



Transportation System Plan



Chapter 6 Bicycle System Plan

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.

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.



Bike Lane Use on 2nd Street

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-stripped 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.

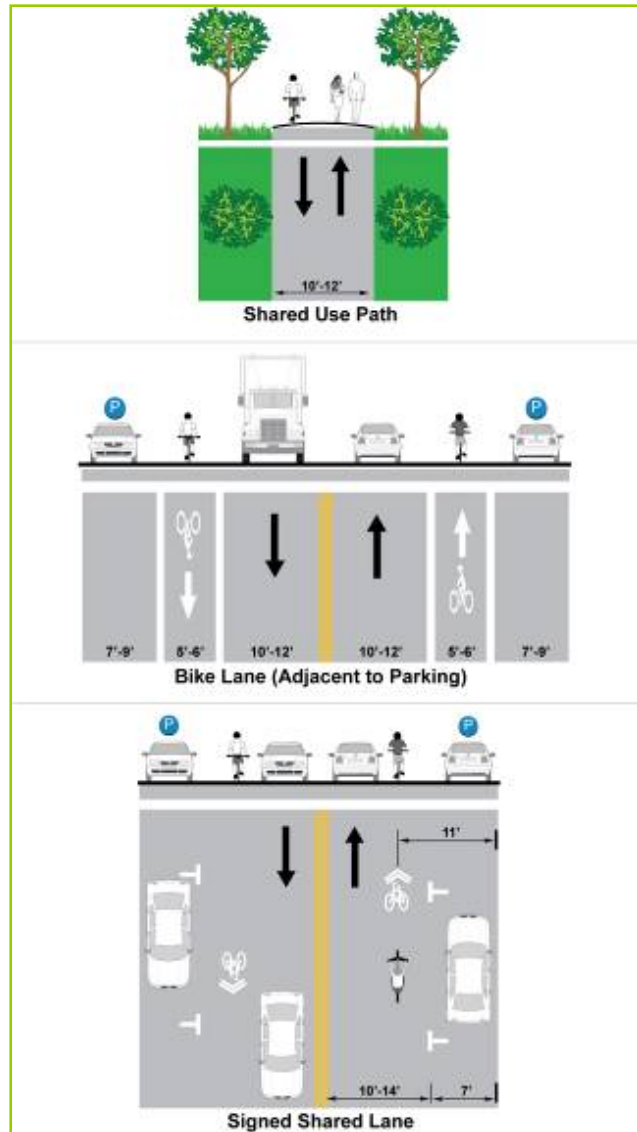


Shared-Use Path

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:

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.



Source: www.canada.com

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.

