expansion of McMinnville Municipal Airport facilities should be considered to accommodate increased regional demands, together with shuttle van services to the airport to improve airport access and usage. A master planning effort for the airport has already been completed.

Regional Connectivity

- **Goal:** Develop transportation facilities within the corridor to provide a high degree of regional connectivity for all corridor users, both internal to the corridor as well as those passing through the corridor to other parts of the state and nation.
  - Implement the three-phase facility plan to transition Three Mile Lane in McMinnville to a limited-access facility. The City and ODOT have already begun initial implementation of the Highway 18 Corridor Refinement Plan. The plan includes an interim traffic signal installation near the airport in Phase 1, to be replaced with a grade-separated interchange in Phase 2, together with an ancillary road network for local access. An interchange also would be developed at the Lafayette Highway to the east in Phase 2. In Phase 3, the East McMinnville interchange would be reconstructed as a full-service interchange, eliminating the Cruikshank Road intersection.
  - Investigate the conversion of the Highway 99W/18 junction to a limited-access facility. [The junction inferred here is McDougal Junction, northeast of Dayton, not the interchange within the McMinnville urban area. Nevertheless, by adoption of the Highway 18/99w South Interchange Access Management Plan, McMinnville and ODOT are pursuing this objective.]

Highway Congestion

- **Goal:** Operate all transportation facilities within the corridor at a level of service that is both cost-effective and appropriate for the area they serve.
  - Develop access management plans for critical highway segments. Adopt the most restrictive access management category for each highway segment, consistent with existing and planned adjacent land uses and consistent with local TSPs and state provisions.

Safety

- **Goal:** Continually improve all facets of transportation safety within the corridor.

Economic Impacts

- **Goal:** Promote economic health and diversity through the efficient and effective movement of goods, services, and passengers in a safe, energy-efficient, and environmentally sound manner.

Social Impacts

- **Goal:** Provide a transportation corridor that has positive social impacts by providing for the safe movement of goods and people while reducing the negative impacts caused by transportation/land use conflicts.

Environmental Impacts

- **Goal:** Provide a transportation system throughout the Highway 99W/18 corridor which is environmentally responsible and encourages protection of natural resources.

Energy Impacts

- **Goal:** Provide a transportation system that minimizes transportation-related energy consumption through the use of energy-efficient and appropriate modes of transportation for the movement of people and goods.

Yamhill County Transportation System Plan (1995)

The Yamhill County Transportation System Plan presents goals and policies for each element of the plan: collector/arterial streets, public transportation, bikeways, and air/rail/water/pipelines. The Yamhill County TSP also includes goals and policies for the coordination and implementation of the plan and a project list. The following identifies those goals, policies, and projects applicable to McMinnville.

Coordination and Implementation of the Plan

- **Policy:** The lead agency for transportation project review shall be:
  - Yamhill county for facilities outside urban growth boundaries (UGBs)
  - The affected city for facilities within UGBs
  - The State of Oregon, Yamhill County, and affected cities on projects involving state-owned facilities.

Collector/Arterial Street Plan

- **Policy:** Yamhill County will coordinate the County Transportation System Plan with the transportation plans of the ten incorporated cities within Yamhill County. The County will emphasize continuity in the classification of roads and appropriate design standards for roadways which link urban areas with rural areas outside of UGBs. County policy will encourage the expeditious transfer of jurisdiction of the roadways to cities in conjunction with annexation. Transfer of jurisdiction shall require the approval of both the County and the City. The Yamhill County TSP identifies roads in the McMinnville UGB that the City and County classify differently. The following roads are classified as minor arterials by McMinnville:
  - West Side Road north of McMinnville (county major collector)
  - Baker Creek Road west of McMinnville (county major collector)
  - Hill Road bordering McMinnville's west side (county major collector)
  - Peavine Road and Old Sheridan Road southwest of McMinnville (county minor collector)
- The County TSP also recommends that the following roadways be transferred to McMinnville:
  - Baker Creek Road (portion within city limits) (Yamhill County still owns this road west of Michelbook Lane)
  - Old Sheridan Highway (between Cypress Lane and Highway 99W) (Yamhill County still owns this road)
  - Daniels Street (entire length) (City of McMinnville now owns this road)
  - West Side Road (between city limits and Burnett Road) (Yamhill County still owns this road)
  - Burnett Road (between city limits and West Side Road) (City of McMinnville now owns this road)

Public Transportation

- **Policy:** Yamhill County will, in cooperation with the cities of the County . . . make a comprehensive study of public transit possibilities, including bus and rail, and if economically feasible, will seek such services as are found to be safe, efficient, and convenient in serving the transportation needs of the residents of the County.
- **Projects:** Until a comprehensive public transit study is completed [Note: YCAP considered and has expanded upon the *McMinnville Transit Feasibility Study],* YCAP is envisioning the following service expansion/improvements for the next 20 years in McMinnville:
  - Maintain:
    - North/south fixed route service
    - Dial-a-ride service
    - Commuter service to Sherwood and back via Lafayette, Dundee, and Newberg
  - Expand:
    - East/west fixed route service
    - Dial-a-ride service
    - Evening service
    - Saturday service
    - Sunday service
    - Twice daily commuter service to Salem

- Park-and-ride lots
  - West near Chemeketa (With the relocation of Chemeketa Community College, a park-and-ride lot at this location may not remain important.)
  - East near Airport
  - South near Bi-Mart
  - North near Wal-Mart
- Larger bus zone for transfers
  - All of the existing parking spaces on the west side of the 300 block between 3rd and 4th Streets on Davis Street
- Earlier service

Bikeway

- **Projects:** Construct 6-foot-wide paved shoulder contiguous to each travel lane on the following roads:
  - Westside Road from Baker Creek Road to Donnelly Lane (Priority A)
  - Hill Road from Baker Creek Road to West 2nd Street (Priority A) (This project has been completed.)
  - Hill Road from West 2nd Street to Peavine Road (Priority B) (The portion of this project located within the McMinnville UGB has been completed.)

Air/Rail/Water/Pipeline

- **Policy:** Yamhill County is committed to protecting, through its zoning ordinance and transportation plan, the McMinnville Municipal Airport as a vital county-wide transportation facility. Efforts will be made to regulate land use in the area near to the airport to prevent the development of any new airport hazards and obstructions, at the same time preventing any residential encroachment upon critical noise contours.

CITY OF McMinnville OREGON

Transportation System Plan

Appendix C

Transportation Analyses, Bridge Ratings and Signal Warrants

transpoGROUP

C Transportation System Analysis

Appendix C includes separate sections for (1) Intersection Level-Of-Service Analysis – year 2006 and 2023; (2) Bridge Rating; and (3) ODOT Travel Demand Model Summary.

Intersection Level-of-Service Analysis

The evaluation of future traffic conditions in the McMinnville TSP focused on critical intersections along major and minor arterials throughout McMinnville. A more detailed evaluation of the downtown street system was also conducted and summarized separately. These major intersections serve as additional indicators of overall system performance, and are used to help identify operational and capacity improvements at critical junction points.

A 2003-2023 planning horizon was chosen for consistency with the *McMinnville Growth Management and Urbanization Plan*, and as directed by DLCD staff.

The McMinnville TSP update process began in 2006 with new traffic data collection of PM peak hour traffic data, recorded at 48 study area intersections. Year 2006 data were used to describe "existing" conditions (as year 2003 data were not recorded) and future year 2023 data were derived from ODOT's Travel Demand Model.

Existing (2006) and future (2023) V/C ratios for PM peak hour operations are summarized and compared with the McMinnville TSP mobility standards (see Chapter 2).

Table C-1 summarizes year 2006 PM peak hour performance measures.

Table C-2 summarizes year 2023 PM peak hour performance measures for a select set of study area intersections that were found with future capacity problems. The table also summarizes the resulting performance measures for 2023 operations based on assumed TSP project improvements (mostly new traffic signal or intersection enhancements).

Table C-1: 2006 PM Peak Hour

Weekday PM Peak Hour LOS Table

	Intersection	LOS[1]	Delay[2]	V/C[3]	WM[4]
		2006 Existing			
	Weekday PM Peak Hour				
1	Highway 99 & LaFayette Ave	C	25.5	0.77	SBL
2	Highway 99 & McDaniel Ln	B	14.2	0.62	WBL
3	Highway 99 & McDonald Ln	C	29.2	0.59	EBL
4	Highway 99 & NE Evans St/Baker Creek Rd	B	13.3	0.62	SBL
5	19th St & Highway 99	B	12.6	0.56	EBT
6	12th St & Adams (Hwy 99)	B	11.3	0.78	WBT
7	12th St & Baker (Hwy 99)	B	16.5	0.74	EBT
8	8th St & Adams (Hwy 99)	D	30.2	0.1	EB
9	8th St & Baker (Hwy 99)	E	35.5	0.18	EBT/L
10	3rd St & Baker (Hwy 99)	B	10.3	0.58	WBT
11	2nd St & Adams (Hwy 99)	B	17.3	0.79	WBT
12	2nd St & Baker (Hwy 99)	B	12.1	0.64	WBT
13	SW Fellows St & Baker	B	12.7	0.64	EBT
14	W Linfield Ave & Baker (Hwy 99)	A	7.9	0.43	WBT
15	Keck (Albertson's/IGA) & Baker (Hwy 99)	B	11.8	0.44	EBT
16	Old Sheridan Road & Baker (Hwy 99)	C	34.1	0.72	EBT
17	WB Ramp & Hwy 99	E	38.9	0.82	WBL/R
18	EB Ramp & Hwy 99	A	3.8	0.16	SBT
19	Burnett Rd & Baker St	B	11.9	0.07	WBL/R
20	27th St & Baker St	B	12.9	0.2	WBL/R
21	NW Baker Creek Road & Baker St	A	9.2	0.43	SBT
22	19th St & Baker St	B	13.7	0.52	NB
23	27th St & McDonald Ln	C	18	0.48	WB
24	19th St & McDonald Ln	A	8.6	0.23	SB
25	NW Baker Creek Road & Michelbook Ln	B	14.7	0.26	NBL/R
26	12th St & Michelbook Ln	B	14.4	0.25	WBL/R
27	NW Wallace Rd & Michelbook Ln	B	11.7	0.5	SB
28	2nd St & Michelbook Ln	B	10.9	0.49	NBT
29	NW Baker Creek Road & Hill Rd	B	11.9	0.26	NB
30	NW Wallace Rd & Hill Ave	B	11.1	0.1	WBT/L
31	2nd St & Hill Ave	B	15	0.13	EBT/L
32	2nd St & NW Cypress St	C	21.3	0.23	SB
33	SW Fellows St & NW Cypress St	A	10	0.33	WB
34	Cypress St & SW Old Sheridan Rd	C	16	0.1	NBR
35	W Linfield Ave & SE Davis St	B	10.9	0.18	EBL/R

2006 PM Peak Hour (cont)

Weekday PM Peak Hour LOS Table

	Intersection	LOS[1]	Delay[2]	V/C[3]	WM[4]
		2006 Existing			
36	2nd St & Davis St	C	18.9	0.28	SB
37	14th St & NE Evans St	B	12.8	0.16	WB
38	12th St & NE Evans St	B	14.1	0.62	SB
39	8th St & NE Evans St	A	9.4	0.3	NB
40	3rd St & NE Evans St	C	16.1	0.29	SB
41	14th St & McDonald Ln	B	11.9	0.21	SB
42	19th St & LaFayette Ave	C	24.4	0.13	EB
43	13th St & LaFayette Ave	B	12.2	0.6	WBL
44	8th St & LaFayette Ave	D	33.8	0.42	EBL/R
45	3rd St & LaFayette Ave	B	17.6	0.62	WBT
46	1st & NE Three Mile Lane	F	197.9	0.39	WB
47	OR 18 & Norton Lane	C	23.9	0.65	NBT
48	NE McDaniel Ln & LaFayette Ave	---	---	---	---

1. Level of service, based on 2000 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections.

Table C-2: 2023 PM Peak Hour

Weekday PM Peak Hour LOS: Summary of Critical Intersections & Comparison to 2006

	2006 Existing			2023 Future			2023 Future + Improvements		
Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM	LOS	Delay	V/C or WM
1. Hwy 99/LaFayette Ave	C	25.5	0.77	C	23.9	0.80			
2. Hwy 99/McDaniel Ln	B	14.2	0.62	A	9.9	0.54			
3. Hwy 99/McDonald Ln	C	29.2	0.59	C	30.0	0.65			
4. Hwy 99-NE Evans St/Baker Crk Rd	B	13.3	0.62	B	19.6	0.81			
5. 19th St/Hwy 99	B	12.6	0.56	A	9.7	0.56			
6. 12th St/Adams (Hwy 99)	B	11.3	0.78	C	31.1	0.97	C	21.7	0.90
16. Old Sheridan Rd/Baker (Hwy 99)	C	34.1	0.72	F	155.2	1.52	D	40.5	0.95
17. WB Ramp/Hwy 99	E	38.9	0.82/WB	F	>200	3.25/WB			
21. NW Baker Creek Rd/Baker St	A	9.2	0.43	B	13.4	0.55			
22. 19th St/Baker St	B	12.3	0.53	C	16.5	0.60			
29. NW Baker Creek Rd/Hill Rd	B	11.9	0.26/NB	F	72.5	1.01/NB	A	7.3	0.45
31. 2nd St/Hill Ave	B	15.0	0.13/EBT-L	E	39.4	0.79/WB	A	5.9	0.35
34. Cypress St/SW Old Sheridan Rd	C	16.0	0.07/NBL	F	>200	1.16/NBL	A	8.1	0.53
43. 13th St/LaFayette Ave	B	12.5	0.60	B	17.0	0.79			
47. OR 18/Norton Ln	B	19.7	0.53	E	63.3	1.02			

1. Level of service, based on 2000 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections.

Assumed Improvements

6. 12th St/Adams (Hwy 99) Re-stripe Adams with separate left-turn, through and through-right-turn lanes
16. Old Sheridan Rd/Baker (Hwy 99) Added through- and turn-lanes per Highway 18/99W South Interchange Access Management Plan
29. New traffic signal
31. New traffic signal
34. New traffic signal

2026 PM Peak Hour (cont.)

Weekday PM Peak Hour LOS Summary of Alternatives (Downtown)

	2006 Existing			2023		
Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
10. 3rd St & Baker (Hwy 99)	B	10.3	0.58	B	15.4	0.65
11. 2nd St & Adams (Hwy 99)	B	17.3	0.79	B	17.2	0.78
12. 2nd St & Baker (Hwy 99)	B	12.1	0.64	C	23.0	0.88
45. 3rd St & LaFayette Ave	B	17.6	0.62	C	20.9	0.71
49. 5th Street & Adams (Hwy 99)				C	21.2	0.89
50. 5th Street & Baker (Hwy 99)				C	20.2	0.86
52. 5th Street & Lafayette				B	15.6	0.75

1. Level of service, based on 2000 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections.

Weekday PM Peak Hour LOS Summary of Alternatives: TSP Street and TDM Improvements

	2006 Existing			2023 w/ TSP Street Improvements			2023 TSP Plus TDM Improvements		
Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM			
16. Old Sheridan Rd/Baker (Hwy 99)	C	34.1	0.72	D	40.5	0.95	D	39.6	0.93
47. OR 18/Norton Ln	B	19.7	0.53	E	63.3	1.02	E	58.0	0.99

1. Level of service, based on 2000 Highway Capacity Manual methodology.
2. Average delay in seconds per vehicle.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections.

ODOT Bridge Rating

This section summarizes ODOT's Highway Bridge Replacement and Rehabilitation Program and includes a summary of ODOT's bridge ratings for bridges within or near the McMinnville Urban Growth Boundary.

Highway Bridge Replacement and Rehabilitation Program

The purpose of ODOT's HBRR funding is to replace or rehabilitate roadway bridges over waterways, other topographical barriers, other roadways, railroads, canals, ferry landings, etc., when those bridges have been determined deficient because of structural deficiencies, physical deterioration, or functional obsolescence.

All local agencies must inventory their structures in accordance with the National Bridge Inspections Standards (NBIS) and Oregon State Law, with the results being entered according to the ODOT BMS format.

Bridges on public roads classified as deficient by Federal guidelines based on National Inventory data may be eligible for funding for rehabilitation or replacement. Bridges are defined as any highway structure with an opening measured along the centerline of= roadway of more than 20 feet (6.1 m) between undercopings of abutments and spring lines of arches, or extreme ends of the openings of multiple boxes; it may include multiple pipes where the clear distance between openings is less than half of the smaller contiguous opening. The work done must result in the removal of all deficiencies, or any deficiency left in place must be covered by a design exception.

Exception: Eligible structural steel bridges can be painted and any highway bridge located in a high seismic area can be retrofitted for seismic loads without removing other deficiencies. Any highway bridge in a high seismic risk zone may be retrofitted to resist seismic loads regardless of its eligibility status for rehabilitation or replacement. Bridges to be painted must meet the same eligibility requirements as bridges being replaced or rehabilitated; that is, they must be deficient and have a sufficiency rating less than 80.

Also, even though seismic retrofit and painting can be done as sole work items, FHWA recommends that safety defects be corrected, especially if there is a history of accidents at the bridge.

The eligibility determination has two steps:

Step I. The bridge first must be classified as either structurally deficient or functionally obsolete as described below based on a routine NBIS inspection.

Structurally Deficient

A ***structurally deficient*** bridge is inadequate to carry legal loads, whether caused by obsolete design standards, structural deterioration, or waterway inadequacy. A structural deficient classification is determined from the following field inspection data items as entered on the Federal Structure Inventory and Appraisal (SI&A) Form maintained within the ODOT BMS.

1. Condition rating of 4 or less for:
   - Item 58 - Deck, or
   - Item 59 - Superstructure, or
   - Item 60 - Substructure, or
   - Item 62 – Culvert

OR

2. Appraisal rating of 2 or less for:
   - Item 67 - Structural condition, or
   - Item 71 - Water way adequacy

Functionally Obsolete

A ***functionally obsolete*** bridge is inadequate to properly accommodate traffic due to inadequate vertical or horizontal clearance, approach roadway alignment, structural condition, or waterway adequacy. A functionally obsolete bridge is determined from the following field inspection data items as entered on the Federal Structure Inventory and Appraisal (SI&A) Form maintained within the ODOT BMS.

1. Appraisal rating of 3 or less for:
   Item 68 - Deck geometry, or
   Item 69 - Under clearances, or
   Item 72 - Approach roadway

OR

2. Appraisal rating of 3 for:
   Item 67 - Structural condition, or
   Item 71 - Waterway adequacy

Step II. After deficiency is established, the bridge is considered eligible for either replacement or rehabilitation depending on the value of the sufficiency rating.

- Sufficiency rating of 80 or less for rehabilitation.
- Sufficiency rating of 50 or less for replacement.

Exception. Deficient bridges with sufficiency ratings between 50 and 80 may be replaced if it can be shown to be more cost effective than rehabilitation using a life cycle cost analysis. Since eligibility is not exempt from FHWA review, the analysis must be reviewed and approved by both ODOT and FHWA.

Projects eligible for funding may include (but are not limited to) the following:

a. Total replacement of a deficient bridge at or near its existing location.
b. Total replacement of a deficient bridge by a new structure in the same general corridor.
c. Removal of a deficient structure and provision of alternate access at or less than the cost of replacement.
d. Rehabilitation or replacement of major structural members that increase the structural integrity and life of the bridge. This may include seismic retrofitting and painting of the structure.

The decision to rehabilitate versus replace should be based on a study of alternatives considering cost, safety, service life, and level of service. Rehabilitation alternatives are necessary only when considered feasible.

McMinnville Bridge Ratings

McMinnville Urban Area **BRIDGE RATING (2007)**

BRIDGE ID#	BRIDGE NAME	POSTING	CONDITION	SUFFICIENT/ OBSOLETE	SUFFICIENCY	HORIZONTAL CLEARANCE	INSPECTION DATE	DECK WIDTH	LANES UNDER	TRAFFIC	CONST. YEAR
00315F	Cozine Creek, Old Sheridan Rd	At/Above Legal Loads	Poor	Structurally Deficient	43.9	20	12/06	20	0	2-way traffic	1926
00441	North Yamhill River, OR 99W SB	At/Above Legal Loads	Fair	Functionally Obsolete	44.3	20	03/06	20	0	1-way traffic	1921
00441A	North Yamhill River, OR 99W NB	At/Above Legal Loads	Fair	Not Deficient	73.5	29.8	03/06	30	0	1-way traffic	1959
05023A	Cozine Creek, OR 99W	At/Above Legal Loads	Good	Not Deficient	83.0	27.9	05/06	0	0	2-way traffic	1900
06758	South Yamhill River, OR Hwy 18 McMinnville Spur	At/Above Legal Loads	Poor	Structurally Deficient	35.5	25.9	06/06	26	0	2-way traffic	1951
08490	South Yamhill River, OR Hwy 18 at MP 45.63	At/Above Legal Loads	Fair	Not Deficient	76.0	29.8	10/06	30	0	2-way traffic	1963
08492	Yamhill River Oflow, OR Hwy 18	At/Above Legal Loads	Fair	Not Deficient	63.1	29.8	10/06	30	0	2-way traffic	1963
08688	OR Hwy 18 over WPRR	At/Above Legal Loads	Fair	Functionally Obsolete	63.2	29.8	10/06	30	0	2-way traffic	1964
08903	Booth Bend Road over OR Hwy 18	At/Above Legal Loads	Fair	NA		23.9	10/06	24	2	2-way traffic	1964
08904	OR 99W over OR Hwy 18	At/Above Legal Loads	Fair	Functionally Obsolete	84.1	39.4	03/06	39.5	2	2-way traffic	1963
08950	OR Hwy 18 EB Conn to OR 99W over Hwy 39 WB	At/Above Legal Loads	Fair	NA		22	10/06	22	1	2-way traffic	1964
08951	OR Hwy 18 McMinnville Spur over OR Hwy 18	At/Above Legal Loads	Fair	NA		46.9		22	2	2-way traffic	1964
0M025	Cattlepass, OR Hwy 18 at MP 43.75	At/Above Legal Loads	Good	NA	98.0	49.9	10/04	50	0	2-way traffic	1948
11540A	Baker Creek, Baker Creek Rd	>39.9% below	Good	Not Deficient	49.6	26.2	12/04	26.1	0	2-way traffic	2007
11640A	Baker Creek, Westside Rd	At/Above Legal Loads	Good	Not Deficient	69.3	26.2	12/06	26.1	0	2-way traffic	2007
11713F	Cozine Creek, Hill Rd S	At/Above Legal Loads	Fair	Functionally Obsolete	66.6	20.3	12/06	20.5	0	2-way traffic	1963
16232	Sign Truss Br, OR Hwy 18 at MP 43.85	>39.9% below	Fair	NA		47.9		0	2		1978

Source data: Oregon Department of Transportation

ODOT Travel Demand Model

Text provided by ODOT when completed.

CITY OF McMinnville OREGON

Transportation System Plan

Appendix D
TSP Project Summaries

transpoGROUP

D TSP Project Summaries and Planning-Level Cost Estimates

Appendix D summarizes the TSP Complete Street, bicycle and pedestrian plan projects. Included in each are the planning-level cost estimates, based on 2008 dollars.

