



Transportation System Plan



Chapter 5 Pedestrian System Plan

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 2004³ 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 researchers⁴ 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.
- **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.



Need for Sidewalks and Greater Connectivity

- **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).

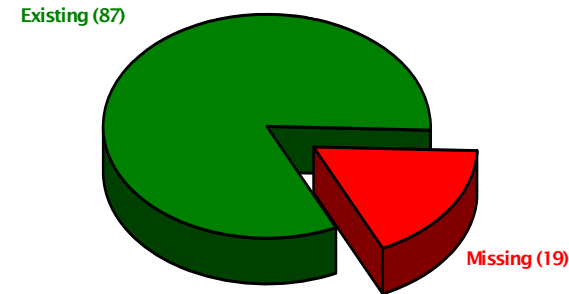
Existing Conditions

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

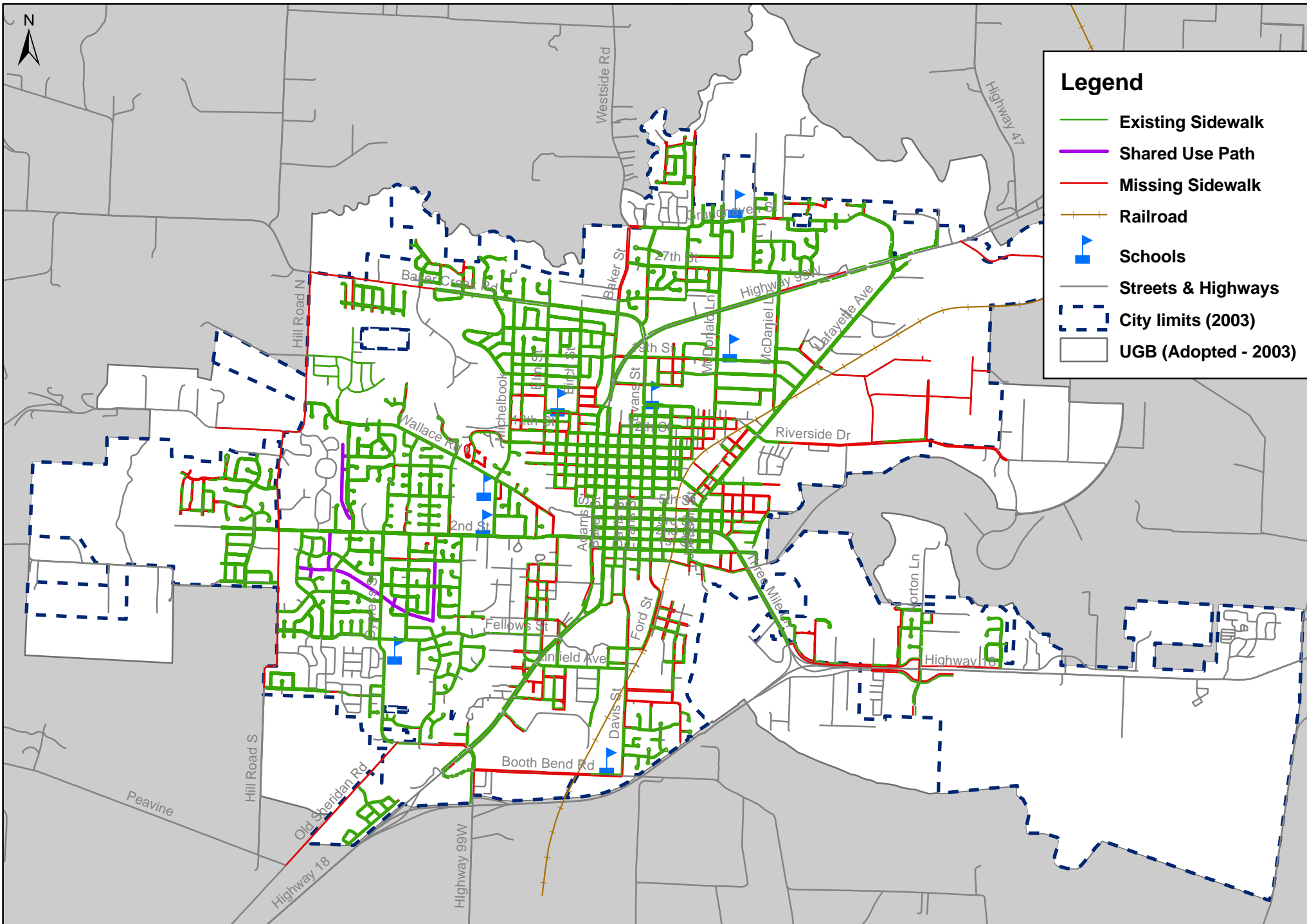
The curb ramp inventory included identifying the curb ramp type and various curb ramp characteristics, as shown in **Exhibit 5-3**.