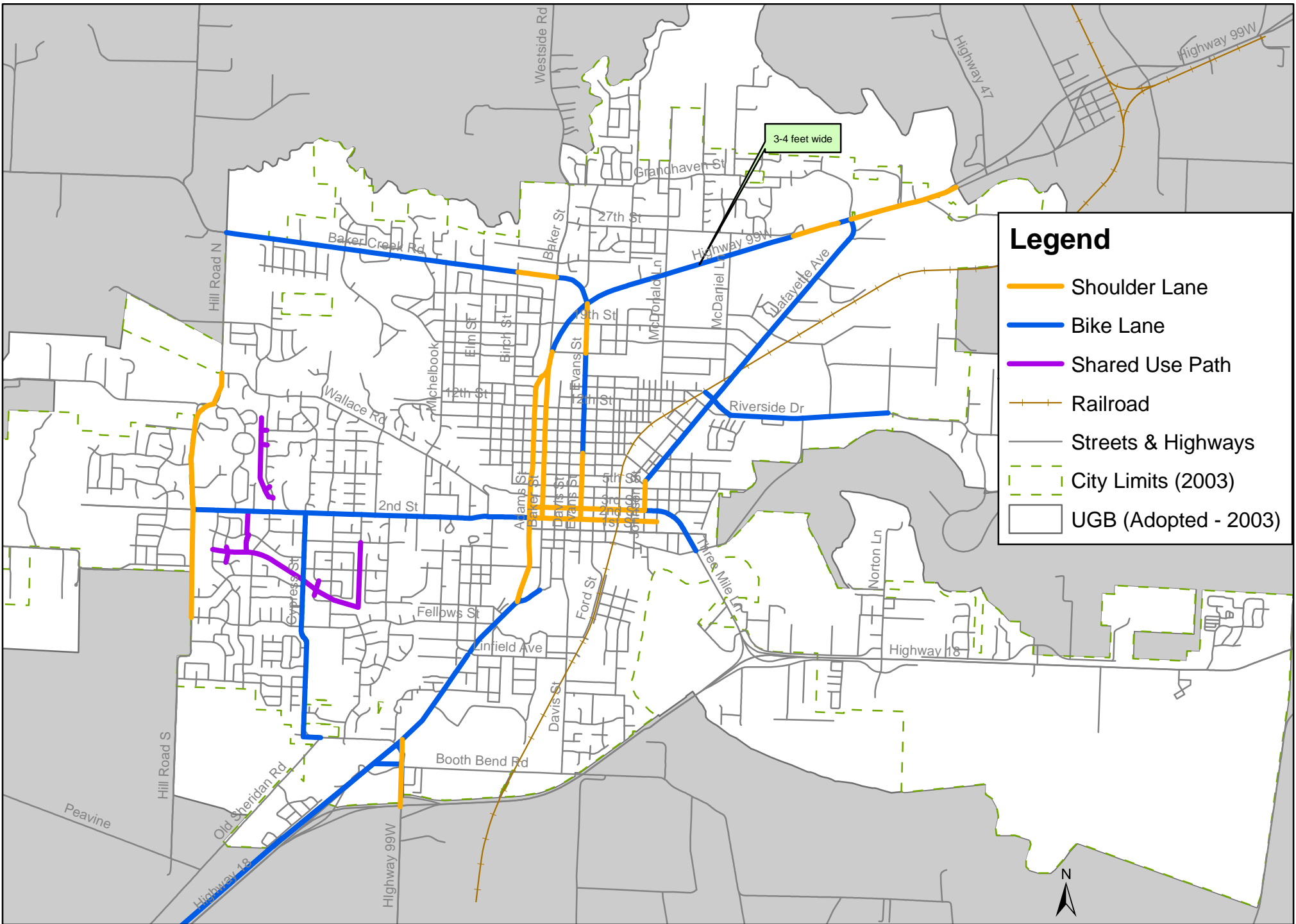


Bike Lane on Highway 99W

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



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.

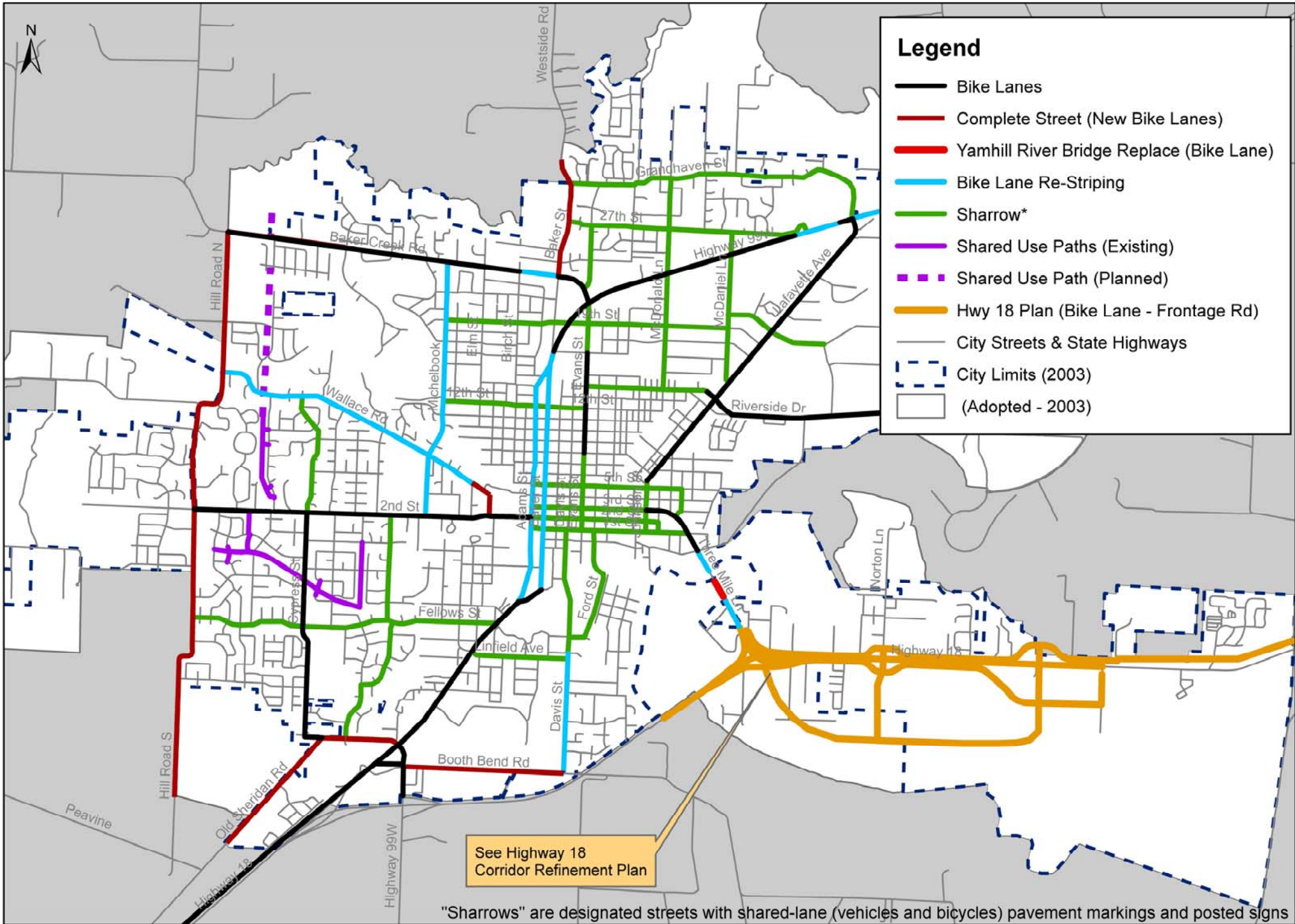
Road Diets – Re-Striping Streets to Add Bicycle Lanes