Existing Conditions

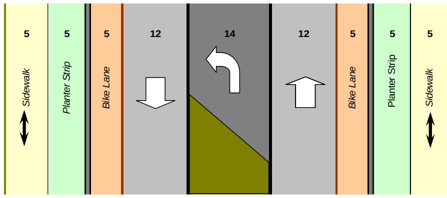
Improvements

* Deficient Bridge Replacement
* Added Turn Lanes - Street Capacity & Safety
* Added Sidewalks - Critical Connection to Hwy 99W
* Added Bicycle Lanes - Critical Southern City Connector
* New Traffic Signal at Cypress
* Streetscape Amenities

Problems

* Deficient Bridge
* Missing Sidewalks, Bike Lanes & Turn-Lanes
* Poor Pavement
* Substandard Urban Arterial

Profile



PM Peak Hour Traffic (both dir)	
2003	1000
2023	1680
% Increase	**68%**

Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate		x	x	
Operations	x			
Freight				

Project Costs

Street Improvements	
New	$0
Widening	$1,197,900
Right-of-Way	$181,500
Traffic Control	
New/Replacement Signal(s)	$200,000
Special	
Bridge	$792,000
Total Cost	**$2,371,400**

Funding Plan

Transportation SDC		TBD
Special Grants		TBD
Other City		
Local Funds		TBD
ODOT/County	County	TBD
Total:		**$2,371,400**

CITY OF McMinnville OREGON

Transportation System Plan

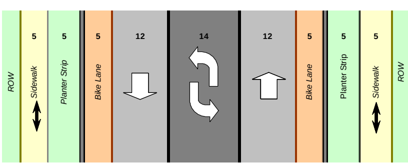
Old Sheridan Road

Existing Conditions

Problems

* Rural Cross-section
* Missing Sidewalks, Bike Lanes & Turn-lanes
* Substandard Urban Arterial

Profile



PM Peak Hour Traffic (both dir)	
2003	460
2023	715
% Increase	**55%**

Improvements

* Urban Street Upgrade - Street Capacity & Safety
* Added Sidewalks
* Added Bicycle Lanes - Critical Northwestern City Connector
* Streetscape Amenities

Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate		x	x	
Operations	x			
Freight				

Project Costs

Street Improvements	
New	$0
Widening	$696,300
Right-of-Way	$105,500
Traffic Control	
New/Replacement Signal(s)	$0
Special	
Bridge	$0
Total Cost	**$801,800**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	County TBD
Total:	**$801,800**

CITY OF McMinnville OREGON

Transportation System Plan

North Baker Street

Improvements

Problems

*** Diminishing highway capacity conditions**
*** Local land plan development and access needs**

3- Phase ODOT Hwy 18 Plan Implementation
*** Two New Interchanges**
*** Collector Street Access Routes**
*** New Traffic Signals**

Multi-Modal

Safety	x
Capacity	x
Access/Circulate	x
Operations	x
Freight	x

Project Costs

Street Improvements	TBD	
New		
Widening		
Right-of-Way		
Traffic Control		
New/Replacement Signal(s)		$1,000,000
Special		
Interchanges		$25,000,000
Total Cost		**$26,000,000**

Funding Plan

Transportation SDC		
Special Grants		
Private	TBD	
Local Funds		
ODOT/County	ODOT TBD	
Total:		**$25,500,000** "+"

CITY OF McMinnville OREGON

Transportation System Plan

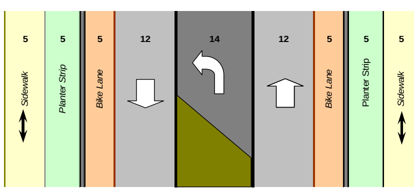
Hwy 18 Corridor Plan

Existing Conditions

Problems

* Rural Cross-section
* Missing Sidewalks, Bike Lanes & Turn-Lanes
* Poor Pavement
* Substandard Urban Arterial

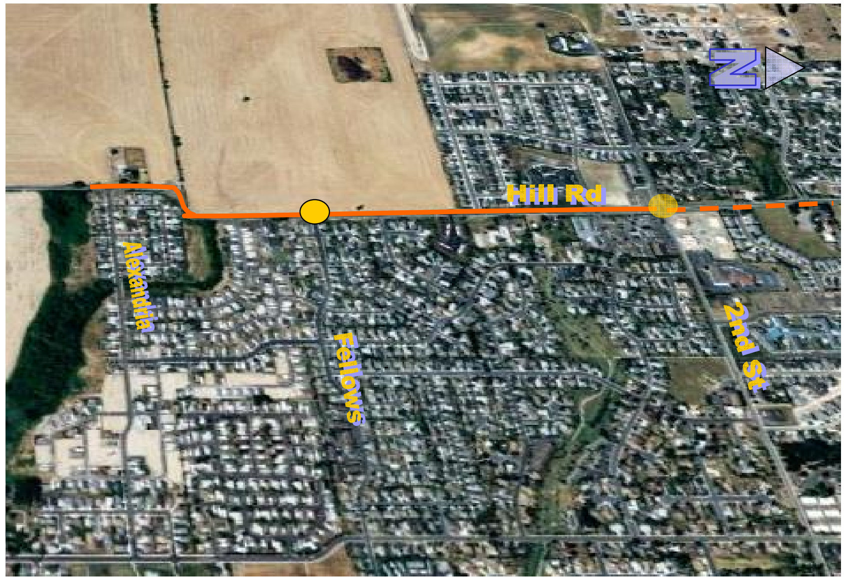
Profile



PM Peak Hour Traffic (both dir)	
2003	165
2023	365
% Increase	121%

Improvements

UNDER CONSTRUCTION



* Urban Street Upgrade - Street Capacity & Safety
* Added Sidewalks - Critical Access to Schools
* Added Bicycle Lanes - Critical Western City Connector
* New Roundabout at Fellows
* Streetscape Amenities

Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate	x	x	x	
Operations	x			
Freight				

Project Costs

Street Improvements	
New	$0
Widening	$2,788,500
Right-of-Way	$686,500
Traffic Control	
New/Replacement Signal(s)	$200,000
Special	
Bridge	$0
Total Cost	**$3,675,000**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	County TBD
Total:	**$3,675,000**

CITY OF McMinnville OREGON

Transportation System Plan

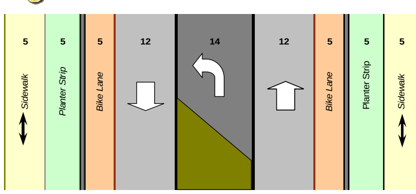
Hill Road South

Existing Conditions

Problems

* Rural Cross-section
* Missing Sidewalks, Bike Lanes & Turn-Lanes
* Poor Pavement
* Substandard Urban Arterial

Profile



PM Peak Hour Traffic (both dir)	
2003	365
2023	900
% Increase	**147%**

Improvements

UNDER CONSTRUCTION

* Urban Street Upgrade - Street Capacity & Safety
* Added Sidewalks - Critical Access to Schools
* Added Bicycle Lanes - Critical Western City Connector
* New Roundabouts or Traffic Signals at Baker Creek Road, Wallace and Second Streets
* Streetscape Amenities

Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate	x	x	x	
Operations	x			
Freight				

Project Costs

Street Improvements	
New	$0
Widening	$4,530,900
Right-of-Way	$686,500
Traffic Control	
New/Replacement Signal(s)	$600,000
Special	
Bridge	$0
Total Cost	**$5,817,400**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	County TBD
Total:	**$5,817,400**

CITY OF McMinnville OREGON

Transportation System Plan

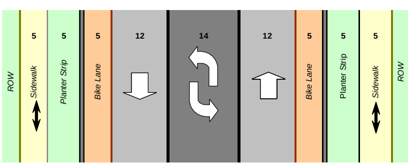
Hill Road North

Existing Conditions

Problems

* Rural Cross-section
* Missing Sidewalks, Bike Lanes & Turn-lanes
* Substandard Urban Arterial

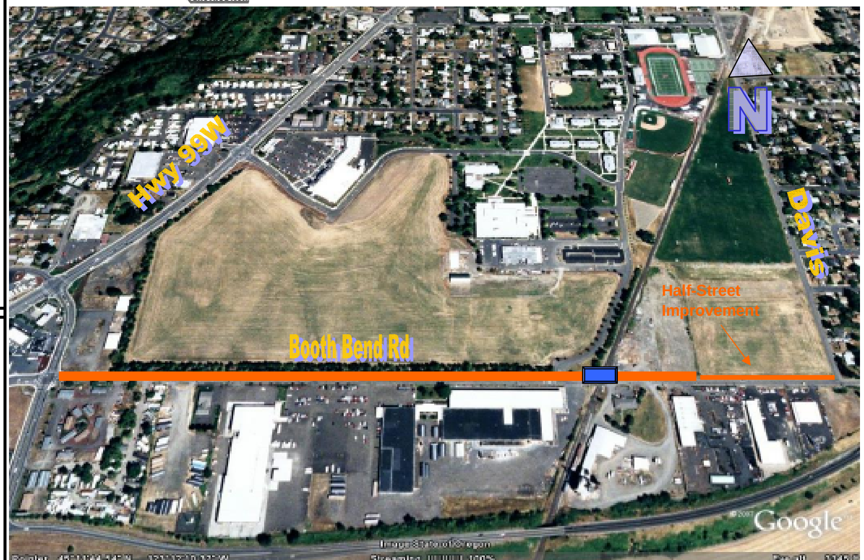
Profile



PM Peak Hour Traffic (both dir)	
2003	460
2023	715
% Increase	**55%**

Improvements

UNDER CONSTRUCTION



* Urban Street Upgrade - Street Capacity & Safety
* Added Sidewalks & Railroad Crossing - Critical Connector to New School
* Added Bicycle Lanes - Critical Southern City Connector
* Streetscape Amenities

Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate		x	x	
Operations	x			
Freight	x			

Project Costs

Street Improvements	
New	$0
Widening	$2,301,300
Right-of-Way	$348,700
Traffic Control	
New/Replacement Signal(s)	
Special (Railroad crossing)	$200,000
Bridge	$0
Total Cost	**$2,850,000**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Private	TBD
Local Funds	TBD
ODOT/County	County
Total:	**$2,850,000**

CITY OF McMinnville OREGON

Transportation System Plan

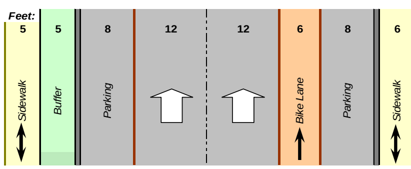
Booth Bend Road

Existing Conditions

Problems

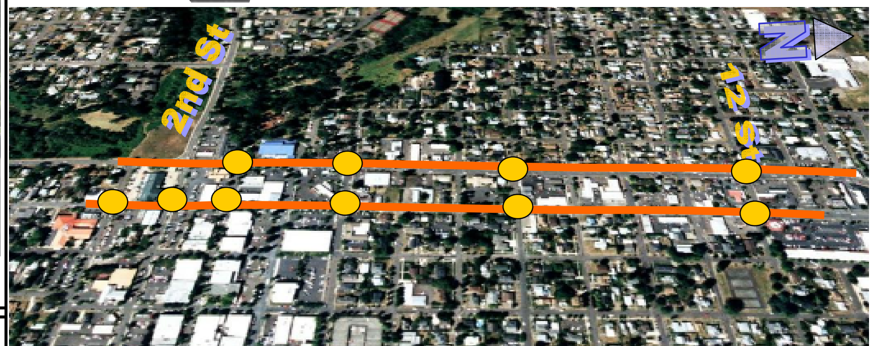
* Heavy, Higher-Speed Nort-South Traffic
* Crossing Pedestrian Travel
* Poor Lighting

Profile



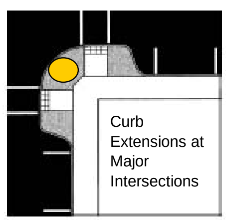
PM Peak Hour Traffic (both dir)	
2003	1500
2023	1935
% Increase	29%

Improvements

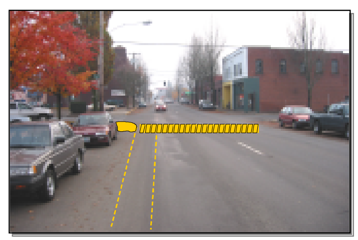


* Curb Extensions at Major Intersections
* Cross-walk Delineation (pavers)
* New Curb Ramps w/ Pavement Replacement
* Pedestrian-Scale Lighting

Pedestrian Features



Bicycle Features



Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity		x	x	
Access/Circulate		x	x	
Operations				
Freight				

Project Costs

Street Improvements	
New	$0
Widening	$0
Resurfacing w/ Curb Ramps	$435,800
Right-of-Way	$0
Traffic Control	
New/Replacement Signal(s)	$0
Curb Extensions	$200,000
Special : Ped-Scale Lighting	$110,000
Bridge	$0
Total Cost	**$745,800**

Funding Plan

Transportation SDC	TBD	
Special Grants	TBD	
Other City		
Local Funds	TBD	
ODOT/County	ODOT TBD	
Total:		**$745,800**

City of McMinnville Oregon

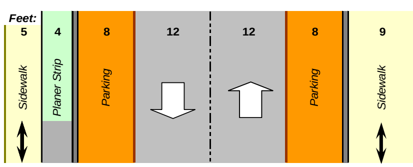
Adams-Baker Couplet

Existing Conditions

Problems

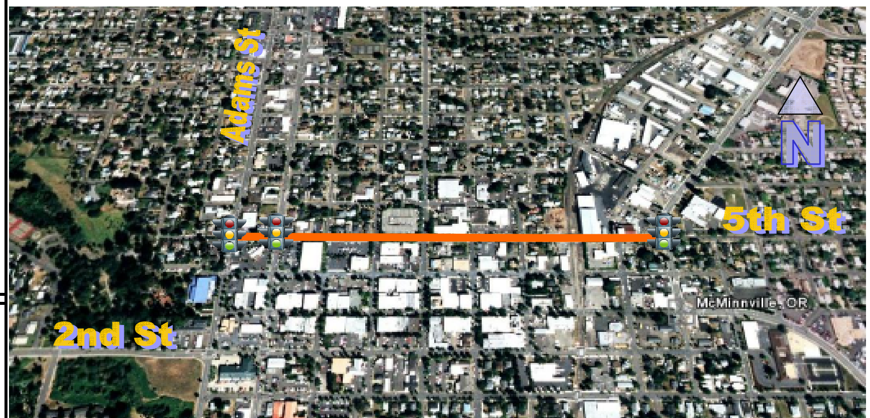
* East-West Downtown streets at or over capacity
* Underutilized corridor
* Poor pavement condition

Profile



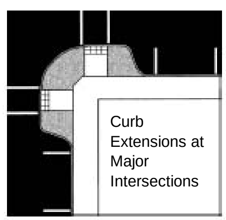
PM Peak Hour Traffic (both dir)	
2003	205
2023	700
% Increase	241%

Improvements

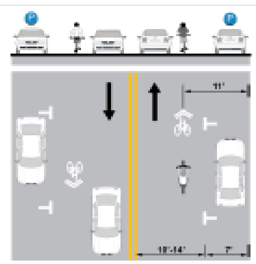


* Critical Alternative to 1st / 2nd / 3rd Streets
* Pavement Repair
* Curb Ramp & Sideakk Replacement as Needed
* Added Traffic Signals at Hwy 99W and Lafayette
* Remove Signal at Adams/4th Street

Pedestrian Features



Bicycle Features



Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate	x	x	x	x
Operations	x			
Freight				

Project Costs

Street Improvements	
New	$0
Widening	$0
Resurfacing w/ Curb Ramps	$403,500
Right-of-Way	$0
Traffic Control	
New/Replacement Signal(s)	$800,000
Special	
Bridge	$0
Total Cost	**$1,203,500**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	
Total:	**$1,203,500**

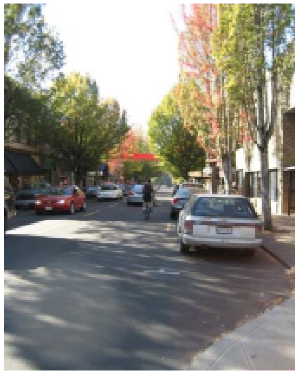
CITY OF McMinnville OREGON

Transportation System Plan

5th Street

3rd Street Streetscape Plan

Existing Conditions



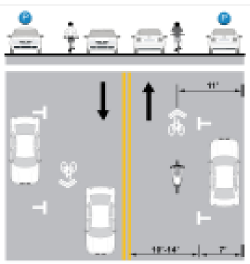
Problems

* Aging Sidewalk Infrastructure

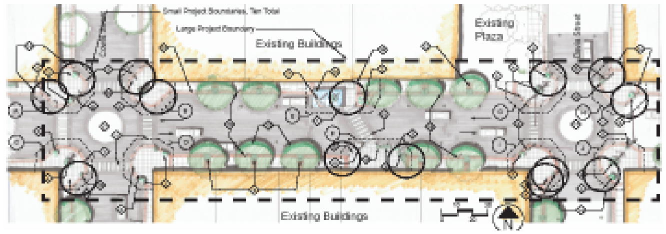
☐

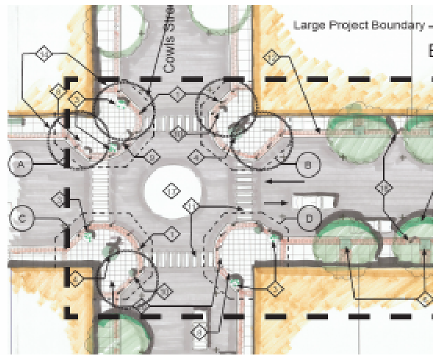
Profile

Bicycle Features



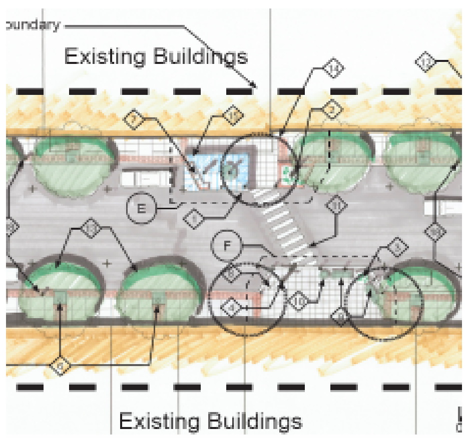
Improvements





Intersection

* Curb Extension
* Crosswalk Enhancement
* Bike Racks
* Planters
* Benches
* Sidewalk Replacement



Mid-Block

* Street Trees
* Shelters
* Mid-Block Crosswalk
* Bike Racks
* Benches
* Sidewalk Replacement

Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity		x	x	x
Access/Circulate		x	x	
Operations				
Freight				

Project Costs

Street Improvements

$465,000 per block
5 blocks
Baker to Galloway

Total Cost **$2,325,000**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	TBD
Total:	**$2,325,000**

City of McMinnville Oregon

Transportation System Plan

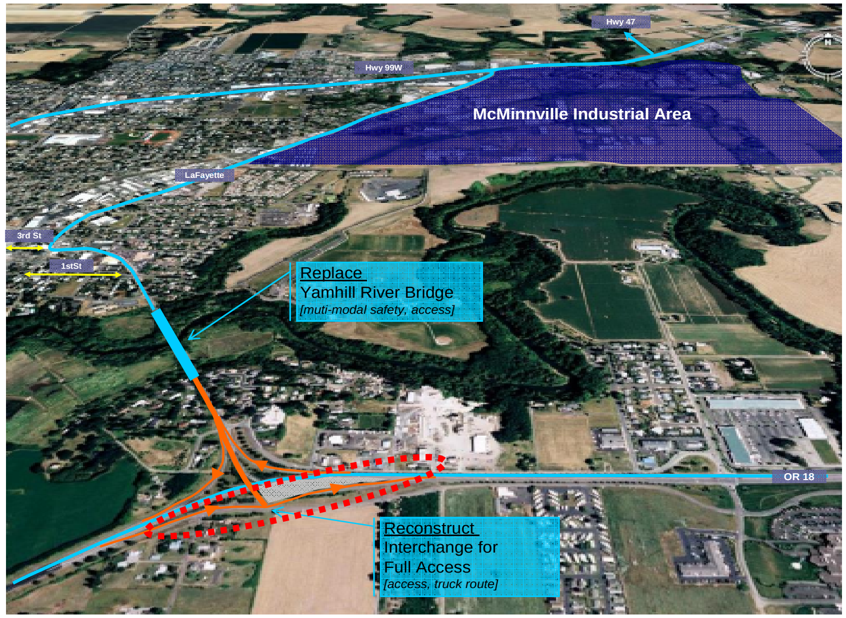
Existing Conditions

Problems

*** Limited Directionallity / Access at Highway 18**

Profile

Improvements



Phase III - ODOT Hwy 18 Plan Implementation

- **Modify/Replace Overcrossing**
- **Add Eastbound Off- and On-ramps**
- **Provides Fully-Directional Truck Route**
- **Facilitates Hwy 18 Grade-Separation Access**

Multi-Modal

Safety	x
Capacity	x
Access/Circulate	x
Operations	x
Freight	x

Project Costs

Street Improvements	
New	$0
Widening	$0
Right-of-Way	$0
Traffic Control	
New/Replacement Signal(s)	$0
Special	
Bridge	$5,000,000
Total Cost	**$5,000,000**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	ODOT TBD
Total:	**$5,000,000**

CITY OF McMinnville OREGON

Transportation System Plan

3-Mile Interchange

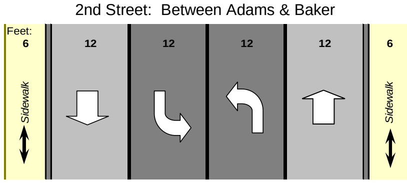
Existing Conditions

Problems

* Heavy E-W Traffic Queuing
* Traffic Signal Capacity

Profile

2nd Street: Between Adams & Baker

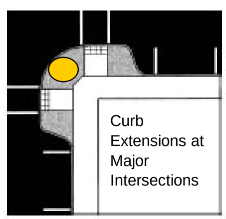


PM Peak Hour Traffic (both dir)	
2003	695
2023	1105
% Increase	**59%**

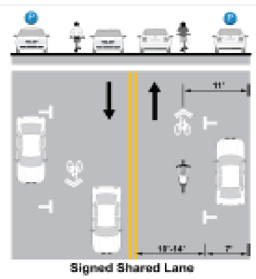
Improvements

* Curb Extensions at Baker Street
* Additional Westbound Travel Lane
* Traffic Signal Replacement & Timing

Pedestrian Features



Bicycle Features



Multi-Modal

Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate	x	x	x	
Operations	x			
Freight	x			

Project Costs

Street Improvements	
New	$0
Widening	$627,000
Resurfacing w/ Curb Ramps	$0
Right-of-Way	$0
Traffic Control	
New/Replacement Signal(s)	$400,000
Curb Extensions	$40,000
Special : Ped-Scale Lighting	$30,000
Bridge	$0
Total Cost	**$1,097,000**

Financial Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	TBD
Total:	**$1,097,000**

CITY OF McMinnville OREGON

Transportation System Plan

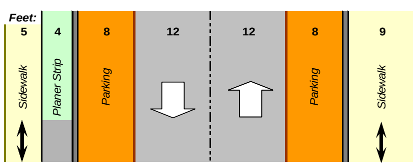
2nd Street

Existing Conditions

Problems

* Heavy, Higher-Speed East-West Traffic
* Crossing Pedestrian Travel
* Poor Lighting

Profile



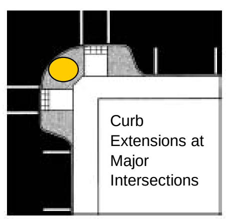
PM Peak Hour Traffic (both dir)	
2003	695
2023	1105
% Increase	**59%**

Improvements

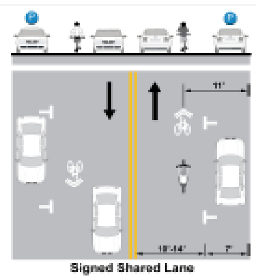
Downtown Plan Implementation

* Curb Extensions at Major Intersections
* Cross-walk Delineation (pavers)
* Curb Ramp Replacements
* Pedestrian-Scale Lighting
* New Traffic Signal at Davis

Pedestrian Features



Bicycle Features



Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity		x	x	
Access/Circulate		x	x	
Operations				
Freight				

Project Costs

Street Improvements	
New	$0
Widening	$0
Resurfacing w/ Curb Ramps	$316,500
Right-of-Way	$0
Traffic Control	
New/Replacement Signal(s)	$200,000
Curb Extensions	$400,000
Special : Ped-Scale Lighting	$80,000
Bridge	$0
Total Cost	**$996,500**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	TBD
Total:	**$996,500**

City of McMinnville Oregon

Transportation System Plan

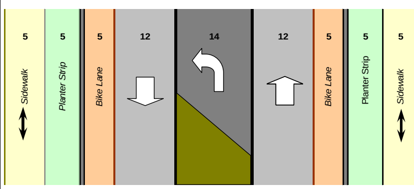
1st & 2nd Streets

Existing Conditions

Problems

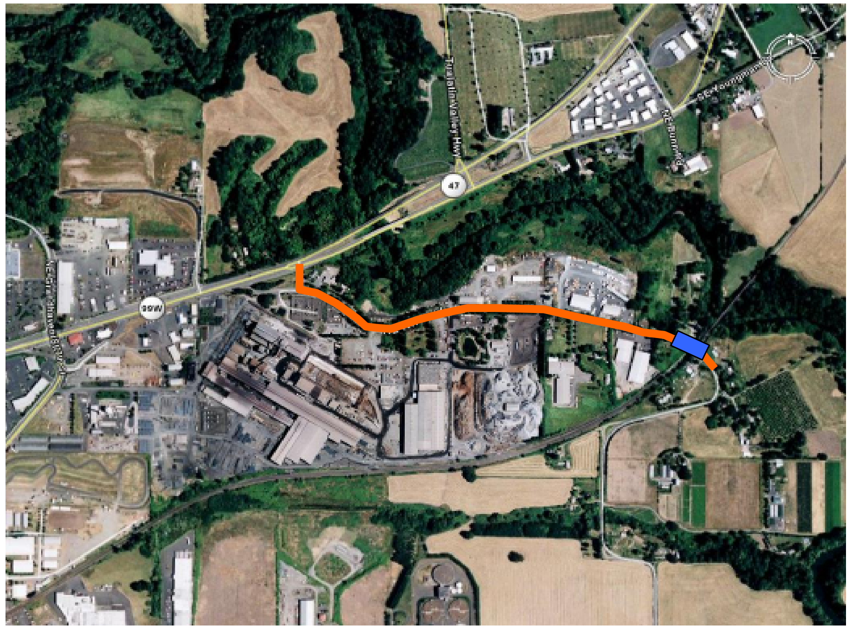
* Substandard Depth/Width
* Missing Sidewalks
* Poor Pavement
* Substandard Railroad Crossing

Profile



PM Peak Hour Traffic (both dir)	
2003	315
2023	370
% Increase	**17%**

Improvements



* Standardized Industrial Collector Street
* Added Turn Lane @ 99W - Street Capacity/Safety
* Upgrade Railroad Crossing
* Added Sidewalks and Bicycle Lanes
* Streetscape Amenities

Multi-Modal

	Auto	Pedestrian	Bicycle	Transit
Safety	x	x	x	
Capacity	x	x	x	
Access/Circulate		x	x	
Operations	x			
Freight	x			

Project Costs

Street Improvements	
New	$0
Widening	$2,265,100
Right-of-Way	$396,000
Traffic Control	
Railroad Crossing Upgrade	$250,000
Special	
Other	
Total Cost	**$2,911,100**

Funding Plan

Transportation SDC	TBD
Special Grants	TBD
Other City	
Local Funds	TBD
ODOT/County	
Total:	**$2,911,100**

CITY OF McMinnville OREGON

Transportation System Plan

Riverside Drive

Bicycle Project Costs

	Project	From	To	Length	Cost
Bike Lanes					**$237,500**
	Evans	Baker Creek Rd	27th St	0.29	$18,600
	Baker Creek Rd	Birch	Baker St	0.18	$11,500
	Wallace	Hill Rd	2nd st	1.44	$92,200
	Michelbook	2nd St	Baker Creek Rd	1.15	$73,600
	Davis	RR Xing	1st St	0.65	$41,600
				3.71	
Bike Sharrows					**$312,000**
	Fellows	Hill Rd	Hwy 99W	1.4	$56,000
	19th St	Michelbook	Lafayette	1.4	$56,000
	27th St	Baker	Hwy 99W	1.1	$44,000
	McDonald	14th St	27th St	0.7	$28,000
	Evans	17th St	Hwy 99W	0.22	$8,800
	Evans	1st St	8th St	0.34	$13,600
	14th St	Evans	RR Xing	0.5	$20,000
	5th St	Adams	Johnson	0.5	$20,000
	3rd St	Adams	Johnson	0.5	$20,000
	1st St	Adams	Johnson	0.5	$20,000
	Davis	Linfield	1st St	0.64	$25,600
				7.8	

Priority Sidewalk Improvement Projects

Street/Project	From	To	Length (mi)	Cost Est.
27th	Evans	McDaniel	0.25	$396,000
Evans	Baker Cr Rd	27th St	0.18	$285,120
19th	Hwy 99w	McDonald	0.24	$380,160
McDonald	Hwy 99w	12th St	0.21	$332,640
McDaniel	Hwy 99w	Lafayette	0.19	$300,960
Michelbook	12th St	16th St	0.16	$253,440
12th	Michelbook	Cedar	0.3	$475,200
Wallace	2nd St	Wallace Way	0.58	$918,720
14th St	Elm	Birch	0.12	$190,080
16th St	Elm	Birch	0.27	$427,680
Birch	14th St	18th St	0.16	$253,440
Elm	12th St	17th St	0.13	$205,920
Adams	1st St	Adams/Baker "y"	0.25	$396,000
Davis	Wilson	College	0.26	$411,840
Ford	1st St	Cozine Creek	0.13	$205,920
Cleveland	Davis	Villard	0.43	$681,120
5th St	Lafayette	Macy	0.11	$174,240
Macy	5th St	3rd St	0.08	$126,720
			4.05	$6,415,200

CITY OF McMinnville OREGON

Transportation System Plan

Appendix E
Comprehensive Plan Policies

transpoGROUP

E Comprehensive Plan Policies

This appendix summarizes the McMinnville Comprehensive plan goal and policies relating to transportation.

