ATTACHMENT C

ORDINANCE NO. 5107

AN ORDINANCE ADOPTING THE OR 99W (LINFIELD TO MCDONALD) ACTIVE TRANSPORTATION CONCEPT PLAN AND ITS APPENDIX AS A SUPPLEMENTAL DOCUMENT TO THE MCMINNVILLE TRANSPORTATION SYSTEM PLAN AND AMENDING CHAPTER 6 OF THE MCMINNVILLE TRANSPORTATION SYSTEM PLAN, ENTITLED BICYCLE PLAN, TO ADD BUFFERED BIKE LANES AND NEIGHBORHOOD GREENWAYS AS BICYCLE FACILITY TYPES TO UTILIZE IN MCMINNVILLE.

RECITALS:

WHEREAS, on February 23, 2010, the McMinnville City Council approved Ordinance No. 4922 adopting the *McMinnville Transportation System Plan* as part of the *McMinnville Comprehensive Plan*; and

WHEREAS, on May 25, 2010, the McMinnville City Council approved Ordinance No. 4927 amending the *McMinnville Transportation System Plan*; and

WHEREAS, Chapter 5, Pedestrian System Plan, of the *McMinnville Transportation System Plan*, identified the "need to better link and weave the Highway 99W corridor into the multi-modal fabric of greater McMinnville, with strategic pedestrian connections to Downtown"; and

WHEREAS, Chapter 5, Pedestrian System Plan, of the *McMinnville Transportation System Plan*, also states that "there is also 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"; and

WHEREAS, on pages 5-10 and 5-11 of the *McMinnville Transportation System Plan*, the plan notes that "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"; and

WHEREAS, in July 2020, the Oregon Department of Transportation Active Trans Group, approached the City of McMinnville about preparing an Active Trans Plan for Oregon Highway 99W in McMinnville as a pilot program for the *Blueprint for Urban Design*; and

WHEREAS, From August 2020 to April 2021, a Project Management Team (PMT) worked with a Public Advisory Committee (PAC) and the consultants on evaluating existing conditions and recommending a draft *OR 99W Active Trans Plan from NE McDonald Lane to Linfield Avenue*; and

WHEREAS, On April 27, 2021, a joint work session was conducted with the McMinnville City Council and McMinnville Planning Commission to present the final draft of the plan; and

WHEREAS, on October 21, 2021, the Planning Commission held a duly noticed public hearing to consider the proposed amendments and the Planning Commission recommended approval of the proposed amendments; and

WHEREAS, Docket G 4-21 is a legislative package of City-initiated *McMinnville Transportation System Plan* amendments related to Active Transportation; and

WHEREAS, the City Council, being fully informed about said request, found that the requested amendments conformed to the applicable Comprehensive Plan goals and policies, as well as the McMinnville Municipal Code based on the material submitted by the Planning Department and the findings of fact and conclusionary findings for approval contained in Exhibit A; and

WHEREAS, the City Council having received the Planning Commission recommendation and staff report, and having deliberated;

NOW, THEREFORE, THE COMMON COUNCIL FOR THE CITY OF MCMINNVILLE ORDAINS AS FOLLOWS:

1. That the Council adopts the Decision, Findings of Fact and Conclusionary Findings, as documented in Exhibit A for G 4-21; and

2. That the *OR 99W (Linfield to McDonald) Active Transportation Concept Plan* and its Appendix are adopted as a supplemental document to the *McMinnville Transportation System Plan* as provided in Exhibits C and D.

3. That Chapter 6 of the *McMinnville Transportation System Plan* is amended as provided in Exhibit D.

4. That this Ordinance shall take effect 30 days after its passage by the City Council:

Passed by the Council this 14th day of December 2021, by the following votes:

Ayes: Drabkin, Garvin, Geary, Menke, Peralta, Chenoweth

Nays: ______

Scott A. Hill

MAYOR

Attest: Claudia Cisneros

CITY RECORDER

Approved as to form:

CITY ATTORNEY

Exhibits:

Exhibit A: Decision Document – G 4-21
Exhibit B: *OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan*
Exhibit C: *OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan Appendix*
Exhibit D: Amendment to Chapter 6, Bicycle System Plan, *McMinnville Transportation System Plan*

EXHIBIT A – ORDINANCE NO. 5107

CITY CITY OF MCMINNVILLE
PLANNING DEPARTMENT
231 NE FIFTH STREET
MCMINNVILLE, OR 97128

503-434-7311
www.mcminnvilleoregon.gov

DECISION, CONDITIONS OF APPROVAL, FINDINGS OF FACT AND CONCLUSIONARY FINDINGS FOR THE APPROVAL OF AMENDING THE MCMINNVILLE COMPREHENSIVE PLAN BY ADOPTING THE MCMINNVILLE OR 99W (NE MCDONALD LANE TO LINFIELD AVENUE) ACTIVE TRANSPORTATION CONCEPT PLAN AS A SUPPLEMENTAL DOCUMENT TO THE CITY OF MCMINNVILLE TRANSPORTATION SYSTEM PLAN.

DOCKET: G 4-21

REQUEST: The City of McMinnville is proposing to amend the McMinnville Comprehensive Plan by adopting the *McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan* as a supplemental document to the City of McMinnville Transportation System Plan and to add Buffered Bike Lanes and Neighborhood Greenways to Chapter 6, Bicycle System Plan, of the Transportation System Plan, as bicycle facility types to utilize in McMinnville.