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



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 widths⁴.

Exhibit 6-4 Road Diet – Baker Creek Road

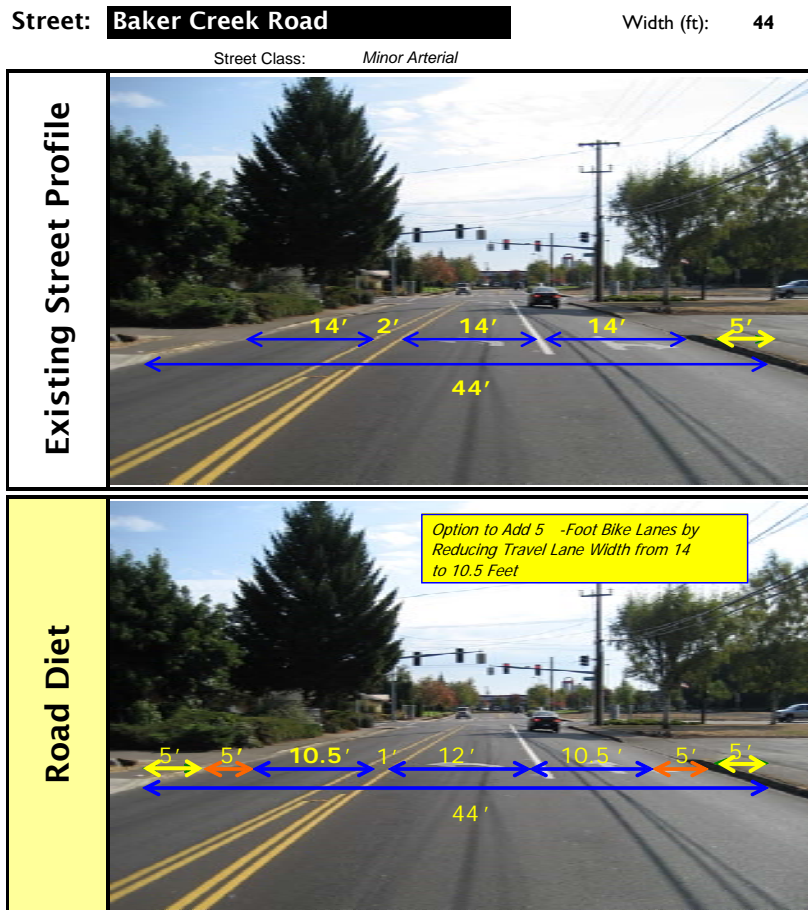


Exhibit 6-5 illustrates a similar Road Diet application on Wallace Road. Wallace Road serves largely residential traffic. The Road Diet application would yield new bicycle lanes, and with reduced travel lane widths the presiding traffic speeds may also slow to desired levels.