The original transportation policies developed for McMinnville's Comprehensive Plan in the early 1980's are restated here. Further refinements and suggested revisions to these policies are made as part of the TSP study.

This appendix also includes a summary of those additional and supplemental policies recommended within the TSP. These policies are summarized based on the TSP Chapter from which they are cited.

McMinnville Comprehensive Plan Goal and Policies

The current transportation Goal and Policies of McMinnville's Comprehensive Plan are found within Chapter VI of the City's *Goals and Policies* document (Volume II of the McMinnville Comprehensive Plan). Consistent with State land use law, the goal, policies, and proposal statements are to be applied to all land use decisions, and are cited here as guidance to the McMinnville TSP. It is also helpful to re-state the Comprehensive Plan's definitions specific to goals, policies and proposal statements: *goal statements* are the most general principles; *policy statements* are directed to specific areas to further define the goal statements; and *proposals* are possible courses of action open to the City which shall be examined to further implement the goal and policy requirements. Each of these statement types further defined below:

> ***GOALS***: The broadly-based statements intended to set forth the general principles on which all future land use decisions will be made. Goals carry the full force of the authority of the City of McMinnville and are therefore mandated.
>
> ***POLICIES***: More precise and limited statements intended to further define the goals. These statements also carry the full force of the authority of the City of McMinnville and are therefore mandated.
>
> **PROPOSALS**: The possible courses of action available to the City to implement the goals and policies. These proposals are not mandated; however, examination of the proposals shall be undertaken in relation to all applicable land use requests.

The implementation of these goals, policies, and proposals shall occur in one of two ways. First, the specific goal, policy, or proposal shall be applied to a land use decision as a criterion for approval, denial, or modification of the proposed request. In this case the goal, the policy, or the proposal is directly applied. The second method for implementing these statements is through the application of provisions and regulations in ordinances and measures created to carry out the goals and policies. This method involves the indirect application of the statements.

The McMinnville Comprehensive Plan states the following goal for transportation:

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.

Guide to Recommended Changes to Comprehensive Plan Policies

The original policies from the McMinnville Comprehensive Plan are included in this section. Some of the policies are subject to recommended revisions noted in the TSP process as follows:

1. Insertion of new or replacement text to provide more current policy direction. These changes are noted in **bold/underline**.
2. Removal of policy text to reflect outdated or already completed policy direction. These changes are noted in ~~**bold/strikethrough**~~.

Public Transportation

Policies:

100.00 The City of McMinnville shall support efforts to provide facilities and services for mass transportation that serve the needs of the 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 The City of McMinnville shall take into account driving and walking distances to schools when reviewing the design of future residential developments. Preferred designs would make those distances less than one mile where possible.

Proposals:

9.00 The City of McMinnville should continue to support the public transit system. Efforts to continue and expand services, if found feasible, should be supported.

Transportation Disadvantaged

Policies:

106.00 The City of McMinnville, through public and private efforts, shall encourage provision of facilities and services to meet the needs of the transportation disadvantaged.

107.00 The City of McMinnville shall support attempts to coordinate existing and future services for the transportation disadvantaged to reduce duplication of efforts and facilitate complementary services.

Proposal:

12.00 Encourage coordination of services through the county transportation coordinator and the county transportation committee.

Rail

Policies:

108.00 The City of McMinnville shall encourage the modification, relocation, or termination of rail activities that conflict with existing developed land uses in the City.

109.00 The City of McMinnville shall encourage the placement of future rail facilities in locations where conflicts with current and future surrounding land uses are minimal.

110.00 The City of McMinnville shall insure, through zoning and other regulations, the compatibility of railroad facilities and adjacent land uses. For areas outside the core, compatible uses could include open spaces, farm activities, and industrial developments.

111.00 The City of McMinnville shall encourage the screening of developments within the core area that are adjacent to the rail lines. Screening could include landscaping, noise barriers, fencing, or other measures.

112.00 The City of McMinnville shall encourage, through zoning and other regulations, the location of industrial lands adjacent to rail lines in areas where industrial uses will be compatible with surrounding land uses and where the goals and policies of this plan are met.

112.05 The City of McMinnville shall encourage and promote a passenger rail link between McMinnville and the Portland metropolitan area.

112.10 The City of McMinnville shall strongly encourage the State of Oregon, the Public Utility Commission, and the Willamette and Pacific Transportation Company to retain railroad rights-of-way 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.

Proposals:

13.00 [reserved]

14.00 Insure that residential and commercial uses do not encroach on future rail facilities and vice versa.

Air

Policies:

113.00 The City of McMinnville shall encourage the development of a basic transport airport facility as outlined in the **2004 Airport Layout Plan Report.**

114.00 The City of McMinnville shall support future planning efforts involving the airport to incorporate changes 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.

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.
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 Complete Streets, in consideration of all modes of transportation (public transit, private vehicle, bike and foot paths).**
5. Installation of bike lanes on major collector and arterial streets and bike parking areas.
6. Installation of sidewalks on both sides of all streets and direct pedestrian connections to all buildings and shopping centers.
7. Accommodation of buses operating on collector and arterial streets by providing adequate radius curb return and bus stop areas.
8. Connectivity of local residential streets shall be encouraged. Residential cul-de-sac streets shall be

discouraged where opportunities for through streets exist. (As amended by Ord. 4573, November 8, 1994.)

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.
   - 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 **required** ~~encouraged~~ along public rights-of-way.
2. Major, minor collectors.
   - Designs should minimize impacts on existing 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 **required** ~~encouraged~~ along public rights-of-way.
   - As far as is practical, residential collector streets should be no further than 1,800 feet apart in order to facilitate a grid pattern of collector streets in residential areas. (as amended by Ord. No. 4573, November 8, 1994.)
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 encouraged 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 interests 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 development on Three Mile Lane (State Highway 18). The plan shall include specific details concerning the location of access points, the provision of left-turn refuges and acceleration-deceleration lanes, the connection of properties through the internal circulation system of roads, the responsibility for costs and the timing of required improvements.~~

125.00 The City of McMinnville shall **adopt** ~~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 industrial designated areas adjacent to the highway would give the City needed access controls.

Proposals:

16.00 Provision should be included in the McMinnville Urban Growth Boundary Management Agreement between the City of McMinnville and Yamhill County addressing the coordination responsibilities for roads within the Urban Growth Boundary.

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-way as transportation routes.

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

Proposal:

19.00 The City of McMinnville should include an assessment of parking as part of the future transportation plans in the City.

Bicycle Facilities

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 **implementation of the Bicycle System Plan** ~~development of bikeways~~ that connect residential areas to activity areas such as the downtown core, areas of work, schools, community facilities, and recreation facilities.

131.00 The City of McMinnville shall encourage implementation of the Bicycle System Plan to include shared-use paths 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 shared-use paths 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

Policies:

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 and neighborhood activity centers.

132.20 The City of McMinnville shall enhance pedestrian safety wherever practicable by improving crosswalks at street intersections consistent with the TSP.

McMinnville TSP Policy Recommendations

This section includes a summary of those additional and supplemental policies recommended within the TSP, categorized by the TSP Chapter from which they are cited.

Chapter 2 – Guiding Goal and Policies

System Plan

- The McMinnville Transportation System Plan incorporates the goals, objectives, policies, implementation strategies, plan maps, and project lists to guide the provision of transportation facilities and services in the McMinnville planning area. In addition to this chapter the TSP contains the following sections:
  - Street System Plan
  - Pedestrian System Plan
  - Bicycle System Plan
  - Public Transportation and Transportation Demand Management
  - Freight Mobility, Rail, Air and Pipeline Plans
  - Funding Plan and Capital Improvement Plan
  - TSP Implementation
- The McMinnville Transportation System Plan shall be updated as necessary to remain consistent with: (a) the city's land use plan, (b) regional and statewide plans; and c) applicable local, State and federal law.

Complete Streets

- The safety and convenience of all users of the transportation system including pedestrians, bicyclists, transit users, freight, and motor vehicle drivers shall be accommodated and balanced in all types of transportation and development projects and through all phases of a project so that even the most vulnerable McMinnville residents – children, elderly, and persons with disabilities – can travel safely within the public right of way. Examples of how the Complete Streets policy is implemented:
  - Design and construct right-of-way improvements in compliance with ADA accessibility guidelines (see below).
  - Incorporate features that create a pedestrian friendly environment (see Chapters 4 and 5), such as:
    - narrower traffic lanes
    - median refuges and raised medians
    - curb extensions ("bulb-outs")
    - count-down and audible pedestrian signals
    - wider sidewalks
    - bicycle lanes, and
    - street furniture, street trees and landscaping
  - Improve pedestrian accommodation and safety at signalized intersections by:
    - using good geometric design to minimize crossing distances and increase visibility between pedestrians and motorists
    - timing signals to minimize pedestrian delay & conflicts
    - balancing competing needs of vehicular level of service and pedestrian safety

Multi-Modal Transportation System

- The transportation system for the McMinnville planning area shall consist of an integrated network of facilities and services for a variety of motorized and non-motorized travel modes.

Connectivity and Circulation

- The vehicle, pedestrian, transit, and bicycle circulation systems shall be designed to connect major activity centers in the McMinnville planning area, increase the overall accessibility of downtown and other centers, as well as provide access to neighborhood residential, shopping and industrial areas, and McMinnville's parks and schools.

- New street connections, complete with appropriately planned pedestrian and bicycle features, shall be incorporated in all new developments consistent with the Local Street Connectivity map (see Chapter 2, **Exhibit 2-1**).

Supportive of General Land Use Plan Designations and Development Patterns

- The provision of transportation facilities and services shall reflect and support the land use designations and development patterns identified in the ***McMinnville Comprehensive Plan***. The design and implementation of transportation facilities and services shall be based on serving current and future travel demand - both short-term and long-term planned uses.

Regional Mobility

- A balanced system of transportation facilities and services shall be designed for the McMinnville planning area to accommodate the mobility needs of residents, businesses, and industry.

Growth Management

- The construction of transportation facilities in the McMinnville planning area shall be timed to coincide with community needs, and shall be implemented so as to minimize impacts on existing development. Prioritization of improvements should consider the City's level of service standards (see below – Level of Service).
- Off-site improvements to streets or the provision of enhanced pedestrian and bicycle facilities in the McMinnville planning area may be required as a condition of approval for land divisions or other development permits.

Transportation System and Energy Efficiency

- The implementation of transportation system and transportation demand management measures, provision of enhanced transit service, and provision of bicycle and pedestrian facilities in the McMinnville planning area shall be embraced by policy as the first choice for accommodating travel demand and relieving congestion in a travel corridor, before street widening projects for additional travel lanes are undertaken.

- The McMinnville Transportation System Plan shall promote alternative commute methods that decrease demand on the transportation system, options which also enhance energy efficiency such as using transit, telecommuting, carpooling, vanpooling, using flexible work schedules, walking, and bicycling (see Chapter 6).

Transportation Safety

- The City of McMinnville shall make the design, construction, and operation of a safe transportation system for all modes of travel a high priority.

Public Safety

- The safe, rapid movement of fire, medical, and police vehicles shall be an integral part of the design and operation of the McMinnville transportation system.

Accessibility for Persons with Disabilities

- The McMinnville transportation system shall be designed with consideration of the needs of persons with disabilities by meeting the requirements set forth in the ***Americans with Disabilities Act* (ADA)**.

Economic Development

- Supportive of the mobility needs of businesses and industry, the McMinnville transportation system shall consist of the infrastructure necessary for the safe and efficient movement of goods, services, and people throughout the McMinnville planning area, and between other centers within Yamhill County and the Willamette Valley. The McMinnville Transportation System Plan shall include consideration of ways to facilitate and manage the inter-modal transfer of freight.

- The McMinnville Transportation System Plan shall promote methods that employers can utilize to: better facilitate employee commuting; to encourage employees to use alternative commute methods to the single occupancy vehicle.

Livability

- Transportation facilities in the McMinnville planning area shall be, to the degree possible, designed and constructed to mitigate noise, energy consumption, and neighborhood disruption, and to encourage the use of public transit, bikeways, sidewalks, and walkways.

Health and Welfare

- Through implementation of its Complete Streets policy and the TSP by enhancing its pedestrian and bicycle systems, the City of McMinnville will help encourage greater physical activity and improved health and welfare of its residents.

Transportation Sustainability

- Through implementation of the TSP and the Comprehensive Plan, the City of McMinnville will, to the extent possible, seek measures that simultaneously help reduce traffic congestion, pollution, crashes and consumer costs, while increasing mobility options for non-drivers, and encouraging a more efficient land use pattern.

Aesthetics and Streetscaping

- Aesthetics and streetscaping shall be a part of the design of McMinnville's transportation system. Streetscaping, where appropriate and financially feasible, including public art, shall be included in the design of transportation facilities. Various streetscaping designs and materials shall be utilized to enhance the livability in the area of a transportation project.

Intergovernmental Coordination and Consistency

- The City of McMinnville shall coordinate its transportation planning and construction efforts with those of Yamhill County and the Oregon Department of Transportation (ODOT). McMinnville's transportation plan shall be consistent with those developed at the regional and state level.

Chapter 4 – Street System Plan

This section outlines a series of supplemental policies intended to help guide the Street System Plan. These are intended to complement the policies already included and summarized in Chapter 2 of the TSP.

Growth Management

- **Mobility standards** will be used to evaluate the transportation impacts of long term growth. The City should adopt the intersection mobility standards as noted in Chapter 2.

- **Conditions of Approval** - in accordance with the City's TSP and capital improvements plan (CIP), and based on the level of impact generated by a proposed development, conditions of approval applicable to a development application should include:
  - Improvement of on-site transportation facilities,
  - Improvement of off-site transportation facilities (as conditions of development approval), including those that create safety concerns, or those that increase a facility's operations beyond the City's mobility standards, and
  - Transportation Demand Management strategies.

- **Multi-modal Improvements** - to manage growth, improvements to transportation facilities may include both motorized and non-motorized facilities improvements, constructed in accordance with the City's minimum design standards.
- .**Transportation SDCs** - the City should update its transportation systems development charge (SDC) to address growth-related traffic impacts.

Circulation

- **Residential Street Network** - a safe and convenient network of residential streets should serve neighborhoods. When assessing the adequacy of local traffic circulation, the following considerations are of high priority:
    - Pedestrian circulation,
    - Enhancement of emergency vehicle access,
    - Reduction of emergency vehicle response times,
    - Reduction of speeds in neighborhoods, and
    - Mitigation of other neighborhood concerns such as safety, noise and aesthetics.

- **Limit Cul-de-Sacs** - cul-de-sac streets in new development should only be allowed when connecting neighborhood streets are not feasible due to existing land uses, topography, or other natural and physical constraints.

- **Limit Physical Barriers** - the City should limit the placement of facilities or physical barriers (such as buildings, utilities, and surface water management facilities) to allow for the future construction of streets that facilitate the establishment of a safe and efficient traffic circulation network.

- **Establish Truck Routes** - to support the efficient and safe movement of goods and freight, the City should establish and identify truck routes to the city's major destinations. Such routes should be located along arterial roadways and should avoid potential impacts on neighborhood streets. (see Chapter 8 – Truck Route Plan)

- **Modal Balance** - the improvement of roadway circulation must not impair the safe and efficient movement of pedestrians and bicycle traffic.

- **Consolidate Access -** efforts should be made to consolidate access points to properties along major arterial, minor arterial, and collector roadways.

- **Promote Street Connectivity** - the City shall require street systems in subdivisions and development that promote street connectivity between neighborhoods.

Street Width – Human Scale

- Generally, a major arterial street should not be widened beyond two through lanes in each direction with auxiliary turn lanes as appropriate. Minor arterials and collector streets should not be widened beyond one through lane in each direction with auxiliary left-turn lanes as appropriate. Major arterial streets with more than five lanes and minor arterial and collector streets with more than three lanes are perceived as beyond the scale that is appropriate for McMinnville.

Neighborhood Traffic Management

- **Implementation** - the City should adopt and implement its Neighborhood Traffic Calming Program (see Appendix I).

- **Encourage Safety Enhancements** - in conjunction with residential street improvements, the City should encourage traffic and pedestrian safety improvements that may include, but are not limited to, the following safety and livability enhancements:
    - Traffic circles,

- Painted or raised crosswalks (see also recommended crosswalk designation in Chapter 4),
- Landscaping barriers between roadway and non-motorized uses,
- Landscaping that promotes a residential atmosphere,
- Sidewalks and trails, and
- Dedicated bicycle lanes.

- **Limit Neighborhood Cut-Through Traffic** - local residential streets should be designed to prevent or discourage their use as shortcuts for through traffic. Local traffic control measures should be coordinated with the affected neighborhood.

Access Management

- The City should continue to coordinate with ODOT in the administration of jointly adopted plans to manage access and highway improvements as noted in Chapter 2.

Impervious Surface Area

- **Supplement Street Design Standards** - McMinnville's standards should be supplemented to achieve reductions in impermeable surfaces, consistent with safety and operating standards. Innovative design and materials should be utilized to reduce impermeable surfaces.

Environmental Preservation

- **Low impact street** design, construction, and maintenance methods should be used first to avoid and second to minimize negative impacts related to water quality, air quality, and noise in neighborhoods.

- **Conservation** - streets should be located, designed, and improved in a manner that will conserve land, materials and energy. Impacts should be limited to the minimum necessary to achieve the transportation objective.

- **Clean Burning Fuels** - the City should support the use of clean burning and/or renewable fuels through regional organizations (see U.S. Environmental Protection Agency guides)[1].

Aesthetics

- The City should update and maintain its street design standards to increase aesthetics of the streets environment through landscaping and streetscape design.

Safety and Maintenance

- **Pavement Maintenance Plan Implementation -** the City should develop and implement its pavement maintenance plan to best preserve the existing transportation infrastructure.

- **Routine System Inspection -** the City should promote safety through continued and routine inspection and rehabilitation of existing signage, roadway striping, and street lighting; identifying and rectifying existing deficiencies as they are identified.

Chapter 5 – Pedestrian System Plan

This section outlines a series of supplemental policies intended to help guide the Pedestrian System Plan. These are intended to complement the policies already included and summarized in Chapter 2 of the TSP.

[1] U.S. Environmental Protection Agency website: http://epa.gov/otaq/renewablefuels/index.htm

System Inventory

- **System Inventory** - the City shall inventory and map existing pedestrian facilities. Facility inventories and selected inventory updates should be performed every five years to determine the success or failure of meeting the Plan's pedestrian goal, objectives, and policies. *The City has already partially met this policy objective having completed the walking inventory of all public streets as part of the TSP.*

Systems Development

- **Formalize New Sidewalk Construction Program** - to complete the pedestrian facility network, the City will formalize a New Sidewalk Construction Program that reflects the City's funding resources. This program will give priority to the construction of missing sidewalks in already developed areas of the city that would provide improved access to schools, parks, shopping, and transit services.

- **Ensuring Future Sidewalk Connections** - all future development must include sidewalk and walkway construction as required by the McMinnville Zoning Ordinance and City Code and adopted City of McMinnville Design Standards. All road construction or renovation projects shall include sidewalks. The City will support, as resources are available, projects that would remove identified barriers to pedestrian travel or safety.

- **Complete Connections with Crosswalks** - all signalized intersections must have marked crosswalks. School crosswalks will be marked where crossing guards are provided. Subject to available funding, and where appropriate, marked crosswalks, along with safety enhancements (medians and curb extensions), shall be provided at unsignalized intersections and uncontrolled traffic locations in order to provide greater mobility in areas frequently traveled by persons with limited mobility. Marked crosswalks may also be installed at other high volume pedestrian locations without medians or curb extensions if a traffic study shows there would be a benefit to those pedestrians.

- **Connecting Shared-Use Paths** - the City will continue to encourage the development of a connecting, shared-use path network, expanding facilities along parks and other rights-of-way.

Americans with Disabilities Act Compliance

- **Compliance with ADA Standards** - the City shall comply with the requirements set forth in the Americans with Disabilities Act regarding the location and design of sidewalks and pedestrian facilities within the City's right-of-way.

Systems Maintenance

- **Maintaining Quality of Facilities** - the City will establish standards for the maintenance and safety of pedestrian facilities. These standards should include the removal of hazards and obstacles to pedestrian travel, as well as maintenance of benches and landscaping.

Pedestrian Programs

- **Promoting Walking for Health and Community Livability -** the City will encourage efforts that inform and promote the health, economic, and environmental benefits of walking for the individual and McMinnville community. Walking for travel and recreation should be encouraged to achieve a more healthful environment that reduces pollution and noise to foster a more livable community.

- **Safe Routes To School** - the City shall work, where possible, with the McMinnville School District and neighborhood associations to maintain and improve its programs to evaluate the existing pedestrian access to local schools, estimate the current and potential use of walking as a travel mode, evaluate safety needs, and propose changes to increase the percentage of children and young adults safely using this mode (see Appendix J).

Chapter 6 – Bicycle System Plan

This section outlines a series of supplemental policies intended to help guide the Bicycle System Plan. These are intended to complement the policies already included and summarized in Chapter 2 of the TSP.

Three objectives are recommended in the TSP to help the City of McMinnville achieve its bicycle system goal:

- Create a comprehensive and connected system of bicycle facilities;
- Encourage programs that support bicycle systems and promote cycling activity; and,
- Encourage programs that enhance bicycle safety.

Each objective is to be met through applying policies that pursue particular strategies, develop specified programs, or engage in defined courses of action. The policies for McMinnville's bicycle system are developed consistent with federal policy guidelines and the Oregon Bicycle and Pedestrian Plan.

To increase the role of the bicycle as a viable mode of transportation a system of connected and well-maintained facilities should be provided.

- **Provide Bicycle Facilities** on Arterials and some Collector Streets – To the extent possible, arterial and some collector streets undergoing overlays or reconstruction will either be re-striped with bicycle lanes or sharrow (bicycle/auto shared-lane) routes as designated on the Bicycle System Plan Map (see Exhibit 6-3). Every effort will be made to retrofit existing arterials and selective collectors with bicycle lanes, as designated on the Bicycle System Plan Map.

- **Mitigation of On-street Parking Loss From Bicycle Projects** - Where new bicycle facilities require the removal of on-street parking spaces on existing streets, parking facilities should be provided that mitigate this loss, to the extent practicable..

- **Eliminate Barriers to Bicycle Travel** - The City will actively pursue a comprehensive system of bicycle facilities through designing and constructing projects, as resources are available, and implementing standards and regulations designed to eliminate barriers to bicycle travel. As a result of this policy, new developments or major transportation projects will neither create new, nor maintain existing, barriers to bicycle travel.

- **Bicycle Routes and Signage -** as resources are available, the City will periodically consult with local bicyclists to review existing and proposed bicycle lanes, and identify improvements needed to make these routes function better for bicyclists. These routes shall be identified by signage on the routes and shown on updates of the bicycle route map.

- **Complete the Major Bicycle System** - A completed system of major bicycle facilities is one of the most important factors in encouraging bicycle travel. The City will work toward annually completing a minimum 5 percent addition to the bicycle system, as designated on the Bicycle System Plan Map, with priority given to projects that fill critical missing links in the bicycle system or address an identified safety hazard.

- **Establish Minimum Standards for Bicycle Facility Maintenance** - the City shall develop minimum standards that will keep bicycle facilities clean of debris, properly striped, and clearly marked and signed.

- **Zoning Ordinance Requirements for Bicycle Parking** - the McMinnville Zoning Ordinance (17.60.140) contains bicycle parking supply requirements and standards that require new developments to provide a minimum amount of bicycle parking, based on the needs of the specific zone or land use type.

- **Bicycle Parking at Transit Facilities** - the City will work with the Yamhill County Transit Authority to encourage the installation of public bicycle parking facilities at transit stations and other inter-modal facilities, and encourage the provision of bicycle racks on all public transit vehicles.

- **Target and Eliminate Key Behaviors that Lead to Bicycle Accidents** - The City will encourage schools, safety organizations, and law enforcement agencies to provide information and instruction on bicycle safety issues that focus on the most important accident problems.

- **Safe Routes To School** - The City will work with the McMinnville School District to: evaluate existing bicycle access to local schools and supporting infrastructure (bicycle racks, lockers, etc.), estimate the current and potential use of bicycling as a travel mode, evaluate safety needs, and propose changes to increase the percentage of children and young adults safely using this mode.

Chapter 7 – Transit System and Transportation Demand Management Plan

This section outlines a series of supplemental policies intended to help guide the Transit System plan and Transportation Demand Management Plan. These are intended to complement the policies already included and summarized in Chapter 2 of the TSP.

Transit System Plan

- **Transit-supportive Street System Design** - the City will include the consideration of transit operations in the design and operation of street infrastructure.

- **Transit-supportive Urban Design** - through its zoning and development regulations, the City will facilitate accessibility to transit services through transit-supportive streetscape, subdivision, and site design requirements that promote pedestrian connectivity, convenience, and safety.

- **Transit Facilities** - the City will continue to work with YCTA to identify and help develop supportive capital facilities for utilization by transit services, including pedestrian and bicycle access to bus stop and bus shelter facilities where need is determined and right-of-way is available.

- **Pedestrian Facilities** - the City will ensure that arterial and collector streets' sidewalk standards are able to accommodate transit amenities as necessary along arterial and collector street bus routes. The City will coordinate with YCTA on appropriate locations.

- **Intermodal Connectivity** - the City of McMinnville will encourage connectivity between different travel modes. Transit transfer facilities should be pedestrian and cyclist accessible.

Transportation Demand Management Plan

New policies are included here as the basis for McMinnville to consider and implement effective TDM measures.

- The City should coordinate with Yamhill County to promote and support Transportation Demand Management investments that may include, but are not limited to, the following strategies:
  - Ride-sharing coordination with regional partners,

  - Parking management, and
  - Transit-oriented and pedestrian-friendly design.

- The City should support Yamhill County who provides assistance to employers in designing and implementing trip reduction plans at their work sites. Trip reduction plans will include strategies to encourage employees to use alternative transportation modes and discourage them from commuting in SOVs. Alternative work hours and tele-commuting will also be recommended as a way of reducing peak hour congestion.

- The City should coordinate with YCTA to promote the use of transit and vanpools, in support of vehicle trip reduction strategies.

- The City of McMinnville should coordinate with and encourage YCTA to administer its county-wide TDM Program where it affects McMinnville. The Program may include, but is not limited to, the provision of:
  1. 24-hour rideshare matching hotline;
  2. carpool and vanpool match lists;
  3. information and referrals to the public on McMinnville and intercity transit service, vanpools, bicycle routes, tele-commuting, park-and-ride lots, other ridesharing agencies, and transportation services for special needs;
  4. assistance in the formation of vanpools;
  5. public outreach;
  6. school outreach;
  7. services to employers, including commuting surveys and individualized trip-reduction plans;
  8. coordination with other agencies and organizations with similar goals; and
  9. marketing of alternative transportation modes.