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



Legend

- Existing Sidewalk
- Shared Use Path
- Missing Sidewalk
- Railroad
- Schools
- Streets & Highways
- City limits (2003)
- UGB (Adopted - 2003)

Exhibit 5-3 Curb Ramp Types

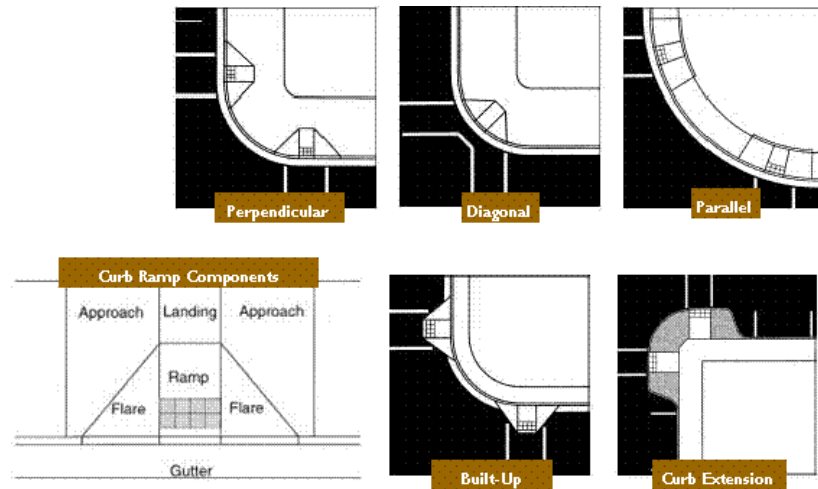
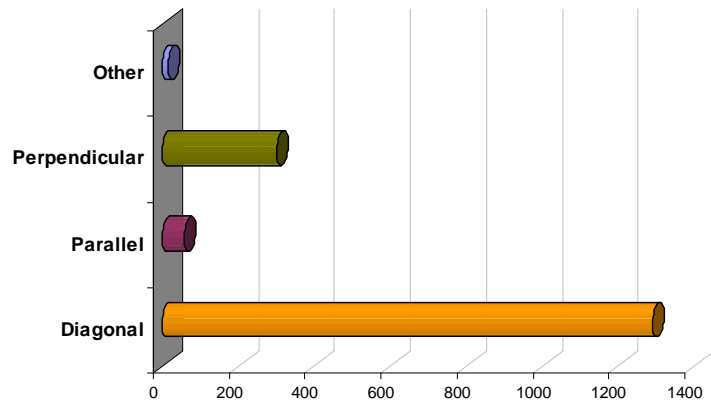