Exhibit 6-5 Road Diet – Wallace Road

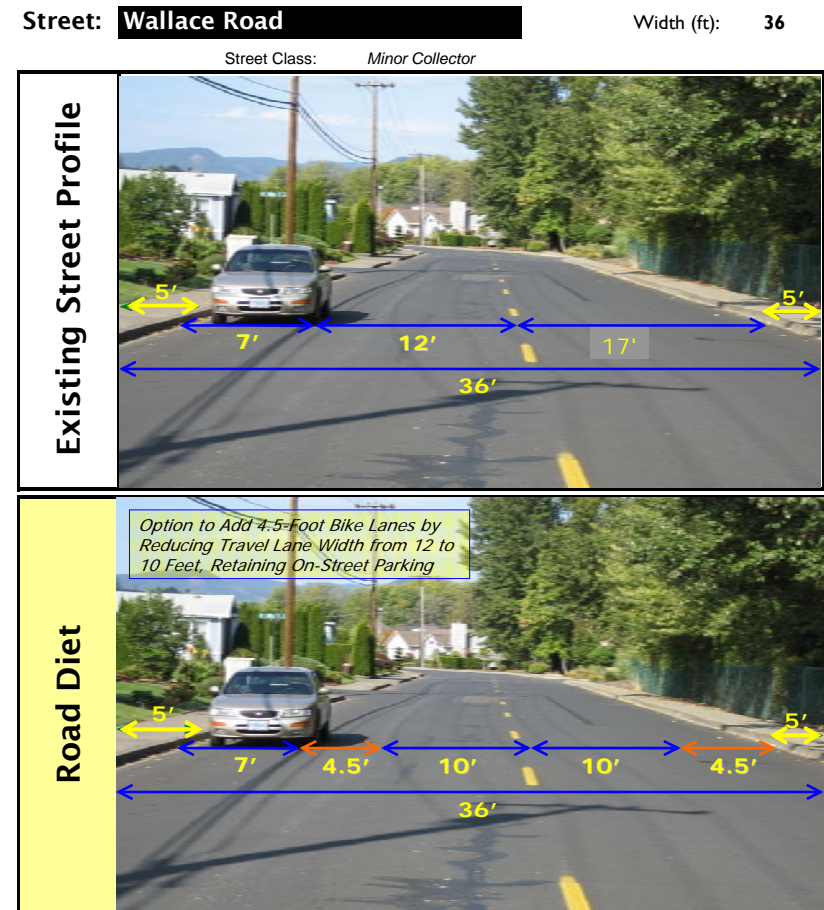
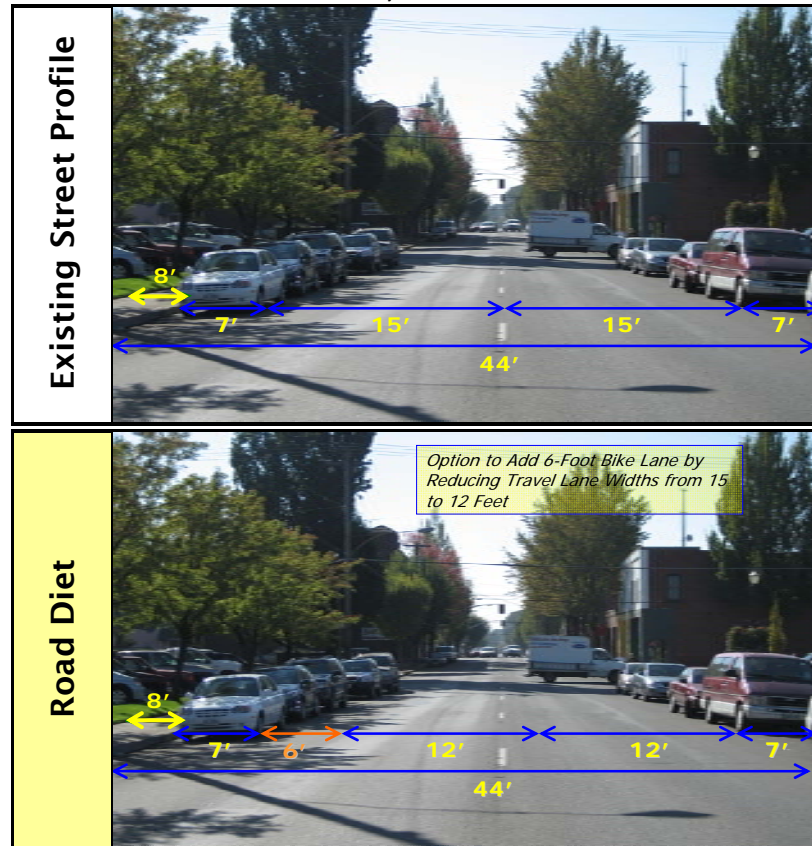


Exhibit 6-6 illustrates another Road Diet application, in this example on Highway 99W (Baker Street) within the one-way couplet section. By reducing travel lanes from 15 to 12 feet, a new 6-foot bike lane can be added.

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



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

Bicycle Design Guide

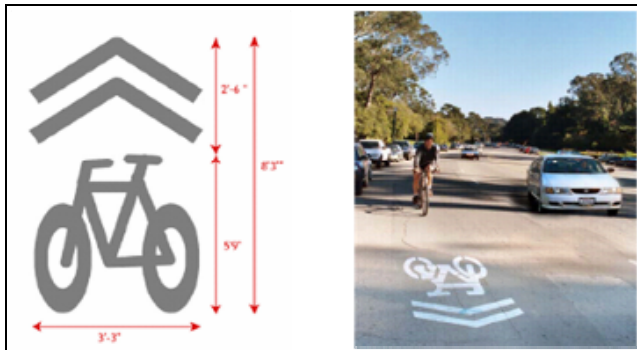
This chapter also includes recommendations for new or revised bicycle facility design guides as part of the McMinnville TSP.

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 Plan⁵.

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 Study⁶."

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-stripping 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.