- Support YCTA in the application for adequate and consistent funding of the Regional TDM Program.

The City of McMinnville should establish several strategies to reduce transportation demand, and thereby address the city's transportation congestion. The aim of transportation demand management (TDM) program is to reduce the number of vehicles on the area's roads, which reduces the demand on the existing transportation network.

Chapter 8 - Freight Mobility, Air, Rail and Pipeline Plans

Additional policies are identified to help guide the freight mobility, air and rail plans, supplementing those policies already included in the McMinnville Comprehensive Plan and summarized in Chapter 2 of the TSP. General guiding policies include:

- **Truck routes -** Identify and designate truck routes that tie inter-modal facilities and industrial zones to the designated through routes.

- **Airport** – Encourage safe aviation facilities that benefit local commerce.

- **Airport area land use -** Do not permit land uses within airport noise corridors that are not noise compatible, and avoid the establishment of uses that are physical hazards to air traffic at the McMinnville Airport.

- **Railroad** - Encourage railroad infrastructure to support current and future economic activities.

- **Railroad crossings** - Encourage gate controls and sidewalk facilities at primary railroad crossings of streets.

Chapter 9 – Funding Plan and Capital Improvement Plan

Additional policies are outlined here to guide the TSP Funding Plan. Emphasis is placed in the City's ability to pursue Federal and State grants and traditional funding programs, and consider and implement appropriate local funding programs to fund local projects in the McMinnville urban area.

Capital Improvements

- **Motor Vehicle Fuel Tax.** The City should continue to use a combination of Motor Vehicle Fuel Tax and Vehicle License Fee revenue to fund capital improvements to, and maintenance of, the transportation system.
- **Systems Development Charge.** The City should continue to consider the impacts of future growth on the McMinnville transportation system and determine what level of development charges should be collected by the City to mitigate impacts placed on area-wide transportation facilities by expected future development.
- **Development Exactions.** The City should require new developments to mitigate their impacts on the transportation system.
- **Bicycle and Pedestrian System Funding.** The City should establish a new allocation and set aside 1.0% of its Motor Vehicle Fuel Tax funds for creation of on-street bicycle facilities and curb ramp replacements.
- **Pursuing Federal and State Grants.** The City should continue to aggressively pursue Federal, State, and private grants to augment street and non-motorized capital improvements.

Pavement Management

- **Primary Maintenance Funding Sources.** Assuming no changes in State funding mechanisms, the primary funding sources for street system maintenance activities will be the City's allocation of the Motor Vehicle Fuel Tax.
- **Seeking Additional Funding Sources for Maintenance.** The City should seek additional funding sources to meet the long term financial requirements of sustaining a perpetual life street operations and maintenance program, including the consideration of a street utility fee and utility franchise fee.
- **Responsibilities for System Maintenance.** The City should continue to participate in cooperative agreements with the State for maintenance of traffic signal systems on City streets and State highways based on equitable determinations of responsibility and benefit. The City should continue to participate in cooperative agreements with the County for the maintenance of county roads within the city.
- **Primary Funding Sources for Operations.** Assuming no changes in state funding mechanisms, transportation system operations activities will likely be funded primarily from the City's allocation of the Motor Vehicle Fuel Tax. Other funding sources should be pursued to augment the financial requirements of providing adequate future system operations.
- **Pursuing Federal and State Grants.** The City should pursue federal and State grants to augment operations activities, especially in the planning and engineering functions.

Chapter 10 – McMinnville TSP Implementation

The McMinnville TSP will best help guide future, multi-modal transportation system improvements based on the following goal and planning principles:

- **TSP as Legal Basis.** The City of McMinnville shall use the McMinnville TSP as the legal basis and policy foundation for actions by decision-makers, advisory bodies, staff, and citizens in transportation issues. The goals, objectives, policies, implementation strategies, principles, maps, and recommended projects shall be considered in all decision-making processes that impact or are impacted by the transportation system.

- **TSP Policies.** The City of McMinnville shall use the McMinnville TSP to:
  - Describe the classification or function of all streets within the McMinnville planning area. Policies found in the Plan shall be used to develop connective local street circulation patterns.
  - Require new development to provide adequate accessibility, as defined by the ***McMinnville Zoning Ordinance***, for all travel modes within a development and in coordination with existing and other proposed development. Street design standards in the ***McMinnville Zoning Ordinance*** are to be used to secure adequate public street and sidewalk facilities.
  - Identify measures and programs to be undertaken to enhance mobility for all travel modes.
  - Form the basis from which identified projects are placed into the State Transportation Improvement Program (STIP).
  - Establish funding and project construction priorities when preparing funding scenarios and measures.

- **Capital Improvement Plan.** The City of McMinnville shall derive, in part, the projects in the Capital Improvement Plan (CIP) from the McMinnville TSP. Transportation projects contained in the CIP shall be consistent with the goals, policies and needs identified in the Plan.

- **State and Federal Funding.** The City of McMinnville shall include those projects and programs in the McMinnville TSP that are of regional or statewide significance (within the McMinnville urban area), or require the use of state or federal funding, in the Oregon Statewide Transportation Improvement Program (STIP).

- **TSP Use in Review of Land use Actions.** The City of McMinnville shall consider and apply the goals, policies, planning principles, recommended projects, implementation strategies, and maps contained in McMinnville TSP in the review of land use actions and development applications.

- **TSP Update.** Every five years, or as may otherwise be warranted, the City of McMinnville shall conduct a reassessment of the planning assumptions, analysis methods, and findings and recommendations. The McMinnville TSP shall be updated, accordingly, based on the study reassessment.

Transportation System Plan

Appendix F
Recommended Access Management Policy

F Recommended Access Management Policy

This appendix summarizes the McMinnville TSP recommendations for access management policy.

The state Transportation Planning Rule (TPR) requires that local governments adopt land use or subdivision ordinance regulations to protect transportation facilities for their identified functions, such as access control (OAR Section 660-12-0045(2)). As an example of this, City of McMinnville Ordinance No. 4573, City Street Standards, states, "Direct access onto a major collector or arterial street designated on the McMinnville Comprehensive Plan Map shall be avoided for all lots subdivided for single-family, common wall, or duplex residential use, unless no other access point is practical." The McMinnville TSP proposes additional access control standards, particularly for state highways as identified and recommended by Division 51 (OAR 734-051).

This appendix includes the following sections:

- **Oregon Administrative Rules** (concerning access management – known as "Division 51")
- **Oregon Highway Plan Designation,** including subsections for both Highway 18 and 99W as follows:
    - Existing Conditions
    - How Division 51 Applies in McMinnville
    - Recommended State Highway Designation Refinement
- **City Adoption of Division 51 as Part of TSP**, and
- **City Street Policy**

Oregon Administrative Rules (OAR)

Oregon Administrative Rules (OAR) concerning highway access management standards (OAR 734-051) is known as "Division 51."

Division 51 spells out ODOT's authority to administer access management standards and the applicability of the rules within it. In practicality, the rules are intended to maximize the (vehicular) capacity and safety of highways, but the complete set of rules and underlying technical assumptions exclude direct reference to pedestrian access, circulation and safety, all of which have land use context implications. This can become an issue with cities (who have land use approval authority), under conditions where desired local land use and transportation designs or patterns may be in direct conflict with the access spacing standards of Division 51.

Division 51 standards are intended to apply universally to urban and rural settings with respect to the state highway classification, but also provide latitude for unintended land use and highway access situations where the standards cannot be applied. The Division 51 standards may be very useful to both the City and ODOT, but could be misapplied if the City and ODOT do not endeavor to cooperate and coordinate with reasonable application of the rules and decision-making processes.

Oregon Highway Plan Designation

The Oregon Highway Plan (OHP) defines *access management* as "balancing access to developed land while ensuring movement of traffic in a safe and efficient manner." The OHP states that the purposes of access management strategies include ensuring safe and efficient roadways consistent with their determined function; ensuring the statewide movement of goods and services; enhancing community livability; supporting planned development patterns; and, recognizing the needs of motor vehicles, public transit, pedestrians, and bicyclists.

This section summarizes the background access condition for Highways 18 and 99W in and through the McMinnville urban area. The summary includes a description of how Division 51 applies in McMinnville, and specific recommendations for refinement to the OHP designation in McMinnville which are consistent with the City's plan for growth management.

SPECIAL NOTE: Within this appendix, specific and direct citations from the OHP are highlighted in gray in order to assist the reader from having to cross-reference the OHP.

Highway 18

Existing Conditions

Access conditions for the state facilities within McMinnville—OR 18 and OR 99W—were evaluated and the average access spacing between all access points—private driveways and public streets was determined. On the segment of Highway 18 from the Highway 99W connection to the McMinnville east city limits, the average roadway spacing (measured spacing between intersecting public streets along state highway) is about 2,400 feet with one signal throughout the 4.75-mile stretch. This stretch of highway has undergone access revisions consistent with the recommendations of the Highway 18 Corridor Refinement Plan, including a series of frontage road improvements as the first of several Corridor Plan phases.

How Division 51 Applies in McMinnville

Highway 18 through McMinnville is classified as a Statewide Highway and also designated as a Freight Mobility Route in the Oregon Highway Plan.

Statewide Highways are defined by the OHP as typically providing inter-urban and inter-regional mobility and provide connections to larger urban areas, ports, and major recreation areas that are not directly served by Interstate Highways. A secondary function of statewide highways is to provide connections for intra-urban and intra-regional trips. The management objective is to provide safe and efficient, high-speed, continuous-flow operation. In constrained and urban areas, interruptions to flow should be minimal.

The OHP supplements highway functional classification with special purposes. Highway 18 also carries a *Freight Mobility Route* designation. *Freight Mobility Routes,* as defined by the OHP, have the primary purpose to facilitate efficient and reliable interstate, intrastate, and regional truck movement through a designated freight system. This freight system (made up of the Interstate Highways and certain Statewide, Regional and District Highways, the majority of which are on the National Highway System) includes routes that carry significant tonnage of freight by truck and serve as the primary interstate and intrastate highway freight connection to ports, inter-modal terminals, and urban areas.

Through the completion of the Highway 18 Corridor Refinement Plan, and as subset of the Statewide Highway classification, Highway 18 is also designated as an *expressway*. Expressways are complete routes or segments of existing two lane and multi-lane highways and planned multi-lane highways that provide for safe and efficient high speed and high volume traffic movements. Their primary function is to provide for interurban travel and connections to ports and major recreation areas with minimal interruptions. A secondary function is to provide for long distance intra-urban travel in metropolitan areas. In urban areas, speeds are moderate to high. In rural areas, speeds are high. Usually there are no pedestrian facilities, and bikeways may be separated from the roadway. In this classification, "expressway" refers to the kind and number of accesses allowed on a highway segment. It does not refer to the ownership of access rights.

Other characteristics include the following:

- Private access is discouraged;

  - There is a long-range plan to eliminate, as possible, existing approach roads as opportunities occur or alternate access becomes available;
  - Access rights will be purchased and a local road network may be developed consistent with the function of the roadway;
- Public road connections are highly controlled;
- Traffic signals are discouraged in rural areas;
- Non traversable medians are encouraged; and
- Parking is prohibited.

The Highway 18 Corridor Refinement Plan concluded by recommending Highway 18 serve as an expressway, consistent with the OHP and Division 51 access management spacing standards, see **Exhibit F-1**[1]. For McMinnville, the spacing standards would fall under the "Urban Expressway" column, and as posted speeds are "planned" (Hwy 18 Corridor Plan) for 45 mph. Private and public approaches would not be allowed, and the spacing between interchanges (measured between the start and end of tapered sections) would be 2,640 feet. The interchange and access spacing standards for non-freeway interchanges is summarized in **Exhibit F-2**[2]**.**

The Three-Mile Lane Corridor Refinement Plan, as roughly summarized in **Exhibit F-3**, is mutually adopted by McMinnville, Yamhill County and ODOT. The Corridor Refinement Plan predates but is generally consistent with the most recent update of the Oregon Highway Plan and OAR 735-051.

The remaining section of Highway 18 within the McMinnville UGB is grade-separated, consistent with Division 51.

Recommended State Highway Designation Refinement

The TSP recommends no revisions to the OHP designation and access management policy for Highway 18 within the McMinnville urban area.

**Exhibit F-1. Oregon Highway Plan
Minimum Spacing Standards
Non-Freeway Interchanges**

Minimum Spacing Standards Applicable to Non-Freeway Interchanges with Two-Lane Crossroads
(OAR 734-051-0125)

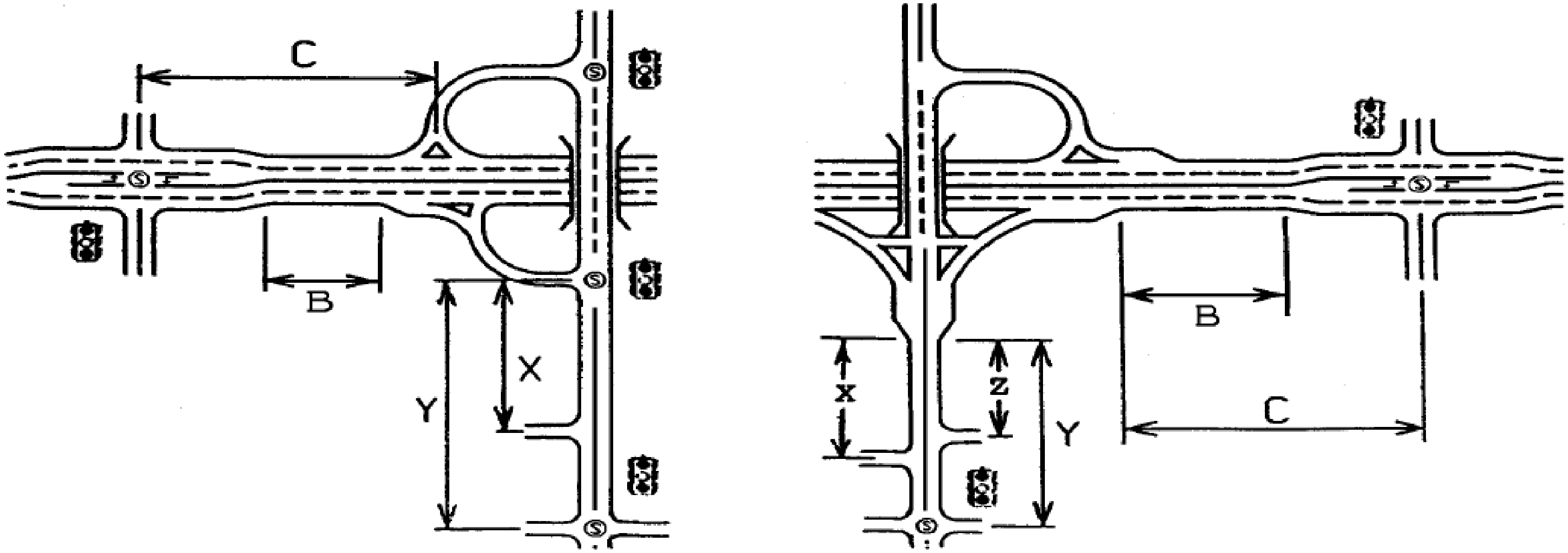
Category of Mainline	Type of Area	Speed of Mainline	Spacing Dimension				
			B	C	X	Y	Z
Expressways, Statewide, Regional and District Highways	Fully Developed Urban*	45 mph (70 kph)	2640 ft (800 m)	1 mile (1.6 km)	750 feet (230 m)	1320 feet (400 m)	750 feet (230 m)
	Urban	45 mph (70 kph)	2640 ft (800 m)	1 mile (1.6 km)	1320 feet (400 m)	1320 feet (400 m)	990 feet (300 m)
	Rural	55 mph (90 kph)	1 mile (1.6 km)	2 miles (3.2 km)	1320 feet (400 m)	1320 feet (400 m)	1320 feet (400 m)

Notes: 1) If the crossroad is a state highway, these distances may be superseded by the Access Management Spacing Standards, providing the distances are greater than the distances listed in the above table.
2) No four-legged intersections may be placed between ramp terminals and the first major intersection.
3) No application shall be accepted where an approach would be aligned opposite a freeway or expressway ramp terminal (OAR 734-051-0070(4)(a)).
4) Use four-lane crossroad standards for urban and suburban locations that are documented to be widened in a Transportation System Plan or corridor plan.
5) No at-grade intersections are allowed between interchanges less than 5 miles apart.

B = Distance between the start and end of tapers
C = Distance between nearest at-grade and ramp terminal intersections or the end/start of the taper section
X = Distance to the first approach on the right; right in/right out only
Y = Distance to first intersections where left turns are allowed
Z = Distance between the last right in/right out approach road and the start of the taper for the on-ramp

* Fully Developed Urban Interchange Management Area: Occurs when 85% or more of the parcels along the influence area are developed at urban densities and many have driveways connecting to the crossroad. See the definition in the 1999 Oregon Highway Plan.

**Exhibit F-2. Oregon Highway Plan
Measurement of Spacing Standards**



(for Exhibit F-1)

Exhibit F-3. Highway 18 Corridor Refinement Plan

Highway 99W

Existing Conditions

For the purposes of the McMinnville TSP, Highway 99W is divided into four logical sections, as summarized in **Exhibit F-4.**

Exhibit F-4. Highway 99W Cross-Section Characteristics

Section	From	To	Typical Cross-Section / Characteristics
1	Northern UGB	15th Street	5-lane cross-section, bi-directional
2	15th Street	1st Street	2-lane cross-section, one-way couplet
3	1st Street	End of Couplet	2-lane cross-section, one-way couplet
	End of Couplet	Keck Drive	5-lane cross-section, bi-directional
4	Keck Drive	Southern UGB	5-lane cross-section, bi-directional (Highway 18/99W South Interchange Access Management Plan)

The segment of Highway 99W from the north couplet terminus to the south couplet terminus is located in the center of town along a one-way couplet with a total of 40 access points. The average spacing is about 37 driveway access points per mile (about one every 140 feet on average). North and south of this one-way couplet there are 171 access points for a combined average of 42 per mile (about one every 125 feet). The existing spacing along OR 99W does not meet minimum Division 51 spacing standards.

The *Highway 18/99W South Interchange Access Management Plan* (Kittelson and Associates, August 2002) has been prepared to ensure that the functional and operational integrity of the OR 18/99W interchange is maintained as future development occurs. The Plan identifies a series of short-term, medium-term, and long-term transportation improvements for implementation by the City of McMinnville and ODOT as part of future capital improvement projects and private development activities.

How Division 51 Applies in McMinnville

Highway 99W through McMinnville is designated a **Regional** Highway in the Oregon Highway Plan. Much of the area's commercial and residential development was largely built prior to Division 51 legislation.

The Division 51 access management spacing standards are summarized in **Exhibit F-5.**[3] For McMinnville, the spacing standards would fall under the "Urban" column, and as posted speeds are 30-35 mph, the private and public approach spacing standard is 425 feet, significantly longer than the typical city block.

Exhibit F-5. Oregon Highway Plan - Regional Highway Access Management Spacing Standards

Access Management Spacing Standards for
Private and Public Approaches on Regional Highways[(1)(2)(3)(4)]
(OAR 734-051-0115)
(Measurement is in Feet)*

Posted Speed[(5)]	Rural Expressway **	Rural	Urban Expressway ** ***	Urban ***	STA
≥55	5280	990	2640	990	
50	5280	830	2640	830	
40 & 45	5280	750	2640	750	
30 & 35		600		425	(6)
≤25		450		350	(6)

NOTE: The numbers in superscript [(1)] refer to explanatory notes that follow Table 3.
* Measurement of the approach road spacing is from center to center on the same side of the roadway.
** Spacing for Expressway at-grade intersections only. See the OHP for interchange spacing guidelines.
***These standards also apply to Commercial Centers.

The TSP recommends local adoption of Division 51 as it applies to Highway 99W in McMinnville as summarized in **Exhibit F-6**.

Exhibit F-6. Recommended Adoption of Division 51 Highway 99W in McMinnville

Section	From	To	Recommended Division 51 Application
1	Northern UGB	15th Street	As is
2	15th Street	1st Street	Recommend designation of STA – see below.
3	1st Street	End of Couplet	As is
	End of Couplet	Keck Drive	As is
4	Keck Drive	Southern UGB	As mutually adopted in the Highway 18/99W South Interchange Access Management Plan

Recommendation to Designate a Portion of Highway 99W as a Special Transportation Area (STA)

Division 51 affects the one-way couplet section of Highway 99W along Adams and Baker Streets.

For consistency with the existing street grid system and spacing, the section of Highway 99W between 15th Street and 1st Street should be designated an STA. Upon designation of the special transportation area (STA), the access management spacing would be the existing city block spacing.

McMinnville must designate the planned city block spacing within the STA as a policy action in the TSP.

STA's must be requested through ODOT and are eventually approved by the Oregon Transportation Commission.

What are STAs?

The Oregon Highway Plan fully defines special transportation area (STA) districts. The following section outlines the specific OHP definition for STA's and the policy elements of the OHP that possibly apply to Highway 99W along the Adams-Baker one-way couplet in McMinnville.

The OHP defines an STA as a designated district of compact development located on a state highway within an urban growth boundary in which the need or appropriate local access outweighs the considerations of highway mobility (sometimes referred to as intercity through-traffic) except on designated OHP Freight Routes where through highway mobility has greater importance.

While traffic moves through an STA and automobiles may play an important role in accessing an STA, convenience of movement within an STA is focused upon pedestrian, bicycle and transit modes. STAs look like traditional "Main Streets" and are generally located on both sides of a state highway. The primary objective of an STA is to provide access to and circulation amongst community activities, businesses and residences and to accommodate pedestrian, bicycle and transit movement along and across the highway. Direct street connections and shared on-street parking are encouraged. Local auto, pedestrian, bicycle and transit movements to the area are generally as important as the through movement of traffic. Traffic speeds are slow, generally 25 miles per hour or lower.

Location. STAs can be located within urban growth boundaries on District, Regional and Statewide Highways, but not on Interstates or Expressways. An existing central business or commercial district in an unincorporated community as defined by OAR 660-022-0010(10) that meets the definition of an STA may also be classified as an STA. Larger communities may have more than one STA. While STAs may include some properties that are currently developed for auto dependent uses (e.g. drive through restaurants, gas stations, car washes), areas where the predominant land use pattern is auto-dependent uses are generally not appropriate for STA designation. STAs that include properties developed for auto-dependent uses should include planning and zoning that provide for redevelopment of the properties over time to uses consistent with STA implementation.

Planning and Development Guidance for STAs. STAs should be planned and developed to reflect the following kinds of characteristics:

- Buildings are spaced close together and located adjacent to the street with little or no setback;
- Sidewalks with ample width are located adjacent to the highway and the buildings;
- People who arrive by car or transit find it convenient to walk from place to place within the area;
- On-street parking, structured parking, or shared, general purpose parking lots are located behind or to the side of buildings;
- Streets are designed with a pedestrian orientation for the ease of crossing by pedestrians;
- Public road connections correspond to the existing city block pattern; private driveways directly accessing the highway are discouraged;
- Adjacent land uses provide for compact, mixed-use development with buildings oriented to the street;
- A well-developed parallel and interconnected street network facilitates local automobile, bicycle, transit and pedestrian circulation except where topography severely constrains the potential for street connections;
- Speeds typically do not exceed 25 miles per hour;
- Plans and provisions are made for infill and redevelopment;
- Provisions are made for well-developed transit stops including van/bus stops, bicycle and pedestrian facilities, and including street amenities that support these modes.

Further OHP policy guidance, including procedural application for State acknowledgement (see Action 1B.3 below) is outlined for STAs as follows:

Policy 1B – Land Use and Transportation

This policy recognizes the role of both State and local governments related to the state highway system:

- State and local government must work together to provide safe and efficient roads for livability and economic viability for all citizens.
- State and local government must share responsibility for the road system.
- State and local government must work collaboratively in planning and decision-making relating to transportation system management.

It is the policy of the State of Oregon to coordinate land use and transportation decisions to efficiently use public infrastructure investments to:

- Maintain the mobility and safety of the highway system;
- Foster compact development patterns in communities;
- Encourage the availability and use of transportation alternatives;
- Enhance livability and economic competitiveness; and
- Support acknowledged regional, city and county transportation system plans that are consistent with this Highway Plan

Action 1B.1

Actively pursue the objectives and designations in the Background, Intent and Actions in Policy 1B, as appropriate, through:

- Access management planning and permitting;

- Facility and transportation system plans;
- Metropolitan planning organization and local transportation system plans;
- Periodic review of local comprehensive plans;
- Local planning and zoning amendments;
- Review of major development proposals that have a significant impact on a state highway;
- Review of site acquisition and construction of proposed public facilities;
- Review of urban growth boundary amendments; and
- Highway facility design and project development.

Action 1B.2

Use the rules, standards, policies and guidance developed by ODOT to implement Policy 1B. These include but are not limited Division 51 , the ODOT Highway Design Manual, ODOT Transportation System Plan Guidelines and ODOT Development Review Guidelines, LCDC Goal 12 on Transportation and the Transportation Planning Rule.

Action 1B.3

Use the following categories to designate highway segments when the concept is identified in a local transportation system plan, downtown plan, facility plan or other adopted plan and is supported by both the local government and ODOT. The categories, in part, define whether or not a management plan is required. Written management plans are required for STAs and Commercial Centers on designated Freight Routes on Statewide Highways. Management plans are required for UBAs on any state highway where the posted speed is greater that 35 mph and a UBA designation is needed. As State Highway Freight Routes are reviewed and updated, local governments will need to develop management plans for previously designated highway segments when updating their transportation system plan or other legislatively mandated planning effort. Management plans are also required for Commercial Center on Expressways. Management plans are encouraged where not required. Written approval for any designation is required to be provided by the local government prior to designation by the Oregon Transportation Commission.

a. Special Transportation Areas

Category 1 Special Transportation Areas are those segments located on Statewide, Regional or District Highways that are not on Interstate Highways, Expressways or designated OHP Freight Routes. Category 1 STAs may be designated upon the agreement of ODOT and the local government. Once the Transportation Commission approves the STA designation and the Highway Plan map is amended, ODOT standards, as applicable, will be applied to the segment. Proposed design treatments not meeting ODOT standards will require an exception.