Exhibit 5-4 McMinnville Curb Ramps



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

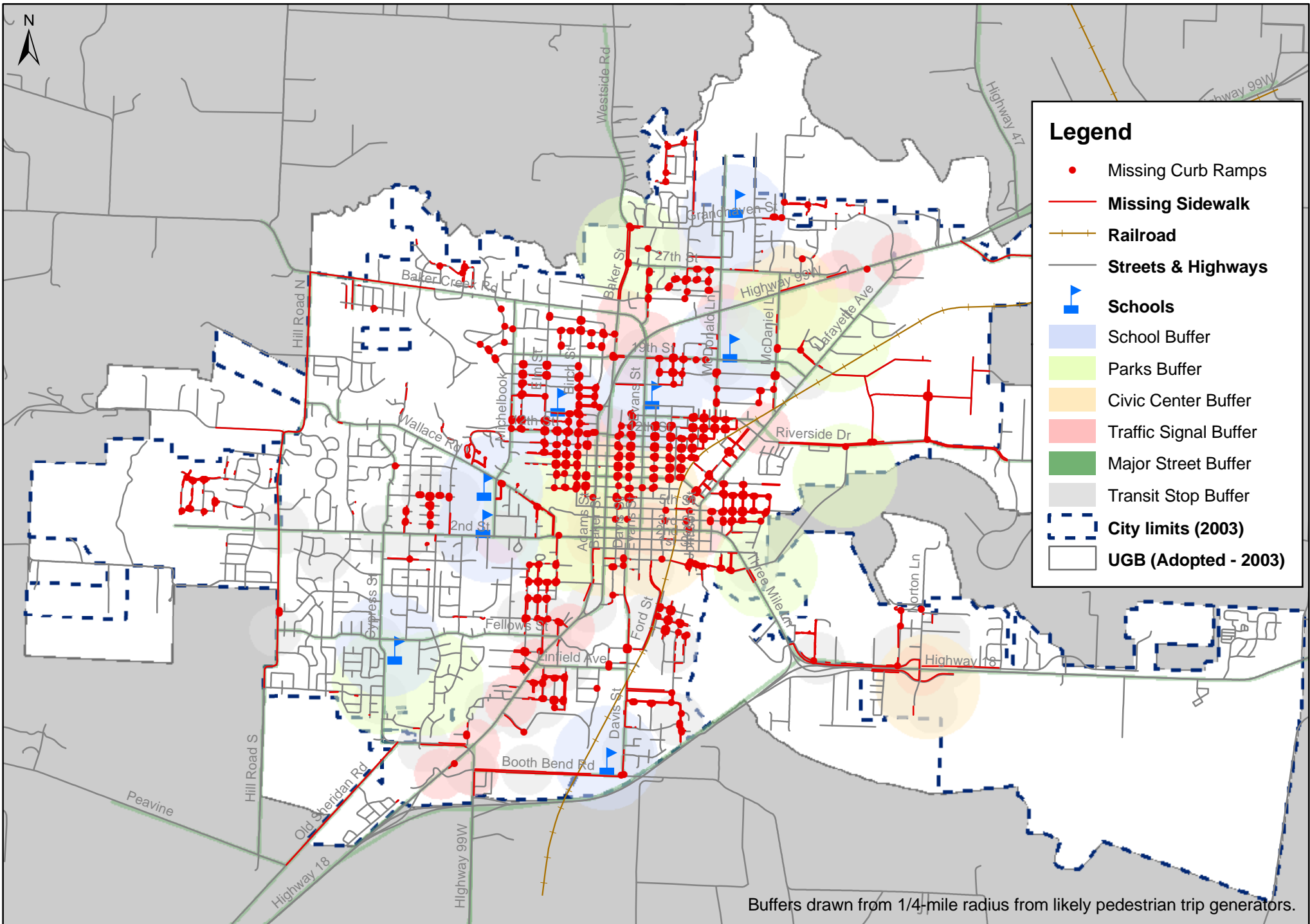
These priority improvements will add approximately four miles of new sidewalks. **Exhibit 5-6** maps the Pedestrian System Plan, including new sidewalk projects. See **Appendix D** for project cost estimates.