Action 1B.4

Work with local governments to obtain plans and zoning regulations that are consistent with the TPR and this policy. Where local plans and regulations are not yet in place, ODOT may take action regarding designation of highway segments in the following circumstances:

- Where a local jurisdiction identifies an objective to develop land use plans and regulations reflective of OHP Policy 1B and provides written approval for a highway segment designation, ODOT may designate the highway segment prior to adoption of the land use and zoning changes.
- Where a gap exists between local plans and highway segment designation, local government planning and legislative activity should move in the direction of meeting the objectives of Policy 1B.
- Where ODOT has designated a highway segment in reliance on the support of a local government and where the planning and community development patterns remain inconsistent with or contrary to the highway segment designation, ODOT will work

with the local government to gain closer compliance with the policy or may modify or withdraw the designation.

Action 1B.5

Develop and implement plans that support compact development, including but not limited to highway segment designations. Support plans, strategies and local ordinances that include:

- Parallel and interconnected local roadway networks to encourage local automobile trips off the state highway;
- Transit, bicycle and pedestrian facilities, including street amenities that support these modes;
- Design and orientation of buildings and amenities that accommodate pedestrian and bicycle use as well as automobiles use;
- Provision of public and shared parking;
- Infill and redevelopment;
- Expansion of intensive urban development guided away from state highways rather that along state highways; and
- Other supporting public investments that encourage compact development and development within centers.

Action 1B.6

Help protect the state highway function by working with local jurisdictions in developing land use and subdivision ordinances, specifically:

- A process for coordinated review of future land use decisions affecting transportation facilities, corridors or sites;
- A process to apply conditions to development proposals in order to minimize impacts and protect transportation facilities, corridors or sites;
- Regulations assuring that amendments to land use designations, densities and design standards are consistent with the functions, capacities and highway mobility standards of facilities identified in transportation system plans including the Oregon Highway Plan and adopted highway corridor plans;
- Refinement of zoning and permitted and conditional uses to reflect the effects of various uses on traffic generation;
- Standards to protect future operation of state highways and other roads; and
- Access control measures, for example, driveway and public road spacing, median control and signal spacing standards which are consistent with the functional classification of roads and consistent with limiting development on rural lands to rural uses and densities.

Action 1B.7

To assist in implementing state access management standards and policies, work with local governments to develop access management strategies, plans or access management components in comprehensive plans, facility plans and/or transportation system plans involving the state and local system.

Action 1B.8

Work with local governments to maintain the highway mobility standards on state highways by creating effective development practices through the following means:

- Develop an adequate local network of arterials, collectors and local streets to limit the use of the state highway or interchanges for local trips;
- Reduce access to the state highway by use of shared accesses, access from side or back roads and frontage roads, and by development of local street networks as redevelopment along state highways occurs;
- Cluster development in compact development patterns off of state highways;
- Develop comprehensive plan, zoning and site plan review provisions that address highway mobility standards; and
- Avoid the expansion of urban growth boundaries along Interstate and Statewide Highways and around interchanges unless ODOT and the appropriate local governments agree to an interchange

management plan to protect interchange operation or an access management plan for segments along non-freeway highways.

Action 1B.9

Develop facility and transportation system plans that protect existing limited access interchanges according to the following functional priorities:

- At existing limited access highway interchanges, provide safe egress from freeways and Expressways as the fi rst priority.
- When an interchange connects a freeway or an Expressway to an Interstate, Statewide or Regional Highway, provide regional access to freeways and Expressways as the second priority.

Action 1B.10

Continue to develop and implement design guidelines for highways that describe a range of automobile, pedestrian, bicycle or transit travel alternatives. The guidelines should include appropriate design features such as lighted, safe and accessible bus stops, on-street parking, ample sidewalks, pedestrian crossings, pedestrian scale lighting, street trees and related features.

Action 1B.11

Work to accommodate alternative modes of travel on state highways according to the various types of land uses and highways. Work to develop alternative mode facilities in Special Transportation Areas, Commercial Centers and Urban Business Areas according to the other actions in this policy.

City Adoption of Division 51 as part of TSP

Within this Appendix the TSP included reference to and adoption of Division 51, subsequent to the approval by ODOT and the OTC of the STA designation for that portion of Highway 99W as noted above.

City Streets

Section 32(b) of Ordinance No. 3702 addresses access to city streets.

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[1] Oregon Highway Plan, 1999. Table 6.
[2] Oregon Highway Plan, 1999. Figure 3.
[3] Oregon Highway Plan, Table 2.

CITY OF McMinnville OREGON

Transportation System Plan

Appendix G

Recommended Changes to City Street Standards

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G Recommended Changes to City Street Standards - Ordinance No. 3072

This appendix summarizes recommendations for revisions to McMinnville's Ordinance No. 3072 (Land Division as amended by Ordinance No. 4573) to better implement the policy of *Complete Streets*.

This appendix also summarizes possible changes to the City's

Ordinance No. 3072

Recommended ADDTITIONS to Ordinance No. 3072 are

Underlined.

Recommended DELETIONS are shown as ~~strikethrough.~~

Section 30. Streets.

(a) General. The location, width, and grade of streets shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and to the proposed use of the land to be served by the streets. Where location is not shown in a comprehensive plan, the arrangement of streets in a subdivision shall:

(1) Provide for the continuation or appropriate projection of existing principal streets in surrounding areas; or

(2) Conform to a plan for the neighborhood approved or adopted by the Planning Commission to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impractical; or

(3) Maximize potential for unobstructed solar access to all lots or parcels. Streets providing direct access to abutting lots shall be laid out to run in a generally east-west direction to the maximum extent feasible, within the limitations of existing topography, the configuration of the site, predesigned future street locations, existing street patterns of adjacent development, and the preservation of significant natural features. The east-west orientation of streets shall be integrated into the design.

(b) **Rights-of-way and street widths.** The width of rights-of-way and streets shall be adequate to fulfill city specifications as provided in Section 38 of this ordinance. Unless otherwise approved, the width of rights-of-way and streets shall be as shown in the following table:

Type of Street	~~Minimum~~ Right-of-Way[a,b]	Street Width Measured (curb to curb)[b]	Maximum ADT Design Capacity*
Major arterials with bikeways	104 feet	74 feet	32,000 and greater
Minor arterials with bikeways	96 ~~100~~ feet[h]	46 ~~50~~ feet	20,000 ~~32,000~~
Major collectors with bikeways	74 ~~78~~ feet	44 ~~48~~ feet	16,000 ~~10,000~~
Minor collectors with bikeways	64 ~~70~~ feet	40 ~~46~~ feet	10,000 ~~3,000~~
Minor collectors without bikeways	54 ~~60~~ feet	30 ~~36~~ feet	10,000 ~~3,000~~
Local commercial and industrial streets	Varies[c]	Varies[c]	NA
Neighborhood Connector	50 feet	28[d] feet	1,200-3,000 ~~1,200~~
Local residential streets	50 feet	28~~6~~[d] feet	1,200
~~Residential cul-de-sac streets not extending over 400' in length~~	~~44 feet~~	~~20[d] feet~~	~~200~~
Eyebrows shall have a maximum length of 125', serving no more than 3 dwelling units	36 feet	20[e] feet	30
Radius for residential cul-de-sac bulb	45 feet	33[f] feet	NA
Radius for commercial and industrial cul-de-sac bulb	Varies[c]	Varies[c]	NA
Radius for end of eyebrow	18 feet	10[g] feet	NA
Alley	20 feet	20 feet	500~~NA~~

[a] Exclusive of side slope easement which may be required in addition for cuts and fills in rough terrain.

[b] The right-of-way and street width may be varied after consideration of the unique characteristics of the land including geography, topography, unique vegetation, and its relation to land developments already present or proposed in the area.

[c] The right-of-way, street width, improvement standards, and turnaround radius of commercial/industrial cul-de-sacs and streets shall be dependent upon the types of vehicle traffic to be served.

[d] Intersection curb radii shall be no less than 25 feet. On-street parking shall not be permitted within a 30-foot distance of street intersections measured from the terminus of the curb return. Where such a local residential street intersects an arterial, parking along the local street shall not be permitted within a 60-foot distance of the intersection measured from the terminus of the curb return. The developer shall be responsible for the provision and installation of "No Parking" signs as approved by the City Engineering Department.

[e] Sidewalks and planting strips shall not be required along eyebrows.

[f] For cul-de-sacs greater than 300 feet in length, fire hydrants may be required to be installed at the end of the bulb and appropriately spaced along the throat of the cul-de-sac as determined by the McMinnville Fire Department.

[g] On-street parking shall not be permitted along the radius of the eyebrow.

h. The right-of-way allows width for a total of four travel lanes, two in each direction.

* Design capacity of streets is based on a seven-day average of daily trips (ADT).

Where existing conditions, such as the topography or the size or shape of land parcels, make it otherwise impractical to provide buildable lots, the Planning Commission may accept a narrower right-of-way, ordinarily not less than fifty (50) feet. If necessary, special slope easements may be required.

(c) **Reserve strips**. Reserve strips or street plugs controlling access to streets will not be approved unless necessary for the protection of the public welfare or of substantial property rights, and in these cases they may be required. The control and disposal of the land comprising such strips shall be placed within the jurisdiction of the Planning Commission under conditions approved by them.

(d) **Alignment**. As far as practical, streets other than minor streets shall be in alignment with existing streets by continuations of the center lines thereof. Staggered street alignment resulting in “T” intersections shall, wherever practical, leave a minimum distance of 200 feet between the center lines of streets having approximately the same direction and otherwise shall not be less than 125 feet.

(e) **Future extension of streets**. Where necessary to give access to or permit a satisfactory future subdivision of adjoining land, streets shall be extended to the boundary of the subdivision; and the resulting dead-end streets may be approved without a turnaround. Reserve strips and street plugs may be required to preserve the objectives of street extensions.

(f) **Intersection angles**. Streets shall be laid out to intersect at angles as near to right angles as practical except where topography requires a lesser angle, but in no case shall the acute angle be less than sixty (60) degrees unless there is a special intersection design. The intersection of an arterial or collector street with another street shall have at least 100 feet of tangent, measured from right-of-way adjacent to the intersection unless topography requires a lesser distance. Other streets, except alleys, shall have at least fifty (50) feet of tangent measured from property line adjacent to the intersection unless topography requires a lesser distance. Intersections which contain an acute angle of less than eighty (80) degrees or which include an arterial street shall have a minimum corner radius sufficient to allow for a roadway radius of twenty (20) feet and maintain a uniform width between the roadway and the right-of-way line.

(g) **Existing streets**. Whenever existing streets adjacent to or within a tract are of inadequate width, a additional right-of-way shall be provided at the time of subdivision. **The City may consider a reduction in arterial or collector street lane widths (lanes no less than 10 feet wide) by re-striping existing travel lanes.**

(h) **Half streets**. Half streets, while generally not acceptable, may be approved where essential to the reasonable development of the subdivision, when in conformity with other requirements of these regulations, and when the Planning Commission finds it will be practical to require the dedication of the other half when the adjoining property is subdivided. Whenever a half street is adjacent to a tract to be subdivided, the other half of the street shall be platted within such tract. Reserve strips and street plugs may be required to preserve the objectives of half streets.

(i) **Cul-de-sacs**. A cul-de-sac shall be as short as possible and shall have a maximum length of 400 feet and serve not more than eighteen (18) dwelling units. A cul-de-sac shall terminate with a turnaround.

(j) **Street names**. Except for extensions of existing streets, no street name shall be used which will duplicate or be confused with the names of existing streets. Street names and numbers shall conform to the established pattern in the City; street names shall be subject to the approval of the Planning Commission. The naming of new streets with names of local historic significance and/or where appropriate in alphabetical order is encouraged. (Modified 10/9/90 by Ordinance No. 4477.)

(k) **Grades and curves**. Grades shall not exceed six (6) percent on arterials, ten (10) percent on collector streets, or twelve (12) percent on any other street. Centerline radii of curves shall not be less than 300 feet on major arterials, 200 feet on secondary arterials, or 100 feet on other streets, and shall be to an even ten (10) feet. Where existing conditions, particularly topography, make it otherwise impractical to provide buildable lots, the Planning Commission may accept steeper grades and sharper curves.

(l) **Streets adjacent to a railroad right-of-way**. Wherever the subdivision contains or is adjacent to a railroad right-of-way, provision may be required for a street approximately parallel with and on each side of such right-of-way at a distance suitable for the appropriate use of the land between the streets and the railroad. The distance shall be determined with due consideration at cross streets of the minimum distance required for approach grades to a future grade separation, and to provide sufficient depth to allow screen planting along the railroad right-of-way.

(m) **Frontage roads/streets**. Where a subdivision or partition abuts or contains an existing or proposed arterial street, the Planning Commission may require frontage streets, reverse frontage lots with suitable depth, screen planting contained in a non-access reservation along the rear or side property lines, or other treatment necessary for adequate protection of residential properties and to afford separation of through and local traffic.

(n) **Alleys**. Alleys shall be provided in commercial and industrial districts, unless other permanent provisions for access to off-street parking and loading facilities are approved by the Planning Commission.

(o) **Eyebrows**. Where conditions do not warrant the use of cul-de-sacs and the land available in the proposed plan does not allow for a discontinuous minor street extension and where there are no more than three (3) dwelling units proposed to take access, the City Engineer or Planning Director may allow eyebrows. Eyebrows shall be limited to a maximum length of 125 feet, when measured from the main street right-of-way from which the eyebrow takes access. The City Engineer or Planning Director may allow less than that required in (d) above, after taking into consideration the effects upon traffic flows. The right-of-way width shall be thirty-six (36) feet, with a paved ten (10) foot curb to curb radius at the terminus. Sidewalks shall not be installed within eyebrows without additional right-of-way dedication. (Modified 11/18/94 by Ordinance No. 4573.)

(p) **Private way/drive**. This type of street will be allowed when the conditions of Section 24(d) are met. A private drive shall be constructed to the same structural standards that would apply to a public street. Storm runoff will be controlled to prevent damage to adjacent properties. A storm drainage plan shall be approved by the City Engineer. The right-of-way width will be determined based on site conditions and proposed use and will be approved by the Planning Commission.

(q) Bikeways. Provisions shall be made for bikeways planned along arterial and collector streets and where shown on the **Transportation System Plan** ~~Bikeway Master Plan~~. Arterial streets shall be designed to be wide enough to accommodate a six-foot wide bike lane adjacent to each outside traffic lane. All major collector and some minor collector streets (dependent upon available right-of-way) shall be designed **with** ~~so that~~ five-foot wide bike lanes. ~~may be striped in the future.~~ Where a proposed development abuts a collector street **less than 40 feet (Minor Collector) or** 44 feet **(Major Collector)** in width, the Planning Commission may require that on-street parking be restricted to one side of the street only or that the deed(s) of the lot(s) adjacent to the street show that on-street parking will be eliminated in the future for bikeway development.

(r) Residential Collector Spacing. Generally, residential collector or arterial streets should be spaced no more than 1,800 feet from each other unless it is determined otherwise after consideration of the unique characteristics of the land including geography, topography, unique vegetation, and the relation of the site to developments already present or proposed in the area.

(s) Sidewalks. Along arterials and along major collectors with bikeways in commercial areas, sidewalks shall be eight (8) feet in width or, where less than eight (8) feet of right-of-way is available, shall extend to the property line and be located adjacent to the curb. Sidewalks in all other locations shall be five (5) feet in width and be placed one (1) foot from the right-of-way line. Sidewalks adjacent to a cul-de-sac bulb shall be located adjacent to the curb.

(t) **Park Strips.** Park strips shall be provided between the curb and sidewalk along both sides of all streets except **(a) commercial arterial and collector streets, in which case street trees may be placed in tree wells as specified by the McMinnville Street Tree Ordinance; or (b)** ~~major collectors with bikeways, and~~ cul-de-sac bulbs. Street trees shall be planted and maintained within the park strip as specified in the McMinnville Street Tree Ordinance.

(u) Gates. Gates are prohibited within or across public rights-of-way. Gates are also prohibited across private streets that serve single-family residential development of four or more lots or parcels, multi-family housing complexes, manufactured home parks, or commercial or industrial subdivisions. The City may permit gates of limited duration for the purpose of facilitating public events, construction of public infrastructure, or other similar activities having a public interest or benefit at the discretion of the City Manager. (Added 8/14/07 by Ordinance No. 4879.)

Section 31. Blocks.

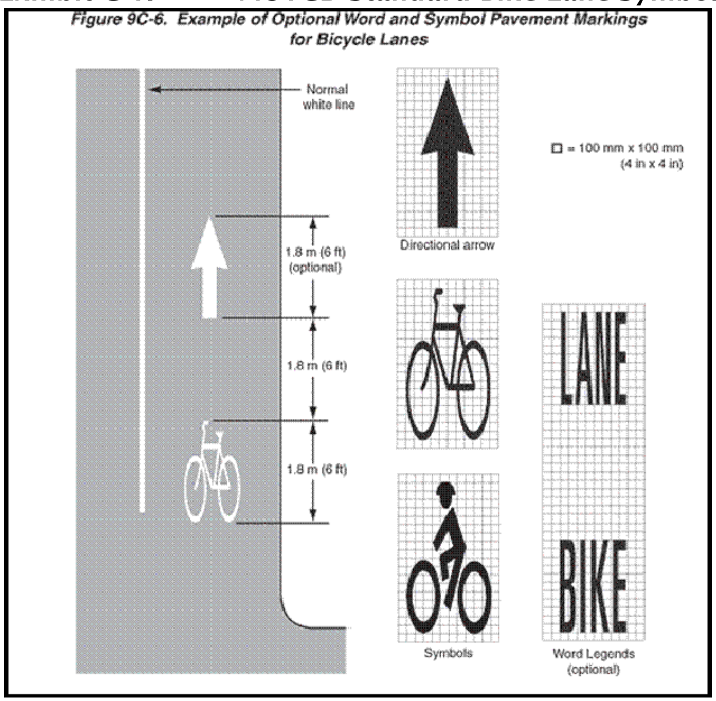
(c) Easements.

(3) Pedestrian ways. When desirable for public convenience, safety, or travel, pedestrian ways not less than ten (10) feet in width may be required to connect to cul-de-sacs, to pass through unusually long or oddly shaped blocks, to connect to recreation or public areas such as schools, or to connect to existing or proposed pedestrian ways.

Bicycle Lane and Route Signing

Exhibit G-1 summarizes the recommended bike lane standard and symbols of the MUTCD.

Exhibit G-1. MUTCD Standard Bike Lane Symbols

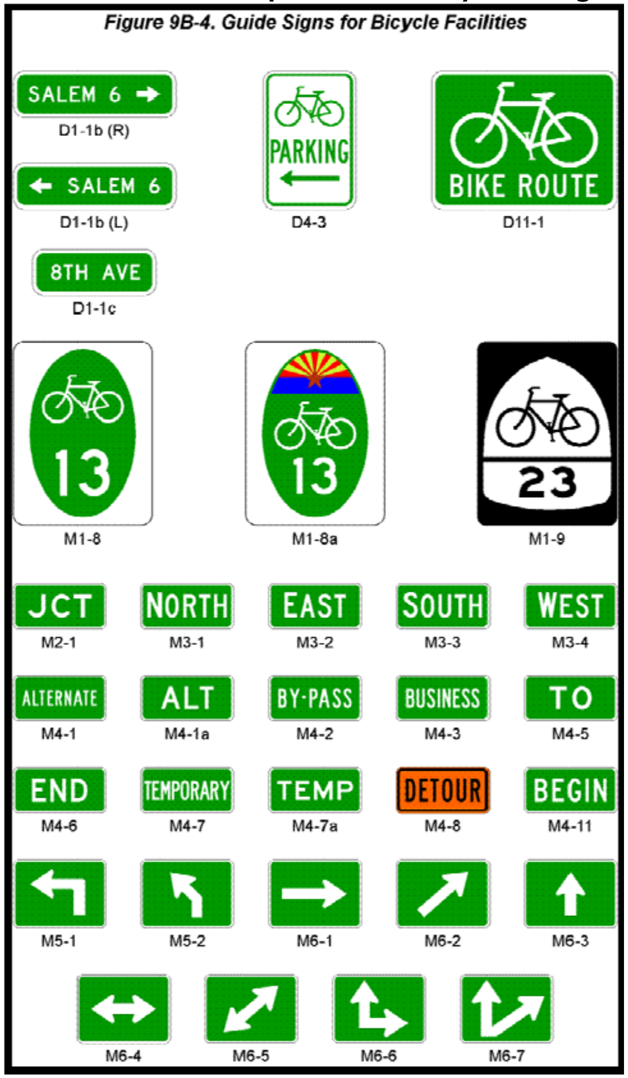


The City of McMinnville should also consider implementation of a city-wide bike route signing program that better links the on-street facilities and the shared-use paths. As shown in **Exhibit G-2**, the City should consider the following for use in the installation of *junction*, *cardinal direction* and *alternative route auxiliary* signs (in conjunction with appropriate Bicycle Route Guide signs, Bicycle Route signs, or US Bicycle Route signs):

Advance Turn Arrow (M5 series) and Directional Arrow (M6 series) auxiliary signs should be mounted below the appropriate Bicycle Route Guide signs, Bicycle Route signs, or US Bicycle Route signs.

- Route sign auxiliaries carrying word legends that are used on bicycle routes should have a minimum size of 12 x 6 inches.
- Route sign auxiliaries carrying arrow symbols that are used on bicycle routes should have a minimum size of 12 x 9 inches.
- All route sign auxiliaries are to match the color combination of the route sign that they supplement.
- Destination may be mounted below Bicycle Route Guide to furnish additional information, such as directional changes in the route, or intermittent distance and destination information.

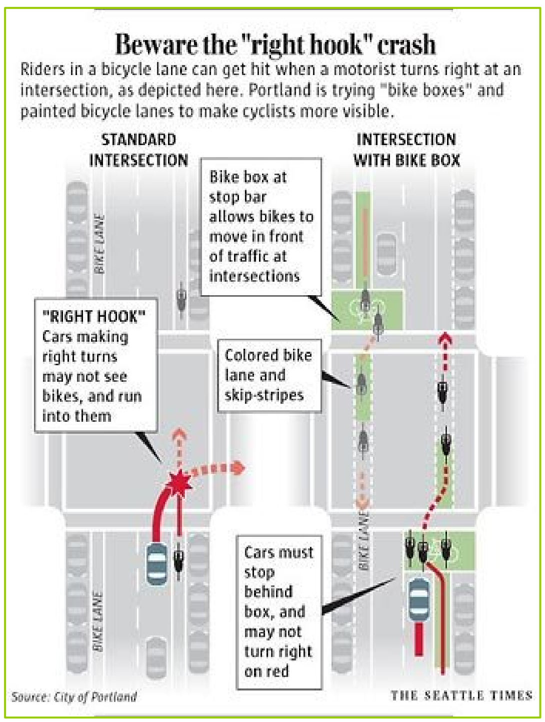
Exhibit G-2. Example of Auxiliary Bike Signs



Current auto and bicycle traffic do not appear to indicate the need, but as bicycle traffic increases in the future, additional intersection design measures may prove helpful through application of “bike boxes.” As shown in **Exhibit G-3**, a bike box facilitates a "two-point left turn" or "box turn" and can also improve cyclist safety conditions by prohibiting vehicles from turning right at red lights, sometime resulting in bicycle/automobile crashes. Bike boxes can also be placed at stop signed intersections.

Care must be taken in the design of bike boxes to ensure appropriate and safe motor vehicle sight-lines as a result of revised placement of vehicular stop bars. The bike box provides additional space and priority for cyclists who are crossing major traffic flow, facilitating a two-point turn by placing bicyclists ahead of the stop line in the cross street for motor traffic and also to the left of right-turning traffic

Exhibit G-3. Bike Box Example



CITY OF McMinnville OREGON

Transportation System Plan

Appendix H

Transportation Planning Rule Compliance

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H TPR Compliance

This appendix summarizes the McMinnville TSP recommendations for Transportation Planning Rule compliance.

Transportation Planning Rule Compliance

The Transportation Planning Rule (TPR) requires local jurisdictions to adopt ordinances and regulations to protect transportation facilities. This chapter includes Table H-1, which provides a checklist of TPR requirements and shows how this Transportation System Plan (TSP) addresses and satisfies each requirement. These changes are grouped by general topic below.

A summary of the adopted amendments to McMinnville's Comprehensive Plan and development ordinances are listed in Table H-1. For each requirement, Table H-1 identifies whether the current code is in compliance, summarizes the current code, and summarizes the adopted policy and/or code change(s). The adoption of the amendments listed in this table brings the City of McMinnville into full compliance with the TPR.

TABLE H-1
CITY OF MCMINNVILLE TRANSPORTATION PLANNING RULE COMPLIANCE

TSP Elements			
TPR Requirements	**Summary of Current Plans, Policies and/or Zoning Ordinance Requirements**	**Current Compliance (Yes/No/Partial)**	**Summary of Adopted Plan, Policy and/or Zoning Ordinance Amendments**
OAR 660-12-020 (2) (b) TSP shall include a road plan including a functional classification consistent with state and regional TSPs. Road standards for local streets to: 1) address extensions of existing streets 2) connections to existing /planned arterials and collectors 3) connections to neighborhood destinations	City's Transportation Master Plan (1994) defines functional classification and basic design elements. 1) Plan and adopted policies address street extension requirements. 2) Plan policies require new streets to conform to existing street patterns. 3) Plan policies and zoning ordinance describe access requirements.	Yes 1)Yes 2) Yes 3) Yes	Adopts supplemental roadway standards as identified in the TSP, Chapter 2; and revisions to City Street Standards as noted in Appendix G. Adopts transportation policies as included in the TSP, Chapter 2 affecting connectivity and circulation and complete streets, and in Chapter 4 affecting circulation; and future, local street connections as identified in Chapter 2, Ex 2-1.
OAR 660-12-020 (2) (c) TSP shall include a description of public transportation services for the disadvantaged including: 1) identification of inadequacies 2) description of intercity bus and passenger rail system	1) Citys adopted McMinnville Transit Feasibility Study (1997) addresses system inadequacies 2) Plan also describes intercity bus service between McMinnville and other cities, but does not provide similar rail system information.	1) Yes 2) Partial	Adopts policies guiding supportive street system, urban design, transit facilities, pedestrian facilities and inter-modal connectivity supporting both public transit within McMinnville and intercity transit, as included in TSP, Chapter 7.
OAR 660-12-020 (2) (d) The TSP shall include a bicycle and pedestrian plan	City's adopted Bike System Plan (1983) provides bicycle plan for urban area, but is out of date and not current with TPR requirements. Pedestrian plan, also out of date, exists within the 1994 transportation plan.	Partial	Adopts the TSP Pedestrian System Plan (Chapter 5) and Bicycle System Plan (Chapter 6).
OAR 660-12-045(6) Bicycle and pedestrian plans must include improvements that connect neighborhood activity centers (schools, shopping)	Pedestrian facilities are required as part of subdivision development, and are addressed through policy and zoning ordinance specific to development that may occur within McMinnville's four "Neighborhood Activity Centers."	Partial	Adopts the TSP Pedestrian System Plan (Chapter 5) and Bicycle System Plan (Chapter 6), both of which emphasize policy direction and the importance of connectivity.
OAR 660-12-020 (2) (e) The TSP shall include air, rail, water and pipeline transportation plans	Various plans currently exist that address air (Airport Master Plan), rail, and water within the McMinnville urban growth boundary.	Partial	Adopts the TSP Chapter 8: Freight Mobility, Air, Rail and Pipeline Plans (water is not applicable).