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	



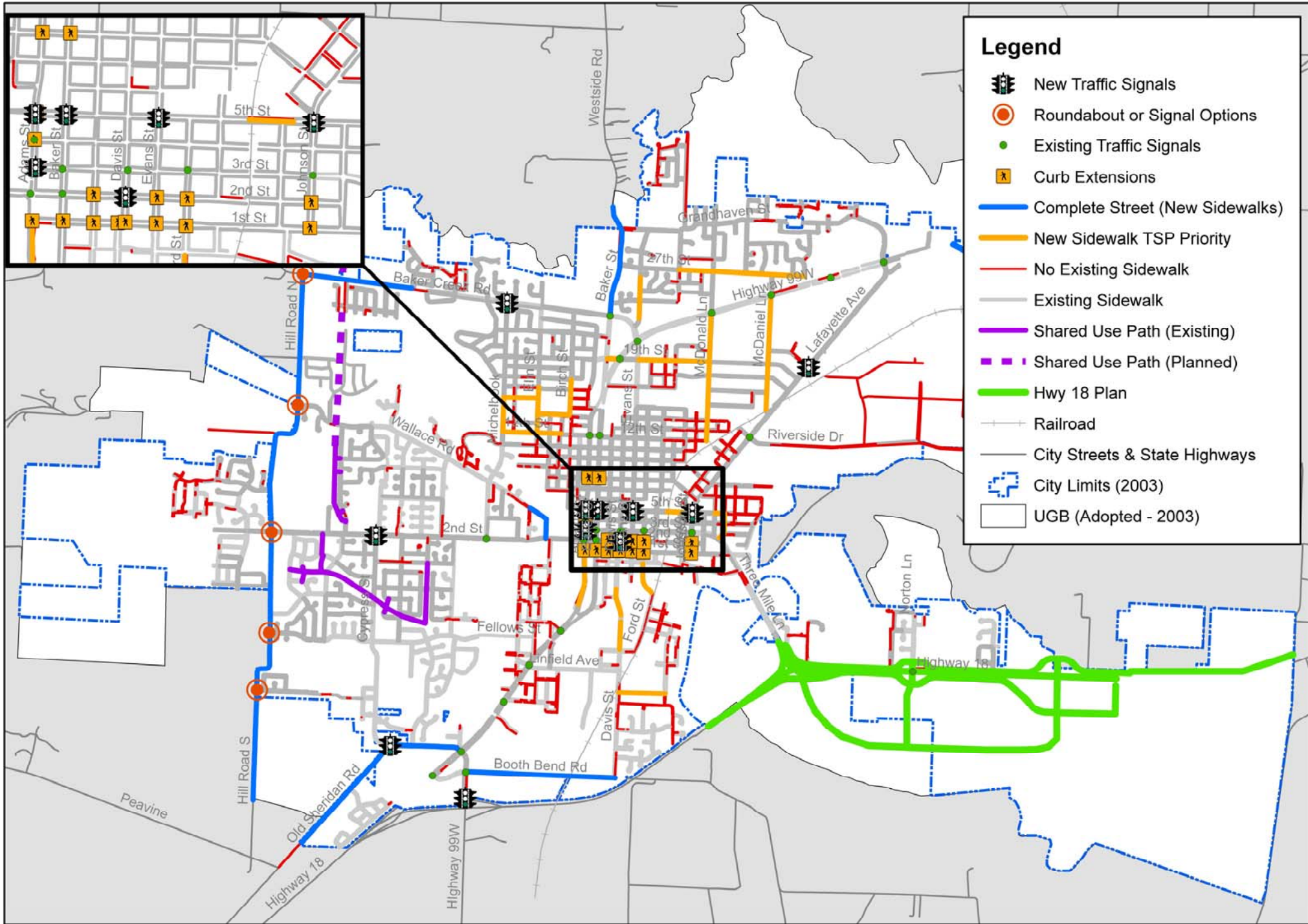
Buffers drawn from 1/4-mile radius from likely pedestrian trip generators.