TABLE H-1
CITY OF MCMINNVILLE TRANSPORTATION PLANNING RULE COMPLIANCE

TSP Preparation

TPR Requirements	Summary of Current Policies	Current Code Compliance (Yes/NO)	Summary of Recommended Policy Change
OAR 660-12-015 (4) The TSP must be adopted as part of the Comprehensive Plan	The City's Transportation Master Plan (1994) has not been adopted as part of the City's Comprehensive Plan.	No	Adopt the TSP as part of the McMinnville Comprehensive Plan.
OAR 660-12-015 (5) Preparation of the TSP will be coordinated with state and federal agencies and other jurisdictions.		N/A	The TSP has been developed in coordination with ODOT, DLCD, McMinnville Water and Light, and Yamhill County.
OAR 660-12-015 (6) Transportation airport and port districts must participate in preparation of the TSP and adopt plans for the transportation facilities they maintain consistent with the TSP.	There are no airport or port districts within the McMinnville urban growth boundary. This provision of the TPR does not, therefore, apply.	Yes	No action needed.

TABLE H-1
CITY OF MCMINNVILLE TRANSPORTATION PLANNING RULE COMPLIANCE

Protection of Transportation Street Facilities/Improvements

TPR Requirements	Summary of Current Policies	Current Code Compliance (Yes/NO)	Summary of Recommended Policy Change
OAR 660-12-045(2) Local governments shall adopt regulations/policies to protect transportation facilities for the following topics: 1) access management standards 2) future operation of roads and transit corridors 3) control of land use around airports 4) coordinated review of transportation facility projects, including notice to ODOT of certain actions 5) land use, density should be consistent with road classifications in TSP	1) City's Transportation Master Plan (1994) includes access management standards discussion, but these have not been adopted as standards.. 2) City's Transportation Master Plan and Transit Feasibility Study include provisions to protect these facilities, but none have been adopted as standards.. 3) McMinnville has an Airport Overlay zone (adopted in 1992) that controls land use around the McMinnville Municipal Airport. 4) As a practice, the City has always coordinated with ODOT on matters involving land use actions that may impact State transportation facilities. 5) Land use and density are not specifically coordinated with street classifications.	1) Partial 2) Partial 3) Yes 4) Yes 5) No	1) Adopts TSP access management standards into the McMinnville Zoning Ordinance. 2) Adopts TSP policies in Chapters 2 and 4, and access management standards in Chapter 2. 3) None. 4) Policies adopted that formalize the City's coordination practices with ODOT. 5) Adopts TSP, which coordinates land use, and land density, with the street functional classification plan.
OAR 660-12-045(3) Local governments must amend subdivision regulations in accordance with the following directions: 1) provide bike parking in multi-family developments 4 units or more 2) provision of pedestrian connections from new subdivisions/multi-family development to neighborhood activity centers 3) on-site road improvements must accommodate bicycle and pedestrian facilities on arterials and major collectors	1) McMinnville Zoning Ordinance requires bicycle parking for commercial and office/residential uses, but does not require it for multi-family development. 2) Plan policies discourage cul-de-sac streets, and require street connectivity except when impracticable due to topography and other site conditions. Recently adopted "Neighborhood Activity Center" overlay ordinance also requires pedestrian connections between neighborhoods and activity centers. Sidewalks are required on both sides of new public streets. 3) Plan policies and Zoning Ordinance require bicycle and pedestrian improvements on arterials and major	1) No 2) Yes 3) Yes	1) Adopts amendment to zoning ordinance to require bicycle parking for multi-family development. 2) None 3) Adopts language that strengthens existing policy and ordinance language.

	collector streets.		
OAR 660-12-045 (7) Local governments shall provide street standards that minimize right-of-way widths and pavement width	Narrower street standards were adopted by the City in 1995..	Yes	Adopts TSP refinements to street functional classification and Complete Street design guidelines that minimize pavement and right-of-way widths by street class as noted in Chapter 2.

TABLE H-1
CITY OF MCMINNVILLE TRANSPORTATION PLANNING RULE COMPLIANCE

Coordination of Land Use Reviews and Decisions/Plan and Land Use Amendments

TPR Requirements	Summary of Current Policies	Current Code Compliance (Yes/NO)	Summary of Recommended Policy Change
OAR 660-12-060 Amendments to comprehensive plans that significantly affect a transportation facility shall assure that allowed land uses are consistent with identified function, capacity and level of service on that road.	Current policies don't specifically address this provision of the Administrative Rule. As a practice, however, the City follows the requirements of the TPR in reviewing plan amendments and other land use actions that significantly affect a transportation facility.	No	Adopts policies that require compliance with TPR when amendments to plan "significantly affect" a transportation facility.
OAR 660-12-025 Findings of compliance with applicable statewide planning goals and acknowledged comprehensive plan policies shall be developed with the adoption of the TSP.	N/A	N/A	This appendix addresses, in part, this administrative rule requirement.

TABLE H-1
CITY OF MCMINNVILLE TRANSPORTATION PLANNING RULE COMPLIANCE

Determination of Transportation Needs

TPR Requirements	Summary of Current Policies	Current Code Compliance (Yes/NO)	Summary of Recommended Policy Change
OAR 660-12-030(1) The TSP should identify the following transportation needs: 1) state, regional and local 2) needs of the transportation disadvantaged 3) freight movement for industrial and commercial uses	1) City's current Transportation Master Plan (1994) addresses each of these requirements, but the material is dated and may be inconsistent with newly adopted rules.	1)Partial 2)Partial 3) Partial	Adopts TSP, which addresses: 1) State and regional needs (Street System Plan – Chapter 4); 2) Needs of transportation disadvantaged (Pedestrian System Plan – Chapter 5, Bicycle System Plan – Chapter 6 and Transit System Plan – Chapter 7); and 3) Freight movement for industrial and commercial users (Freight Mobility Plan – Chapter 8).
OAR 660-12-030(2) and (3) City TSPs shall use the state TSP for information on state needs and the county TSP for information on county needs. Within UGBs, local transportation needs are based on population and employment forecasts for 20 years	Current transportation plans for McMinnville do not include this information regarding state and county TSP needs. Current Transportation Master Plan uses 20-year forecast, but this population projection is neither coordinated or current.	No Partial	Adopts TSP, which is based on and consistent with the State TSP and County TSP needs, generally summarized in Appendix B. Adopts TSP, which includes land use coordinated, plan-based demographic (population and employment) for a 20-year forecast (2003-2013) in coverage of McMinnville's UGB, consistent with the McMinnville Growth Management and Urbanization Plan.

TABLE H-1
CITY OF MCMINNVILLE TRANSPORTATION PLANNING RULE COMPLIANCE

Evaluation and Selection of Transportation System Alternatives			
TPR Requirements	**Summary of Current Policies**	**Current Code Compliance (Yes/NO)**	**Summary of Recommended Policy Change**
OAR 660-12-035(1) The following alternatives shall be analyzed in the TSP: 1) improvements to existing facilities 2) new facilities 3) system management 4) demand management measures 5) no build alternative	1-5) Current Transportation Master Plan (1994) addresses some, but not all of these requirements. Regardless, the analysis requires updating based on changes in circumstances and new data and rules..	1-5) No	Adopts TSP, which considers alternatives and findings in Chapter 3 (Evaluation of McMinnville's Transportation System Plan): improvements to existing facilities, new facilities, transportation system and demand management measures, and a future no-action (or no-build) alternative.
OAR 660-12-035(3) As standards for evaluation, the transportation system shall: 1) support urban and rural development by providing transportation system that will serve the land uses identified in the comprehensive plan; 2) be consistent with state and federal protection of air, land and water quality measures; 3) shall minimize adverse economic, social, environmental and energy consequences; 4) minimize conflicts between modes; and 5) avoid reliance on one mode of travel and reduce reliance on the automobile.	N/A	N/A	Adopt TSP, which includes policy and plan recommendations that: 1) serves the land uses identified in the comprehensive plan; 2) is consistent with state and federal protection of air, land and water quality measures; 3) minimizes adverse economic, social, environmental and energy consequences; 4) minimizes conflicts between modes; 5) avoids reliance on one mode of travel and reduce reliance on the automobile.
OAR 660-12-035(8) Where existing and committed transportation facilities can adequately serve land uses in the acknowledged comprehensive plan, local governments are not required to evaluate alternatives (above).	N/A	N/A	Where such conditions exist, they are identified in the adopted TSP and were not included in the plan's analysis or evaluation.

POLICIES FOR THE APPROVAL PROCESS

Policies should clarify the approval process for different types of projects. The following policies are adopted as part of this TSP:

- The Transportation System Plan is an element of the Comprehensive Plan. It identifies the general location of transportation improvements. Changes in the specific alignment of proposed public road and highway projects shall be permitted without plan amendment if the new alignment falls within a transportation corridor identified in the Transportation System Plan.

- Operation, maintenance, repair, and preservation of existing transportation facilities shall be allowed without land use review, except where specifically regulated.

- Dedication of right-of-way, authorization of construction and the construction of facilities and improvements shall be allowed without land use review for those improvements that are either specifically designated in the Transportation System Plan or that are consistent with the classification of the roadway and approved road standards of the Transportation System Plan.

- Changes in the frequency of rail service that are consistent with the Transportation System Plan shall be allowed without land use review.

- For State projects that require an Environmental Impact Study (EIS) or Environmental Assessment (EA), if local review is required the draft EIS or EA shall serve as the documentation for local land use review, as follows:

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

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

- Uses permitted outright under ORS 215.213(1)(m) through (p) and ORS 215.283 (k) through (n), consistent with the Transportation System Plan, the classification of the street, and approved street standards, shall be allowed without land use review.

CITY OF McMinnville OREGON

Transportation System Plan

Appendix I
Neighborhood Traffic Calming Program

transpoGROUP

I Neighborhood Traffic Calming Program

This appendix summarizes the McMinnville Neighborhood Traffic Calming Program, including Policy Process and Guidance for Implementation. These documents were originally prepared in 2005 for the City of McMinnville by Kittelson & Associates.

City of McMinnville

Traffic Calming Devices

Policy Process Document

City of McMinnville

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

City of McMinneville, Oregon

Traffic Calming Devices

Policy Process Document

2006

Prepared by:

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Neighborhood Traffic Calming Program

Cars provide 21st century society with tremendous mobility and accessibility. But the benefits of vehicle travel have potentially negative impacts as well. In some cases, as motorists travel through residential streets, the speeds can be too high, or too many motorists can be using a street intended for lower volumes of traffic. These speeding motorists and high traffic volumes can decrease the livability and safety along residential streets.

Traffic calming tools are available to reduce the negative effects of automobile use and help restore the proper balance between automobiles and people in a neighborhood. Common traffic calming tools include speed humps, neighborhood traffic circles, curb extensions, and medians, although there are many other less commonly used devices available. Properly implemented, traffic calming measures improve the safety and comfort of pedestrians, bicyclists, and motorists alike. The City of McMinnville recognizes the potential benefits to quality of life that traffic calming offers and developed the Neighborhood Traffic Calming Program (NTCP) to guide future consideration of traffic calming in McMinnville.

NTCP Policy Statement

The following policies will apply to the evaluation and design of potential traffic calming devices within McMinnville:

- Only streets with functional classifications of "local" or "minor collector" are covered under the NTCP. Higher order and commercial streets may have traffic problems that warrant traffic calming. However, developing solutions in these situations requires a citywide rather than neighborhood initiative, as these roadways serve the travel needs of, and are destinations for, multiple neighborhoods.
- Residential streets should primarily serve vehicles traveling to a local destination, while the arterial network should serve trips of a regional nature to the extent possible. Where this does not occur, the NTCP may be used to address the issue of "cut-through" traffic.
- Traffic speeds exceeding the speed limit decrease safety and livability for residents. The NTCP is an appropriate tool to use to address speeding problems.
- Traffic calming plans will consider effects on neighboring roadways and develop solutions with a system-wide perspective to ensure that problems are solved rather than simply shifted to adjacent streets or neighborhoods.
- Traffic calming plans will preserve emergency vehicle access to meet City standards. To ensure that this goal is met, traffic calming plan development will actively include representatives from the Police and Fire Departments.
- Citizens will be involved at all stages of the NTCP process. The program will rely on citizen input to identify problems and develop appropriate context-sensitive solutions that satisfy neighborhood needs.

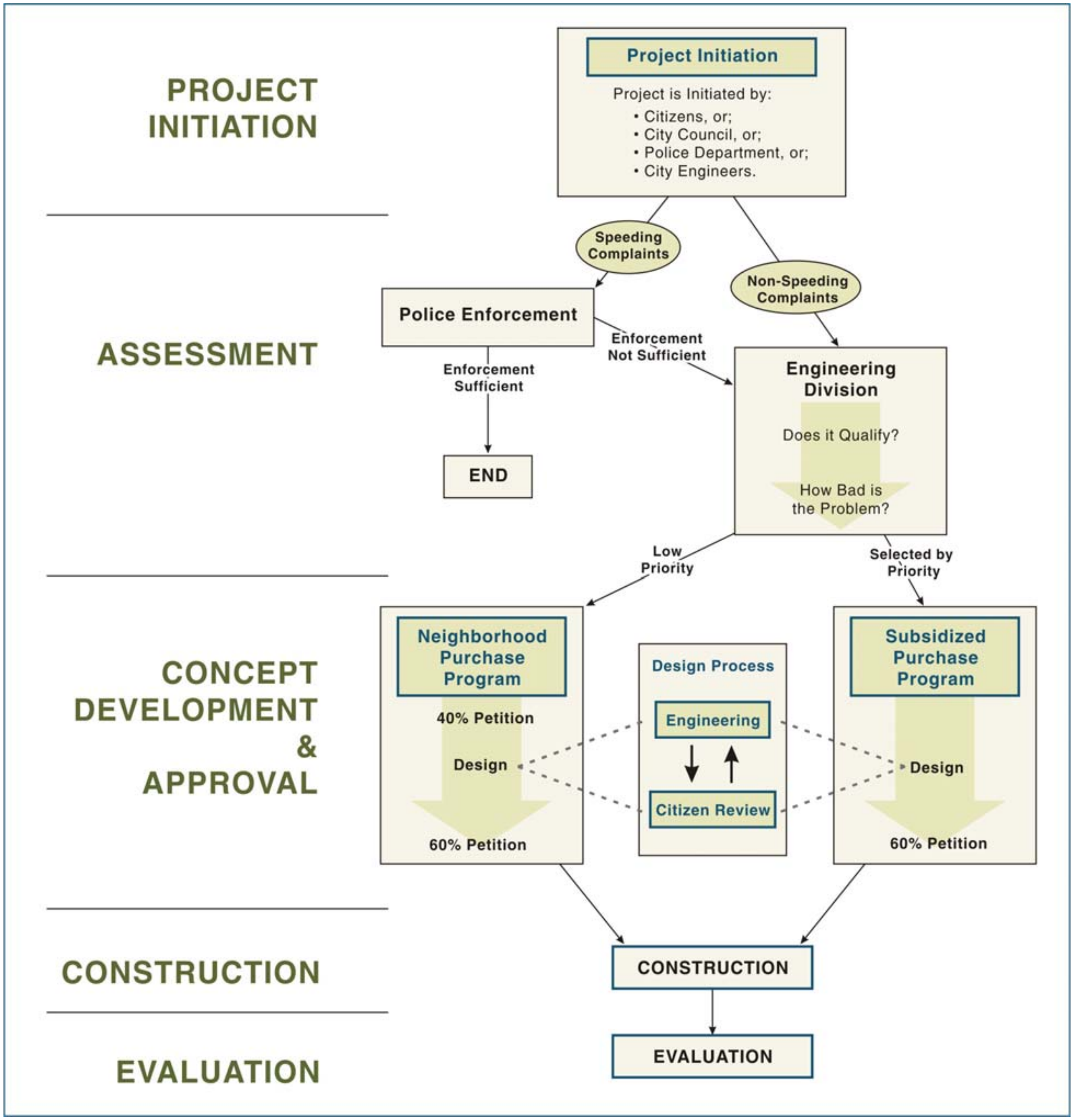
- Requests for traffic calming will be evaluated using the process outlined in the Neighborhood Traffic Calming Program Process.

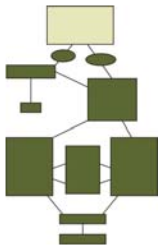
NTCP Process

The NTCP Process informs citizens of the process that will guide planning and prioritization of future traffic calming projects. This process allows the city to work closely with residents to identify and seek solutions to traffic problems in McMinnville.

The NTCP process relies on citizen participation. Past experience with traffic calming shows that citizen participation is a necessary element in successful traffic calming projects. Meaningful citizen participation ensures accurate identification of problems and potential solutions and decreases the chance for future removal of traffic calming measures.

The NTCP process outlined schematically in Figure 1 has been developed to facilitate collaboration between residents and City Staff, and to allow City Staff to develop priorities for funding improvements in an open process. The following provides a more detailed description of each step in the NTCP process.





Step 1: Initiation

A project can be initiated in one of four ways:

- By a citizen, group of citizens, or neighborhood association. A valid request requires a petition with signatures from at least 10 households. The petition must include a statement specifically identifying the nature of the complaint (e.g., speeds, volumes, etc.).
- The McMinnville Police Department may initiate a project based on field observations.
- The City's Engineering Division may initiate a project based on field observations.

The City Council may refer streets to the relevant department for further evaluation.

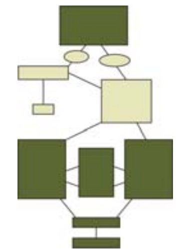
Complaints regarding speeding will be directed to the Police Department, while other complaints will be handled by the Engineering Division. Upon reception of a speeding complaint, the Police Department will conduct speed enforcement along the segment on at least three separate occasions. Based on observations and data collected during the enforcements, the Police Department will determine whether to refer the complaint to the Engineering Division for possible traffic calming treatment.

The Engineering Division will evaluate all non-speeding complaints and any traffic speed complaints referred by the Police Department. All streets will be analyzed as segments. The Engineering Division will define segments on a case-by-case basis based on the nature of the complaint. Typically, segments will respect natural barriers, will not cross major streets, and will only operate under one functional classification.

The Engineering Division will first verify that the street in question qualifies for traffic calming under the NTCP. In order to qualify for the NTCP, a street segment must satisfy the following conditions:

The functional classification for the street in the adopted McMinnville Transportation System Plan is either "Local Street" or "Minor Collector."

At least 75% of the adjacent land-use along the street segment is either residential or zoned for residential use.



Step 2: Preliminary Evaluation

Once the Engineering Division verifies that a segment qualifies for the NTCP, they will collect data to determine the extent of the traffic problem. The following data will be collected:

- Traffic speeds
- Traffic volumes
- Physical characteristics (e.g. number of lanes, extent of bike lanes or sidewalks, etc.)
- Other data deemed pertinent by the Engineering Division

The NTCP offers two ways for a neighborhood to receive traffic calming: the Neighborhood Purchase Program, where neighborhoods pay the full cost of improvements; and the City Subsidized Program, where costs are shared between the City and neighborhoods. Only the highest priority segments will qualify for the City Subsidized Program.

Table 1 shows the criteria for each program. Where sidewalks are missing from one or both sides of the street segment but the speed or volume criteria are not met, that segment qualifies for the Neighborhood Purchase Program. However, the only traffic calming device that can be purchased in this case is sidewalks.

The following sections describe the City Subsidized and Neighborhood Purchase programs.

City Subsidized Program

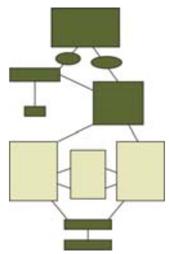
Step 3: Prioritization

Street segments that qualify for the City Subsidized Program will be prioritized by the City Engineering Division to determine the order in which problems will be addressed. This ensures that the most significant traffic problems are addressed first. The Engineering Division will score each segment based on the rating system shown in Table 2.

In situations where a project's priority is low and a neighborhood would like to expedite the process, the neighborhood may choose to utilize the Neighborhood Purchase Program to obtain the desired traffic calming.

Table 1 --Program Criteria

Criteria	Programs
85th percentile speed more than 5 mph higher than posted speed limit	Both
ADT greater than 1,000	Both
No sidewalk on one or both sides of the street	Neighborhood Purchase Program



Step 4: Design/Costing

Once the Engineering Division initiates a project from the prioritized list, the Engineering Division will identify the households included in the project area. The Engineering Division will determine the project area on a case-by-case basis. Typically, the project area will include all households within 300 feet or within one block of the segment; project areas for collector streets may be significantly larger.

Next, the City will schedule an open house to discuss the project. Households within the project area will be notified of the open house. The first open house will familiarize the citizens in the project area with the traffic calming process and give citizens an opportunity to ask questions or voice concerns about the project under consideration. The City will also use the open house to provide an overview of different traffic calming measures and potential options for the segment in question.

There are many different traffic calming tools that can be used to address neighborhood traffic concerns. While speed humps are an effective and popular method of traffic calming, many projects will require different solutions. An implementation guidance document for traffic calming devices is given in Appendix "A" to help guide the design process. The guidance document provides only general information for the most common traffic calming measures and is not intended to be comprehensive. The absence of a device from the guidance document does not preclude its incorporation into a project.

Minor collectors will qualify for a limited number of traffic calming devices. Because these streets are designed to carry higher traffic volumes and handle emergency vehicles on a regular basis, not all traffic calming tools are appropriate. Approved devices for minor collectors will typically include horizontal deflection devices, but may include vertical deflection in certain instances. Local streets that are not on emergency response routes qualify for all types of traffic calming devices. The City Traffic Engineer will use engineering judgment to make the final determination on the appropriateness of devices.

Additionally, a Neighborhood Advisory Committee (NAC) will be established at the first open house. Ideally, the NAC will comprise residents of the project area and have between five and ten members. The NAC will work with the Engineering Division during the design and costing process to ensure that neighborhood concerns are taken into account.

The NAC will work with the City following the open house to develop a preliminary design for the street segment, including a cost estimate. The fire department will be included in this,

Table 2 -- Project Scoring

Category	Points	Basis for Point Assignment
85^{th} Percentile Speed	0-40	4 points for every mph greater than 5 mph over the posted speed limit.
Average Daily Traffic Volume	0-20	1 point for every 200 vehicles.
Sidewalks	0-20	Segments will be awarded 1 point for every 5 percentage points of missing sidewalk coverage. Segments with no sidewalks would receive 20 points while a segment with a sidewalk on only one side would receive 10 points.
Pedestrian Generators	0-20	5 points for each school, school crossing, church, library, park or community center on street segment (20 points maximum).
Total Possible Points:	100	

and all other phases of the design. The Engineering Division should provide guidance on the project costs that the City is willing to pay. Where possible, plans should focus on developing a series of treatments rather than a single device. Because traffic problems typically occur along an entire segment, treatments must address the entire segment as well. Depending on the nature of the problem, traffic calming treatments may be required every several hundred feet.

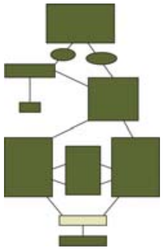
Once the preliminary design is complete, a second open house will be scheduled for residents of the project area. This open house will allow the NAC and City to gather feedback and suggestions on the preliminary design.

The Engineering Division, with assistance from the NAC and representatives of the fire department, will prepare design plans for the project based on comments from the second open house. The plans will also include a cost estimate. At this point, the Engineering Division must declare what portion of the project cost the City will pay. The residents of the project area will be responsible for paying the remaining costs. The City will base its contribution on available funding and project priority.

Step 5: Approval/Payment

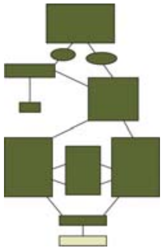
Before a project can be approved, a petition must be signed by at least 60% of households in the project area. The City's Engineering Division will prepare the petitions and project information for distribution by the NAC. The NAC is also required to raise the neighborhood's share of the project cost before construction begins, if neighborhood funding is being utilized.

The neighborhood share can be raised in any number of ways, and need not come entirely from within the neighborhood. Residents of other cities have had success using bake sales and garage sales as a means to raise money for traffic calming projects. The NAC has one year from submittal of a valid petition to raise the required money and deposit it in a bank of good standing.



Step 6: Construction

When the project has been approved and the necessary neighborhood contributions have been raised, the City will prepare detailed plans for constructions. The plans will be reviewed by all affected City Departments prior to construction. Once the detailed plans are reviewed, City crews or contractors will install the traffic calming devices.



Step 7: Evaluation

The Engineering Division will collect speed and volume data for the street segment once at six months and again at one year after installation is complete. The City will also seek comments from residents regarding the project. The City will document the results of this data collection effort. This data will help the City determine the effectiveness of the traffic calming measures, which will benefit future traffic calming projects.

Neighborhood Purchase Program

The Neighborhood Purchase Program follows the same steps as the City Subsidized Program with the major exception that the City is not expected to pay any construction costs. Additionally, 40% of the households in a project area must sign a petition prior to the design phase stating that they are interested in pursuing the Neighborhood Purchase Program and understand the neighborhood's financial responsibilities. Requiring this preliminary show of support keeps the City and neighborhoods from spending considerable amounts of time designing projects with low levels of support.

City of McMinnville

Traffic Calming Devices

Guidance for Implementation

City of McMinnville

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

City of McMinneville, Oregon

Traffic Calming Devices

Guidance for Implementation

2006

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Benefits of traffic calming are represented by a set of four icons:


Speed reduction


Traffic Volume Reduction


Conflict Reduction


Opportunity for Landscaping

These Icons appear in full color intensity when the benefit level is high and in a faded color when the technique yields only a minor benefit.

Guidance for Implementation of Traffic Calming Devices

Categories of Devices

Traffic calming devices fall into 3 general categories:

- Vertical Deflection
- Horizontal Deflection
- Obstruction

Good traffic calming plans have a combination of devices from more than one of these categories and the devices are implemented from a systemwide perspective.

Vertical deflection techniques include speed humps, and are the most commonly used method of traffic calming. Vertical devices cause drivers to slow down by altering the surface of the roadway, making high-speed travel unpleasant. They are the most proven method of reducing driver speeds.

Horizontal devices protrude into the travelway from the curb or the median, forcing drivers to alter their paths. In addition to slowing drivers, horizontal traffic calming can increase the visibility of pedestrians and keep drivers attentive. They are typically not as successful as vertical devices in reducing speeds.

Obstructions are used to restrict automobiles from making certain movements, and can sometimes be used to close a street segment entirely. They are generally considered the most drastic type of traffic calming, as they can decrease mobility substantially.

The following pages give more complete descriptions of the most typical traffic calming devices, as well as general guidelines on costs and implementation. This document cannot cover all devices, nor can it provide detailed designs or costing, as the individual needs of each project will be different. The guidance provided here simply gives an overview of common traffic calming devices.

Information found in this document relied substantially on the following sources:

http://www.trafficcalming.org

Institute of Transportation Engineers, *Canadian Guide to Neighbourhood Traffic Calming*, Ottawa, Canada, 1998.

Cost Estimates also used information provided by the City of Portland Office of Transportation.

Vertical Deflection Techniques

Vertical deflection techniques change the surface of the roadway, typically by raising it. Drivers must slow down to travel over the vertical deflection to avoid an uncomfortable bump. Additionally, vertical traffic calming devices may be used in conjunction with crosswalks to improve the visibility of pedestrians. In this case, crosswalks are placed along the top of the vertical deflection, thus placing pedestrians more squarely in drivers' fields of vision. Vertical deflection techniques are most often applied to lower speeds and improve pedestrian crossings.

Common Vertical Deflection Techniques

Speed Hump

Description:	Speed humps are raised area s of the roadway that vertically deflect the wheels of traversing vehicles. Their purpose is to reduce vehicle speeds.
Effectiveness:	Numerous studies have shown speed humps to be among the most effective tools to reduce speeds. Size and spacing of the humps determines the extent of speed reduction.
Disadvantages:	Speed humps can lead to increased noise from braking and accelerating and adversely affect emergency vehicles response times.
Design Guidelines:	Speed humps of different sizes are available to create different effects. Narrower and higher humps result in the most speed reduction. Speed humps should be installed in a series rather than alone. The size and spacing of humps must be tailored to the roadway's desired speed Typical spacing between humps ranges from 200 to 600 feet. Shorter spacings result in lower travel speeds Short spacing and narrow humps can be used to reduce speed to as low as 20mph. Where desired speeds are higher, hump spacing should be increased. In general speed humps should not be used where desired speeds are higher than 30mph. Placement typically includes advanced signage, and striping on the hump to advise motorists and cyclists of the location of the bump.
Location Principles:	Speed humps should not be placed within 50 ft. of intersections along local streets or within 100 ft. of intersections along collectors. Where possible, avoid steep grades and driveways. Typically more than an 8% slope is considered too steep for speed bumps Drainage inlets should be avoided if possible, and curb clearance should be adequate to allow for drainage. Placement near streetlights enhances visibility.
Approximate Cost:	$2,000

Speed Humps Variations for Emergency-Vehicles

There are several variations of speed hump design that address concerns related to emergency vehicles and other heavy vehicles.

An emergency split-hump is a variation of the traditional speed hump, where a hump is placed on only one side street and offset from a hump on the opposite side of the street. The advantage of this type of placement is that emergency vehicles can weave around the humps rather than travel over them, thus reducing the negative impact to emergency response times. Humps are typically accompanied by median islands to prevent vehicles from avoiding the hump.

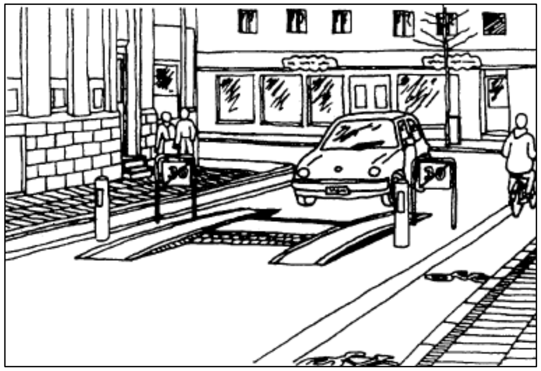
Similarly, Albany, Oregon has successfully employed a speed hump with a center piece missing just large enough for an emergency vehicle to pass through unimpeded by traveling in the center of the roadway.

Split-humps and other emergency-vehicle friendly speed humps may be appropriate on collectors or other emergency response routes where speed humps would otherwise be inappropriate. Costs of these measures are similar, though somewhat higher, to the cost of a traditional speed hump. Placement on local streets should be avoided, as low traffic volumes will encourage cars to take advantage of the provisions for emergency vehicles.

Another speed hump variation that is appropriate for emergency vehicles and other heavy vehicles is the combi hump, which has been used in Denmark. The design includes three humps: one for cars (in the middle) and two for heavy vehicles (either side of the hump for cars). The hump for cars is more severe than that for heavy vehicles. Cars are forced to travel over the more severe hump because their wheel bases are not wide enough to allow them to take advantage of the heavy vehicle humps.

Examples of Speed Hump Variations

Split-Hump



Combi Hump

Raised Crosswalk

Description:	Raised crosswalks are marked pedestrian crosswalks constructed at a higher elevation than the adjacent street. Their purpose is to reduce vehicle speeds and improve the safety and comfort of pedestrians.
Effectiveness:	Similar effect on traffic speeds as speed humps. However, as raised crosswalks are not typically placed in a series, speed reduction is diminished. Raised crosswalks also improve pedestrian comfort and visibility crossing the street.
Disadvantages:	Raised crosswalks can lead to increased noise from braking and accelerating and adversely affect emergency vehicles response times. Speed reduction is isolated to the immediate vicinity of the device
Design Guidelines:	Like speed humps, raised crosswalks should not be used where desired speeds are higher than 30 mph or on steep grades. Catch-basins should be installed on uphill edge of crosswalk, as the crosswalk must extend to the curb. Placement typically includes advanced signage to advise motorists and cyclists of the upcoming speed hump, and striping to delineate the crosswalk area. Pedestrian crosswalk signs are required at uncontrolled locations. Curb extensions and/or medians may be combined with raised crosswalks to assure appropriate visibility.
Location Principles:	Raised crosswalks should be located at intersections or at mid-block locations with high pedestrian volumes (e.g. near schools or parks). In mid-block locations special consideration should be given to whether or not a mid-block crossing is appropriate Curb extensions and/or medians may be combined with raised crosswalks to assure appropriate visibility.
Approximate Cost:	$3,000

Speed Table

Description:	Speed tables are similar to raised crosswalks except that they are wider and have a trapezoidal shape. They are intended to improve pedestrians' abilities to cross the street safely and securely.
Effectiveness:	Speed tables have a smaller effect on speeds than raised crosswalks do, as the vertical change is not as great. Mainly, speed tables improve pedestrian comfort and visibility crossing the street.
Disadvantages:	Speed tables have a small negative effect on emergency vehicles.
Design Guidelines:	Like speed humps, speed tables should not be used where desired speeds are higher than 30 mph. Catch-basins should be installed on uphill edge of crosswalk, as the crosswalk must extend to the curb.
Location Principles:	Speed tables should be located at intersections or at mid-block locations with high pedestrian volumes (e.g. near schools or parks). In mid-block locations special consideration should be given to whether or not a mid-block crossing is appropriate Placement typically includes advanced signage to advise motorists and cyclists of the upcoming speed hump, and striping to delineate the crosswalk area. Pedestrian crosswalk signs are required at uncontrolled locations. Curb extensions and/or medians may be combined with speed tables to assure appropriate visibility.
Approximate Cost:	$2,500

Raised Intersection

Description:	Raised intersections are entire intersections, including crosswalks, that are constructed at a higher elevation than adjacent roadways. The intent of raised intersections is to reduce vehicle speeds and better define crosswalk areas.
Effectiveness:	Raised intersections have been shown to decrease traffic speeds. They also serve to better define pedestrian areas. Speed reduction is in the immediate vicinity of the intersection
Disadvantages:	Speed tables have a small negative effect on emergency vehicles. Cost of raised intersections is high compared to other measures.
Design Guidelines:	Raised intersections should not be installed where desired speed is greater than 30 mph. Raised intersections are most applicable on narrow streets, as costs increase quickly as with wider streets. The height of a raised intersection should match the existing sidewalk heights. Placement typically includes advanced signage for uncontrolled approaches to advise motorists and cyclists of the upcoming speed hump, and striping to delineate the transition areas.
Location Principles:	Raised intersections are appropriate at intersections along local and collector residential streets.
Approximate Cost:	\$20,000 - \$75,000, varies considerably based on the size of the intersection

Textured Crosswalk

Description:	Textured crosswalks are crosswalks that incorporate textured or patterned surfaces providing visual contrast with adjacent roadways. They are intended to more clearly delineate pedestrian crossing areas.
Effectiveness:	Textured crosswalks have no effect on vehicle speeds or volumes. They may improve pedestrian crossing abilities and street appearance.
Disadvantages:	Texturing may be uncomfortable for bicyclists and those people in wheelchairs or strollers. Also, some texturing may wear down quickly.
Design Guidelines:	Texturing on crosswalks should be on the edges, while the center is smooth. Smooth surfaces provide stable footing and are more comfortable for people in wheelchairs and strollers.
Location Principles:	Textured crosswalks should be located at intersections where crosswalks need delineation. Mid-block locations are often not appropriate for textured crosswalks, unless they are combined with curb extensions or medians to create additional motorist awareness.
Approximate Cost:	$2,000

Horizontal Deflection Techniques

Horizontal deflection techniques are used to narrow and/or curve the vehicle travelway. Altering the roadway in this manner forces drivers to use caution and slow down. Cautious drivers are more aware of their surroundings and thus able to react quickly to potentially dangerous situations. Additionally, horizontal devices narrows the driver's field of vision and focuses their attention on the street. When combined with a crosswalk, horizontal traffic calming also reduces pedestrian crossing distances, making crossing the street safer and easier.

Typically, horizontal techniques are used where pedestrian crossings are particularly long or challenging and where speeds are high. Horizontal traffic calming may also be applied in some cases where vertical techniques are undesirable because of negative effects on emergency vehicles.

Generally, horizontal traffic calming tools work best in a series of varying devices (horizontal and vertical), rather than as standalone devices. Good plans may accommodate several types of horizontal traffic calming on one road segment.

Common Horizontal Deflection Techniques

On-street Parking

Description:	On-street parking reduces the available roadway width for automobile travel by allowing curb-side parallel parking. This is intended to slow motor vehicles and provide a buffer between the sidewalk and the travel-way.
Effectiveness:	On-street parking is an inexpensive measure to implement, and can result in significantly lowered speeds where the parking is well-utilized.
Disadvantages:	There may not be enough demand for on-street parking to make a significant difference to street characteristics.
Design Guidelines:	Decisions on allowing on-street parking must consider the available right-of-way on a street. On-street parking on one side of a roadway requires approximately 8 feet of right-of-way. In some cases, on-street parking would reduce the available travel-way to unacceptable levels. On very wide streets, however, on-street parking may not narrow the roadway sufficiently to reduce traffic speeds.
Location Principles:	On-street parking should not be allowed within 20 feet of a stop sign or crosswalk. Areas that have poor sight-distance may not be appropriate locations for on-street parking.
Approximate Cost:	$75 per sign. Number of signs needed varies based on segment length.

Raised Median Island

Description:	Raised median islands are elevated median constructed along the centerline of a roadway. Their purpose is to lower traffic speeds and improve the ability of pedestrians to cross the street by narrowing travel lanes and and the driver's field of vision.
Effectiveness:	Raised median islands have been shown to reduce vehicle speeds moderately. There are documented safety benefits for pedestrians of raised medians. However, these findings have not been specifically applied to raised median islands.
Disadvantages:	Raised median islands may require removal of on-street parking. In some cases, median islands can result in increased bicycle-motorist conflicts.
Design Guidelines:	On collectors, raised median islands can be used in conjunction with crosswalks to reduce speeds and improve pedestrian crossings. Median islands can create conflicts between bicyclists and motorists that should be considered during design. On collectors, median islands may be accompanied by bike lanes to reduce this effect. On local streets, raised median islands should be used to reduce traffic speed. Median islands should include "Keep Right" signs to direct traffic around the island. Stopping should be prohibited in the area of the median island. Roadway markings on local streets indicating the presence of cyclists can help reduce bicycle-automobile conflicts.
Location Principles:	Raised median islands are typically placed at on either side of an intersection or at mid-block locations, especially where there are high pedestrian volumes. Here they can be used to improve the safety of marked crosswalks.
Approximate Cost:	$12,000 - $25,000, depending on the size of the island

Neighborhood Traffic Circle

Description:	A neighborhood traffic circle is a raised island in the center of an intersection that forces cars to travel through the intersection in a counterclockwise direction. The purpose of a traffic circle is to reduce speeds and the number of conflicts. Neighborhood traffic circles differ from roundabouts in that they have no splitter islands, or yield lines, have much smaller radiuses, and are intended for low-volume intersections
Effectiveness:	Traffic circles have significant benefits for reducing speeds and crashes. Speed reduction is in the immediate vicinity of the intersection unless incorporated into a series of traffic calming devices.
Disadvantages:	Traffic circles can be difficult for emergency vehicles and trucks to navigate because of the small turning radii that traffic circles require. Some bicyclists feel that they create cyclist-motorist pinch-points where drivers tend to swerve into the path of cyclists.
Design Guidelines:	An intersection should have similar traffic volumes on all approaches when a traffic circle is considered. Otherwise, traffic on the higher-volume approach may fail to yield. Maintenance provider should be firmly established in the design phase for landscaped traffic circles. No advance signs are required. Yield-control is recommended on all approaches.
Location Principles:	Traffic circles can be placed at intersections along local and collector streets.
Approximate Cost:	$25,000

Curb Extension

Description:	A curb extension is a horizontal extension of the curb into the roadway. Their purpose is to lower traffic speeds and, when used in conjunction with crosswalks, reduce the crossing distance for pedestrians.
Effectiveness:	Curb extensions have been shown to reduce vehicle speeds moderately. They also reduce pedestrian crossing distance and increase the visibility of pedestrians.
Disadvantages:	Curb extensions are not compatible with bike lanes. Additionally, installation of curb extensions often requires removal of some street parking.
Design Guidelines:	Curb extensions are most effective where pedestrians have difficulty crossing the street. When used without crosswalks, curb extensions should be placed in series with other horizontal traffic calming devices such as traffic circles and median islands. Curb clearances to allow for drainage should be provided or the extension must include curb and gutter. Object markers or delineation markers are optional for curb extensions.
Location Principles:	When used in conjunction with a crosswalk, curb extensions should be placed at intersections or at mid-block locations where there are high pedestrian volumes. Here they can be used to improve the safety of marked crosswalks. Curb extensions without crosswalks should be placed in series at mid-block locations.
Approximate Cost:	$15,000

Chicane

Description:	A chicane is a series of curb extensions on alternating sides of the roadways. They force drivers to navigate them by weaving back and forth. Chicanes are used to reduce cut-through traffic, and reduce travel speeds.
Effectiveness:	Chicanes are very effective at both reducing travel speeds and traffic volumes. One-lane chicanes, where cars traveling in opposite directions cannot pass through the chicane simultaneously, are most effective. Chicanes have been shown to reduce crashes as well.
Disadvantages:	Chicanes may divert traffic to adjacent local streets. They can also create conflicts between bicyclists and motorists and require the removal of on-street parking.
Design Guidelines:	Chicanes should only be applied where desired speeds are 30 mph or less. They should be placed close to streetlights for visibility and are not advisable on streets with steep grades. A chicane should consist of at least 3 curb extensions. To reduce bicycle-automobile conflicts, bicycle bypasses that don't require cyclists to traverse the chicane should be used wherever possible. Design should include curb clearance adequate for drainage. Chicanes require signing to prohibit parking or stopping within the chicane. Two-way, one-lane chicanes also require signs notifying drivers to yield to oncoming traffic.
Location Principles:	Chicanes should be placed at mid-block locations, no closer than 70 ft to the nearest intersection.
Approximate Cost:	$10,000 - $30,000, depending on the landscaping required and the roadway width.

Obstructions

Obstructions are used to physically restrict allowable movements for motor vehicles. This can range from simply disallowing a left-turn to completely closing a street. Because obstructions necessarily reduce connectivity and emergency vehicle access, they should be considered only where vertical or horizontal traffic calming would not be effective. However, they are an effective method of reducing traffic volumes.

There are two primary uses for obstructions: to divert cut-through traffic to a higher-order facility and to reduce traffic volumes on bicycle boulevards. Consequently, obstructions are most applicable on local streets rather than collectors.

When planning obstructions, it is important to maintain bicycle and pedestrian connectivity even while reducing automobile connectivity. This makes non-motorized modes relatively more attractive, and may increase the number of people choosing to walk or bike to their destinations.

Allowing for Bicycle Access

Examples of Obstruction Techniques

Directional Closure

Description:	A directional closure is a vertical barrier extending to the center of a roadway, effectively obstructing one direction of traffic. The purpose of a directional closure is to divert through traffic to another street.
Effectiveness:	Directional closures are very effective in reducing traffic volumes. They are also associated with moderate reductions in speed.
Disadvantages:	Directional closures reduce access for residents and may divert traffic to adjacent streets that are not traffic calmed.
Design Guidelines:	Directional closures are ideally placed at intersections between local streets and higher order roadways, with the local street receiving the treatment. This has the effect of guiding traffic onto higher-order roadways. Designs should incorporate bicycle access and allow for emergency vehicle circumvention. Signing indicating the closure and allowable turns to motorists must be provided for directional closures. Pavement markings indicating bicycle access may accompany a directional closure.
Location Principles:	Directional closures should prevent entrances to a street, rather than exits. This prevents drivers from mistakenly entering a dead-end street.
Approximate Cost:	$15,000

Intersection Channelization

Description:	Intersection channelization uses raised islands to physically obstruct and direct traffic in an intersection The purpose of channelization is to divert through traffic to another street.
Effectiveness:	Intersection channelization effectively reduces traffic volumes. Channelization can also provide refuge islands for pedestrians.
Disadvantages:	Intersection channelization reduces access for residents and may divert traffic to adjacent streets that are not traffic calmed.
Design Guidelines:	Channelization at intersections between local streets with low volumes should be avoided, as many drivers will likely circumvent the obstructions. Design of channelization should provide for bicycle access always and pedestrian refuge islands where applicable. Signing is required for intersection channelization to notify motorists of allowable movements.
Location Principles:	Channelization is ideally placed at intersections between local streets and higher order roadways, with the local street receiving the treatment.
Approximate Cost:	$10,000

Raised Median through Intersection

Description:	A raised median through an intersection is an elevated median placed along the centerline of a roadway that prevents left-turns and through movements between the intersecting streets. Their purpose is to divert through traffic to another street.
Effectiveness:	Raised medians are very effective at reducing traffic volumes, as the devices are typically difficult to circumvent.
Disadvantages:	Raised medians reduce access for residents and emergency vehicles and may divert traffic to adjacent streets that are not traffic calmed.
Design Guidelines:	Design of raised medians should provide for bicycle access and handicap-accessible pedestrian refuge islands. The medians should extend at least 15 feet beyond the intersection to prevent driver circumvention.
Location Principles:	Raised medians are ideally placed at intersections between local streets and higher order roadways, with movements to and from the local street being restricted. Median islands require “Keep Right” signs to guide motorists around the median. Minor-street approaches require signs notifying drivers that they must turn right at the intersection.
Approximate Cost:	$8,000

Diverter

Description:	A diverter is a raised barrier placed across an intersection such that all traffic is prevented from traveling straight through the intersection. Diverters are used to reduce cut-through traffic from neighborhood streets.
Effectiveness:	Diverters can reduce traffic volumes by as much as 70%, as the devices are typically difficult to circumvent.
Disadvantages:	Diverters reduce access for residents and emergency vehicles and may divert tr affic to adjacent streets that are not traffic calmed.
Design Guidelines:	Design of diverters should provide for full bicycle access through the diverter. Because diverters increase emergency response time, diverters should be used only when problems are severe. Neighborhoods with multiple diverters may have significantly reduced connectivity. Diverters require “Single Curve” signs advising motorists of the upcoming turn. Signs to prohibit parking in the diverter area are also required.
Location Principles:	Diverters should be placed at intersections between local streets on streets with cut-through traffic problems.
Approximate Cost:	$10,000

Full Closure

Description:	Full closures are physical obstructions that completely close off entrances and exits from one end of a street segment. Full closures are used to reduce cut-through traffic from neighborhood streets.
Effectiveness:	Full closures are an extremely effective means of reducing traffic on a local street. However, they are not appropriate for multiple streets in a single area.
Disadvantages:	Full closures reduce access for residents, and may delay emergency vehicles and divert traffic to adjacent streets that are not traffic calmed.
Design Guidelines:	Design of full closures should provide for full bicycle access through the closure. Designs should also seek to accommodate emergency vehicles. Dead-ends should be signed with cul-de-sac signs notifying drivers of the upcoming closure.
Location Principles:	Full closures may be used on local streets with severe cut-through traffic problems. They are not appropriate for collectors.
Approximate Cost:	$10,000

Summary of Issues

Determining appropriate traffic calming devices for a particular situation is not a purely objective exercise. Multiple devices may be able to solve a problem from an engineering perspective; final selection of a design will thus be based on other considerations as well, such as cost, aesthetic impact, and public opinion.

Traffic calming plans must also be developed with a systemwide perspective. Poorly designed traffic calming can simply shift problems to parallel streets and adjacent neighborhoods rather than solve them. For this reason, techniques that divert considerable amounts of traffic should only be used where traffic volumes are unacceptably high. In these cases, diverted traffic should be focused toward higher-order streets with a larger carrying capacity rather than onto other local streets.

Creating a design that satisfies all involved parties will require a detailed design process with significant interaction between public officials and private citizens. However, carefully designed traffic calming plans have a proven track record of creating safer and more livable communities, and are well worth the effort they take to create.

CITY OF McMinnville OREGON

Transportation System Plan

Appendix J
Walk-To-School Route Plans

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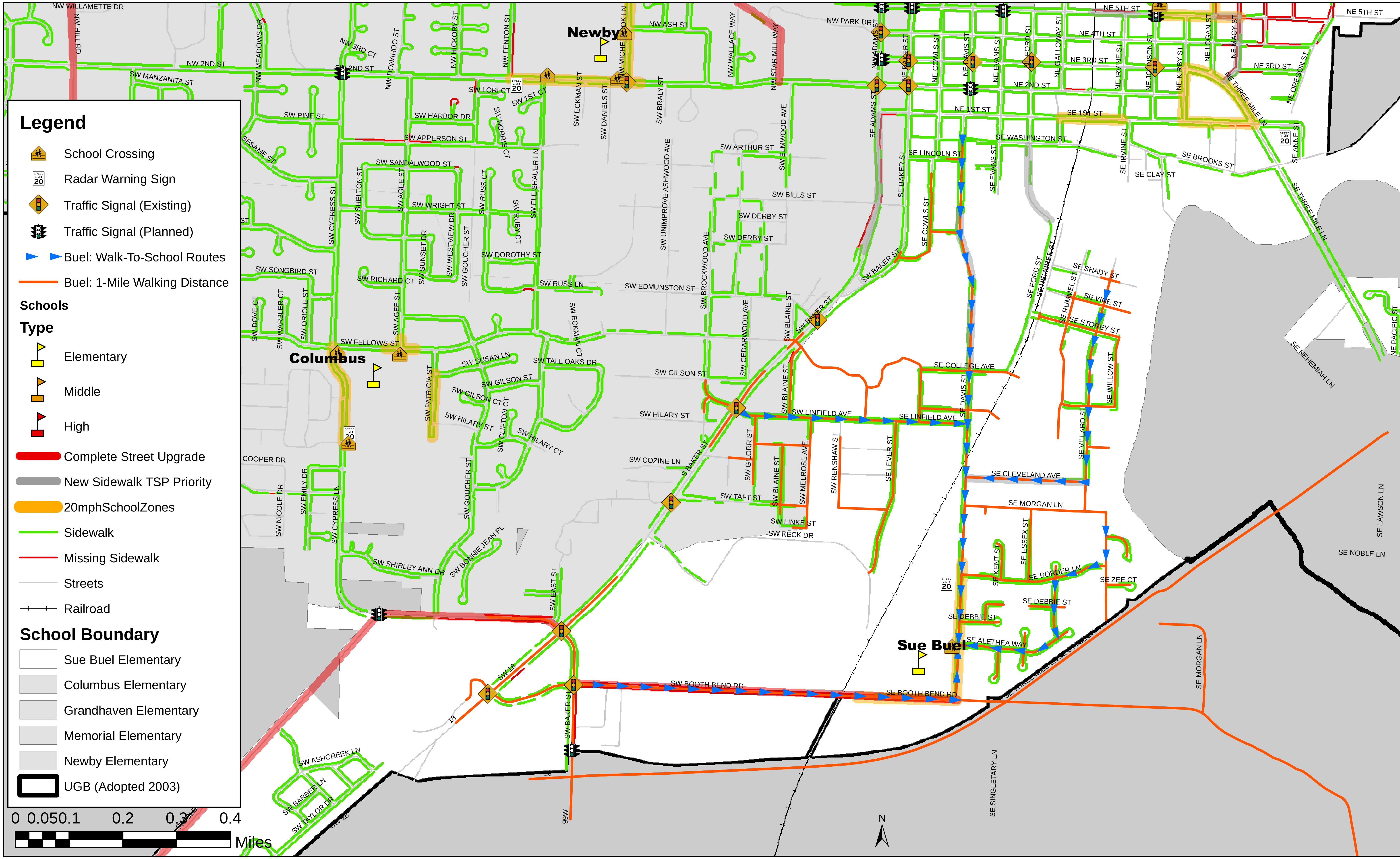
J Walk-To-School Route Plans

This appendix summarizes the McMinnville Walk-To-School Route Plans for each of the seven existing schools:

- Sue Buel Elementary
- Grandhaven Elementary
- Memorial Elementary
- Newby Elementary
- Columbus Elementary
- Patton Middle School
- Duniway Middle School
- McMinnville High School

These route plans were developed based on recommended practices and procedure as outlined in the *School Administrator's Guide to School Walk Routes and Student Pedestrian Safety* (Washington Traffic Safety Commission and Washington State Department of Transportation). Based on the McMinnville School District policy on walking distance for elementary (1 mile) and middle schools (1 ½ mile), walk routes were identified while considering the following:

- routes that provide the greatest physical separation between walking children and traffic
- exposure of children to the lowest vehicular speeds and volume
- minimization of street and rail crossings, targeting designated crosswalks and traffic signals where possible, and
- walk route plans do not necessarily need to cover all neighborhood streets.