Accessibility Measures to Help Prioritize Pedestrian Improvements

McMinnville TSP



Exhibit 5-5



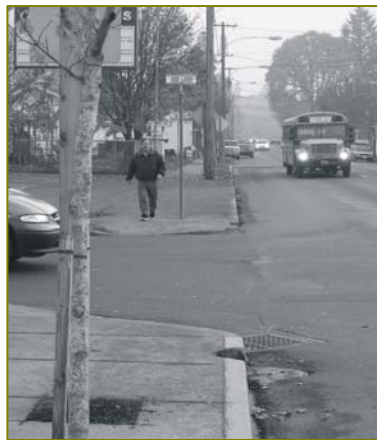
Adams and Baker Street Corridor

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.

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.



Sidewalks and Curb Ramps on Baker Street

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 McMinnville⁵. A “Test Block” was identified in the Plan for the section of Third Street from Cows 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 Cows 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 Cows 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

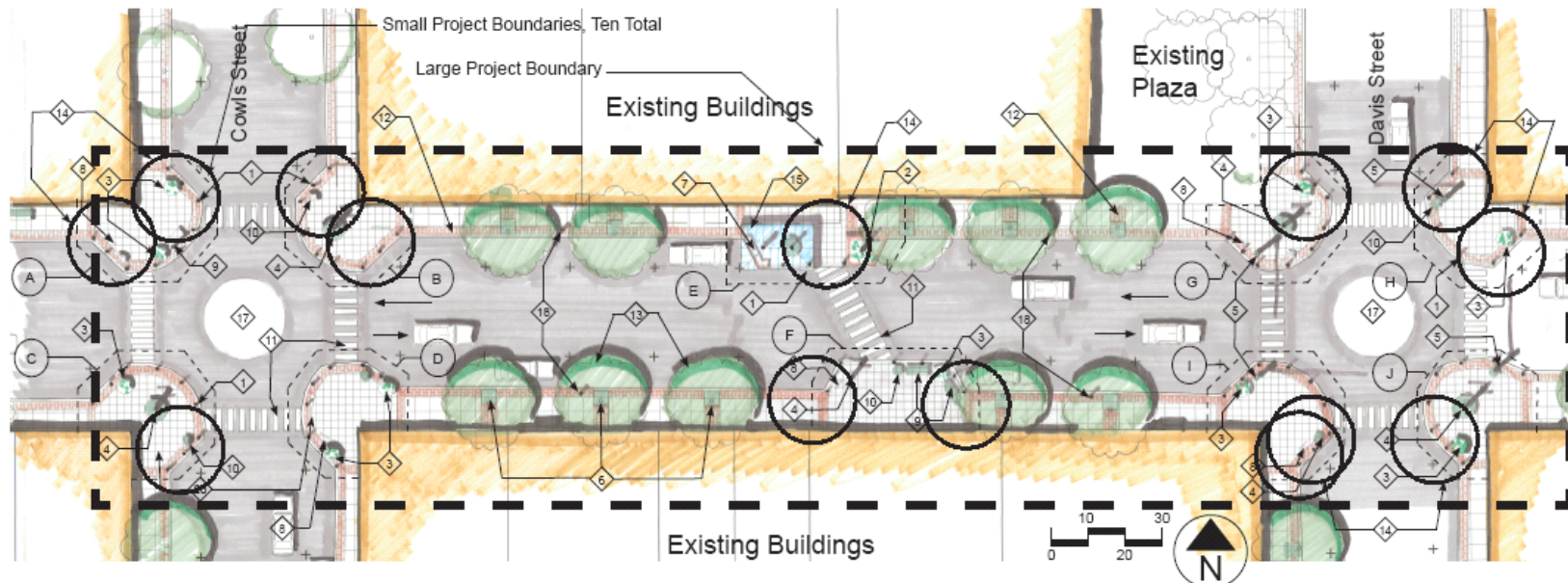
Small localized projects denoted by letters A-J are improvements that can be completed on a phased schedule. Projects require only asphalt patching at adjacent street, without street demolition and with only localized utility work.

Large Project Description

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

Keynotes

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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 |
|---|--|--|



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 speed
- 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 MUTCD⁶ 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 Guidelines⁷ 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.*

- **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.

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.

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.