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Sue Buel Elementary School: Walk-To-School Routes

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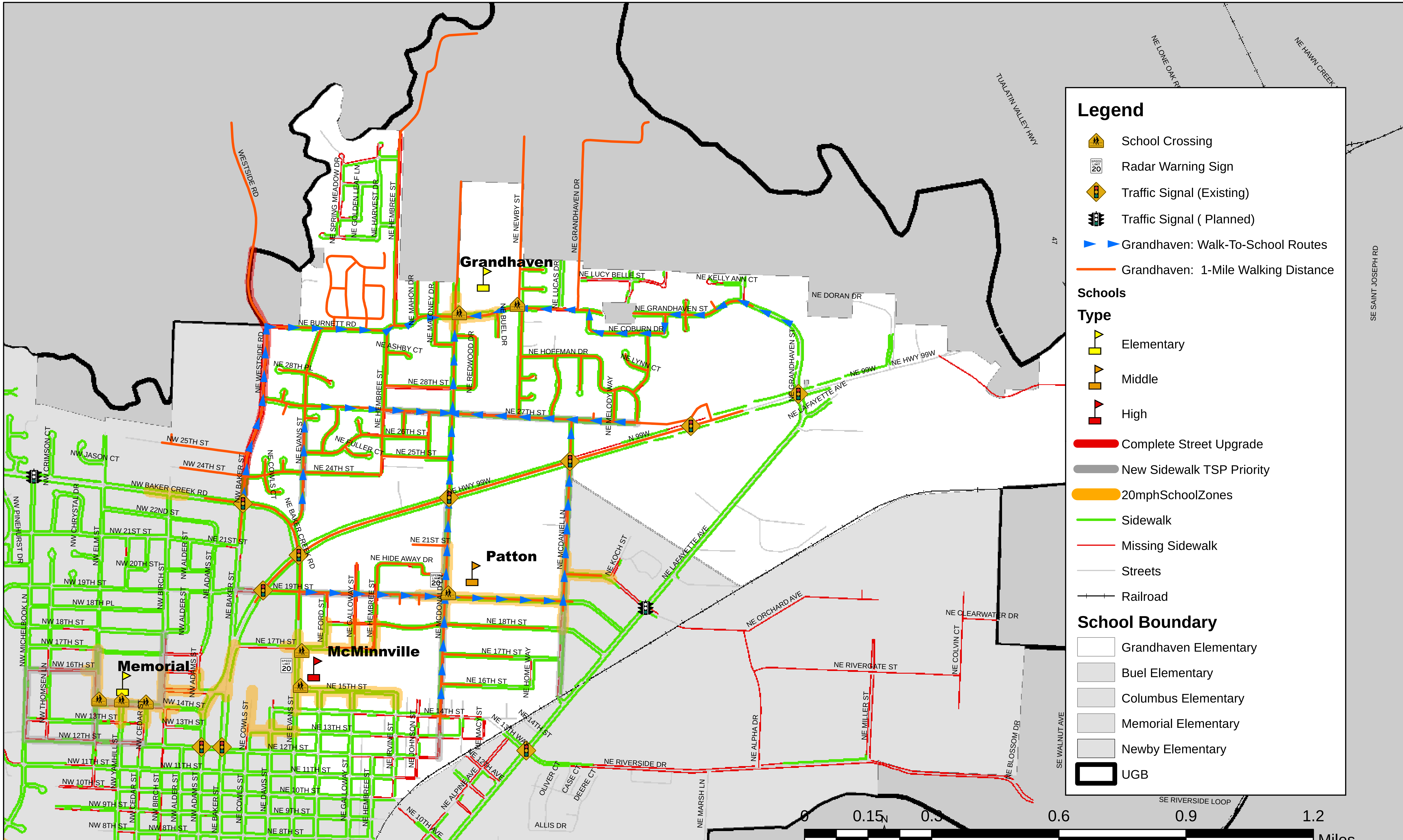
Exhibit J-1



Grandhaven Elementary School: Walk-To-School Routes

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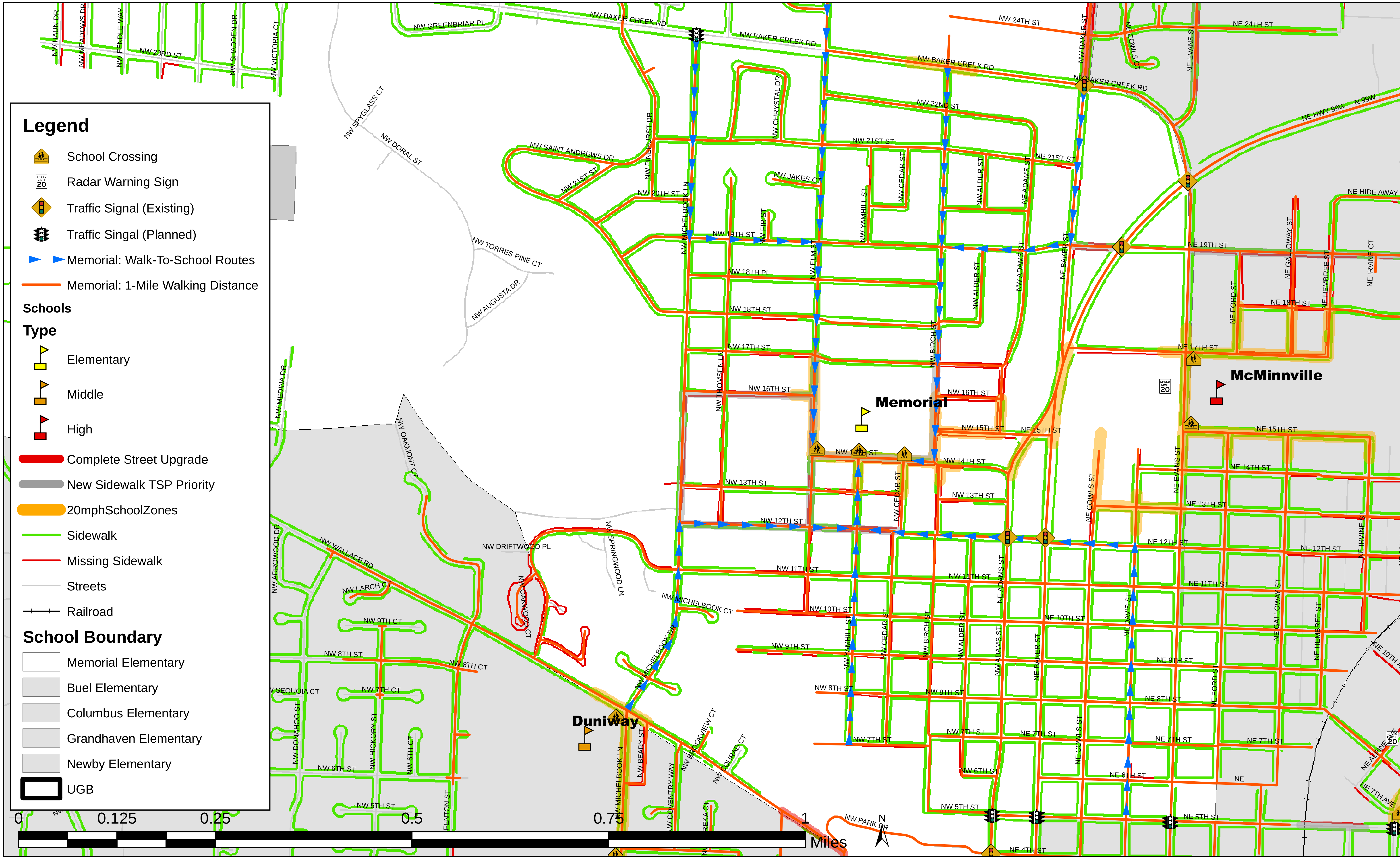
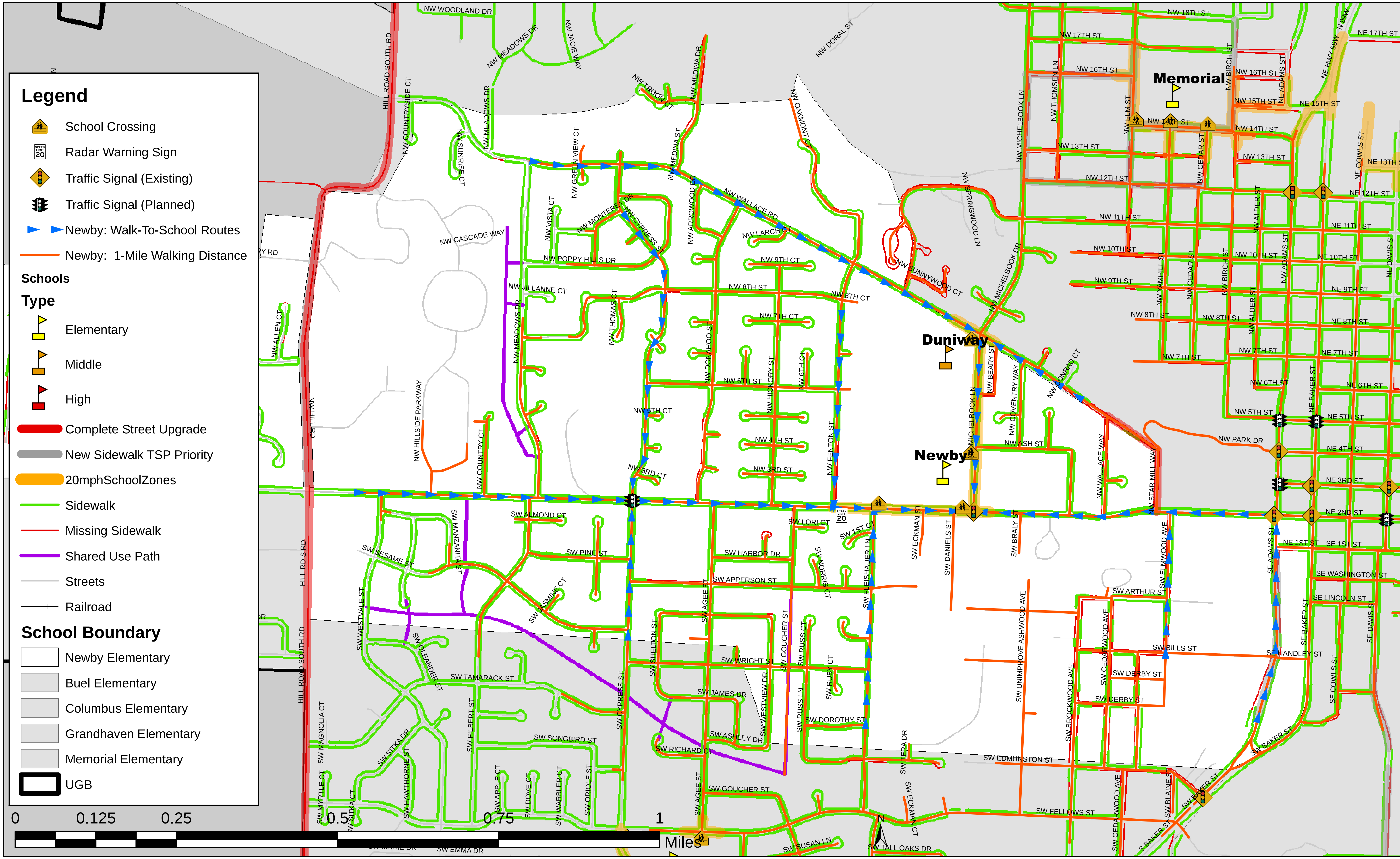
Exhibit J-2



Memorial Elementary School: Walk-To-School Routes

McMinnville TSP

Exhibit J-3



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Newby Elementary School: Walk-To-School Routes

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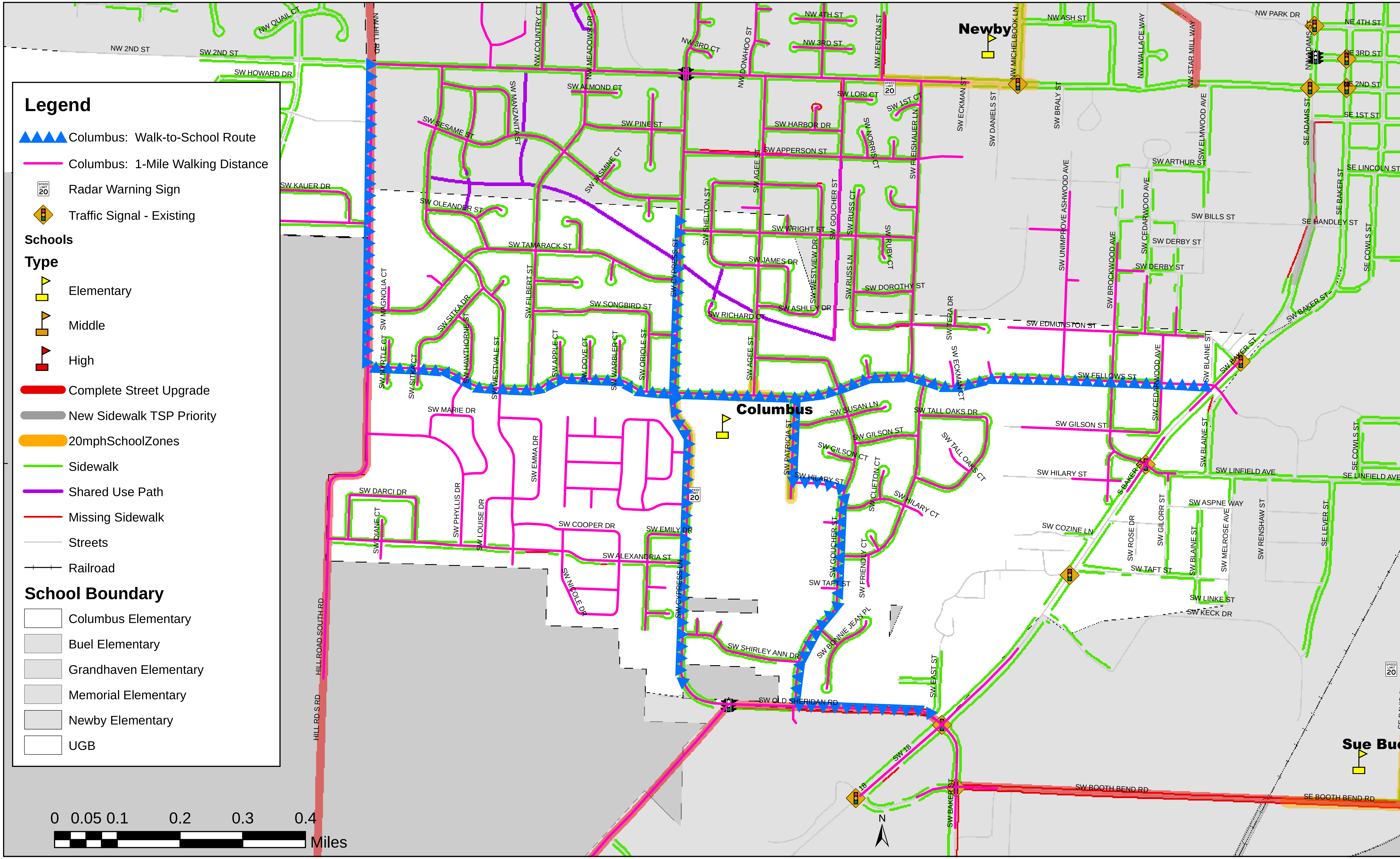
Exhibit J-4



Columbus Elementary School: Walk-To-School Routes

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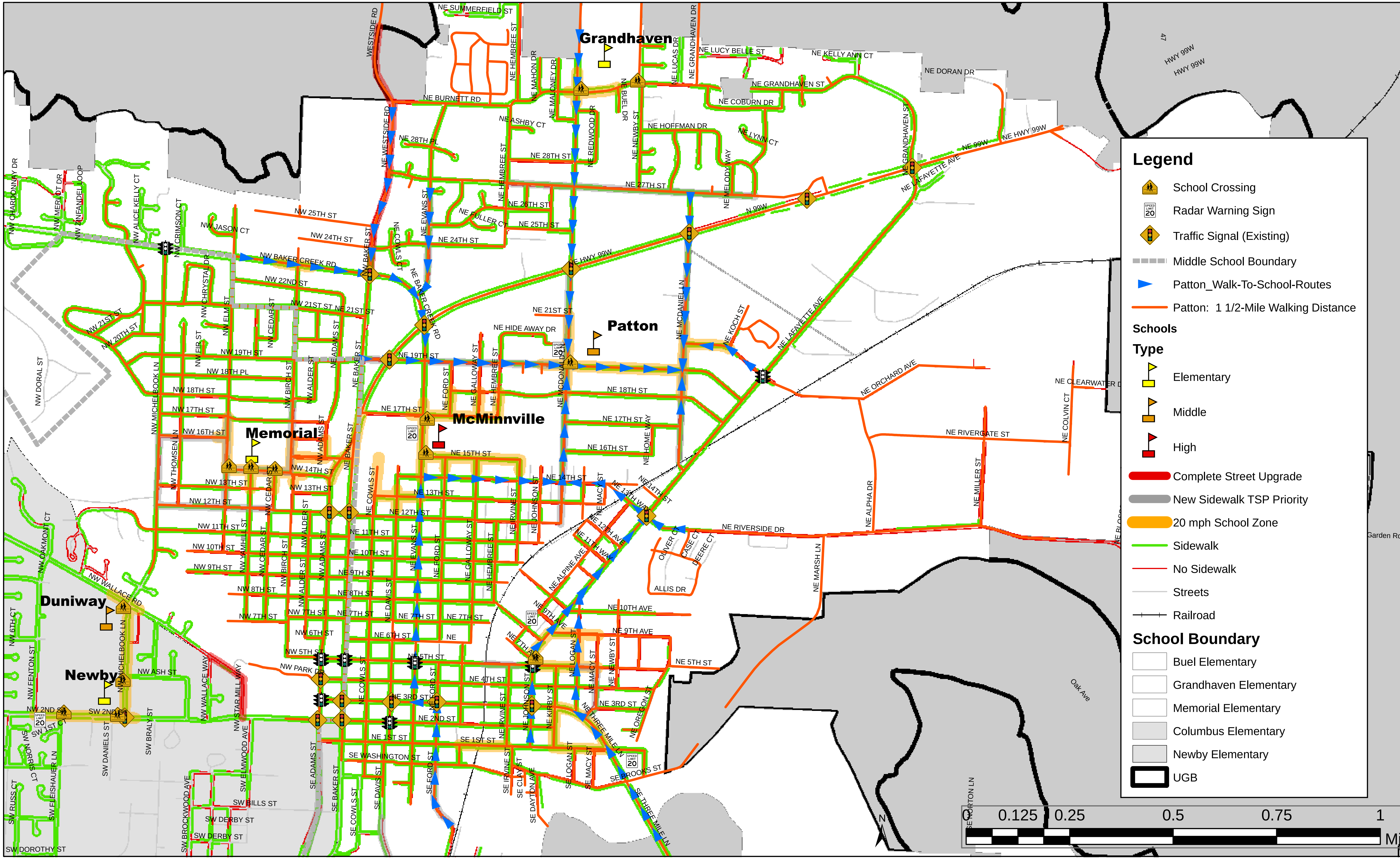
Exhibit J-8



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Patton Middle School: Walk-To-School Routes

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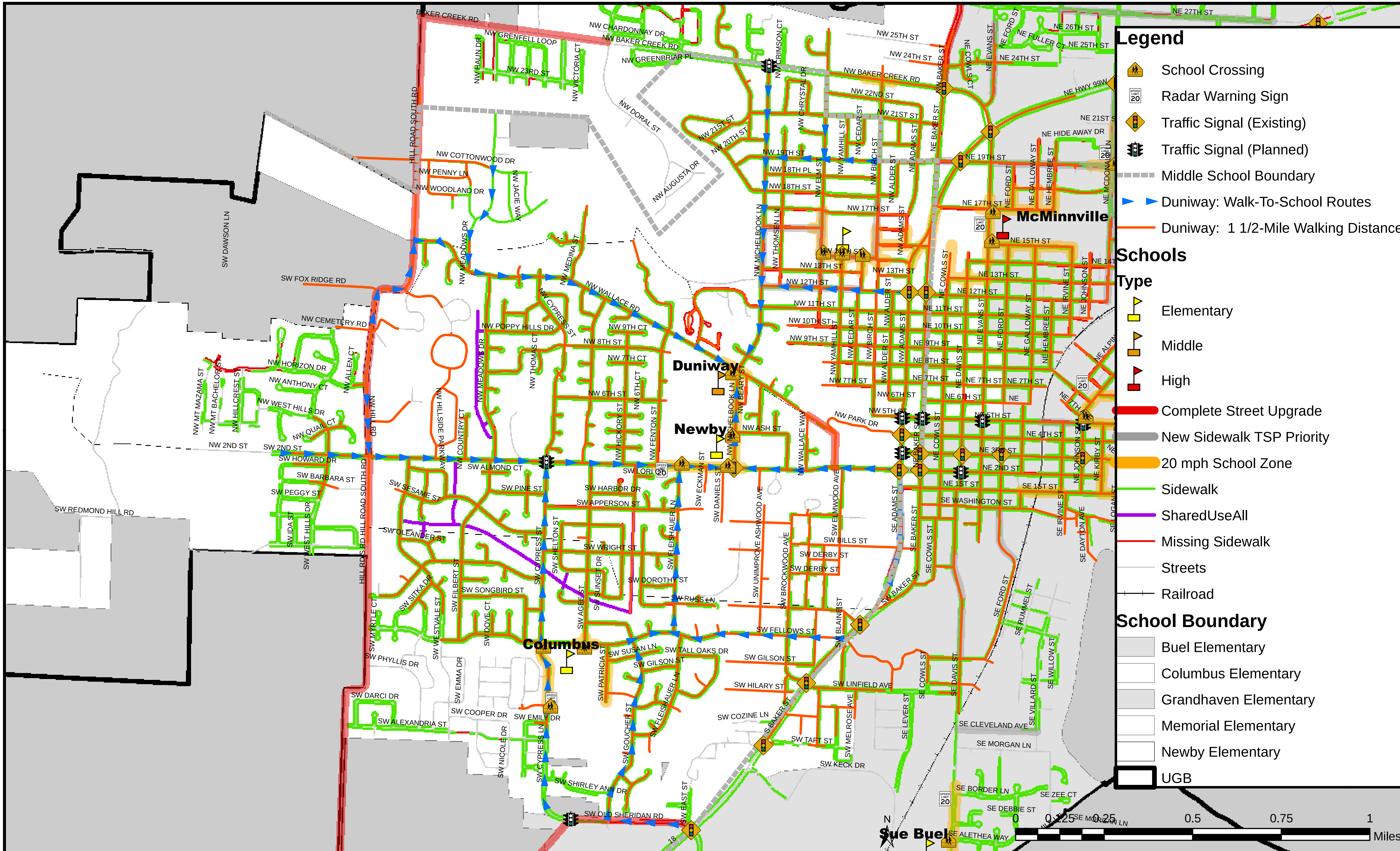
Exhibit J-6



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Duniway Middle School: Walk-To-School Routes

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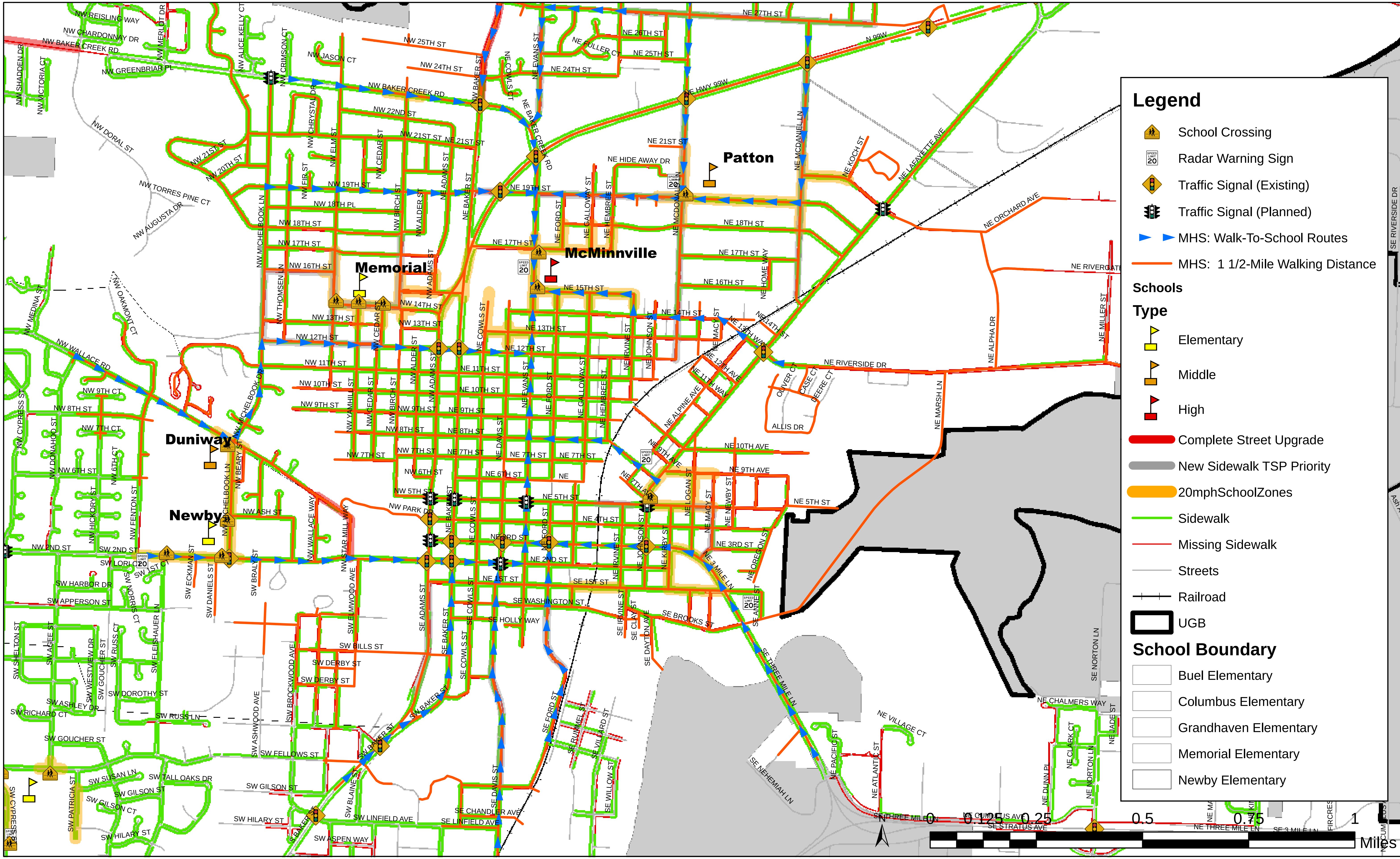
Exhibit J-5



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McMinnville High School: Walk-To-School Routes

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Exhibit J-7