LOCATION: City-Wide

ZONING: N/A

APPLICANT: City of McMinnville

STAFF: Heather Richards, Planning Director

HEARINGS BODY: McMinnville Planning Commission

DATE & TIME: October 21, 2021. Public hearing held virtually via Zoom meeting software, Zoom Online Meeting ID 892 4702 7868.

DECISION-MAKING BODY: McMinnville City Council

DATE & TIME: December 14, 2021. Meeting held virtually via Zoom meeting software. Zoom Online Meeting ID 810 3108 8042

PROCEDURE: The application is subject to the legislative land use procedures specified in Sections 17.72.120 - 17.72.160 of the McMinnville Municipal Code.

CRITERIA: Amendments to the McMinnville Comprehensive Plan must be consistent with Oregon State Regulations (ORS) governing Oregon land use goals, the Goals and Policies in Volume II of the Comprehensive Plan, and the Purpose of the Zoning Ordinance.

APPEAL: The Planning Commission will make a recommendation to the City Council. The City Council's decision on a legislative amendment may be appealed to the Oregon Land Use Board of Appeals (LUBA) within 21 days of the date written notice of the City Council's decision is mailed to parties who participated in the local proceedings and are entitled to notice and as provided in ORS 197.620 and ORS 197.830, and Section 17.72.190 of the McMinnville Municipal Code.

DECISION

Based on the findings and conclusions and the recommendation of the McMinnville Planning Commission, the McMinnville City Council **APPROVES** the attached Comprehensive Plan amendments (G 4-21).

//

DECISION: APPROVAL

//

City Council: Scott a. Hill Date: 12-15-2021
Scott Hill, Mayor of McMinnville

Planning Commission: Roger a. Hall Date: 4-5-2022
Roger Hall, Chair of the McMinnville Planning Commission

Planning Department: [signature] Date 4/4/22
Heather Richards, Planning Director

I. APPLICATION SUMMARY:

The City of McMinnville is proposing to amend the McMinnville Comprehensive Plan by adopting the *McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan* as a supplemental document to the City of McMinnville Transportation System Plan and to add Buffered Bike Lanes and Neighborhood Greenways to Chapter 6, Bicycle System Plan, of the Transportation System Plan, as bicycle facility types to utilize in McMinnville.

II. CONDITIONS OF APPROVAL

None.

III. FINDINGS OF FACT

1. In July 2020, the Oregon Department of Transportation, Active Trans Group, approached the City of McMinnville about preparing an Active Trans Plan for Oregon Highway 99W in McMinnville as a pilot program for the ***Blueprint for Urban Design***.

2. From August 2020 to April 2021, a Project Management Team (PMT) worked with a Public Advisory Committee (PAC) and the consultants on evaluating existing conditions and recommending a draft OR 99W Active Trans Plan from NE McDonald Lane to Linfield Avenue.

3. On April 27, 2021, a joint work session was conducted with the McMinnville City Council and McMinnville Planning Commission to present the final draft of the plan.

4. Notice of the proposed amendment was provided to the Department of Land Conservation and Development (DLCD) on September 15, 2021.

5. Notice of the application and October 21, 2021, Planning Commission public hearing was published in the News Register on Tuesday, October 12, 2021, in accordance with Section 17.72.120 of the Zoning Ordinance.

6. On October 21, 2021, the Planning Commission held a duly noticed public hearing to consider the request and voted to recommend the approval of the proposed comprehensive plan amendments to the McMinnville City Council.

7. On December 14, 2021, the McMinnville City Council held a meeting to consider the Planning Commission's recommendation and voted to adopt Ordinance No. 5107 approving the comprehensive plan amendments.

IV. COMMENTS RECEIVED

The following comments were received in support of the plan and are on file with the City of McMinnville Planning Department.

- Email from Abigail Quist, 10.21.21
- Email from Amy Bizon, 10.21.21
- Email from Casey Rich, 10.21.21
- Email from Cole Gross, 10.21.21

- Email from Corey Rich, 10.21.21
- Email from David Barsotti, 10.21.21
- Email from Hallie Carpenter, 10.21.21
- Email from Jas Carpenter, 10.21.21
- Email from Jeff Burgess, 10.21.21
- Email from Jeff McNamee, 10.21.21
- Email from Jill Driggs Gross, 10.21.21
- Email from Jill Mann, 10.21.21
- Email from Katie Baker, 10.21.21
- Email from Kitri McGuire, 10.21.21
- Email from Kourtney Wessels, 10.21.21
- Email from Lisa Macy, 10.21.21
- Email from Lysha Wasser, 10.21.21
- Email from Mary Sue Macy, 10.21.21
- Email from Matthew Roth, 10.21.21
- Email from Phil Higgins, 10.21.21
- Email from Ron Baker, 10.21.21
- Email from Shannon Dunn, 10.21.21
- Email from Sid Winfield, 10.21.21
- Email from Sinelli Harney, 10.21.21
- Email from Tara Rich, 10.21.21
- Email from Travis McGuire, 10.21.21
- Email from Willamette Valley Cyclists, 10.21.21

V. CONCLUSIONARY FINDINGS:

Alignment with Oregon's Statewide Planning Goals and Administrative Rules:

Oregon Statewide Planning Goal #1, Citizen Involvement (OAR 660-015-0000(1)) – To develop a citizen involvement program that ensures the opportunity for citizens to be involved in all phases of the planning process.

> The governing body charged with preparing and adopting a comprehensive plan shall adopt and publicize a program for citizen involvement that clearly defines the procedures by which the general public will be involved in the ongoing land-use planning process.
>
> The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and of information that enables citizens to identify and comprehend the issues.
>
> Federal, state and regional agencies and special-purpose districts shall coordinate their planning efforts with the affected governing bodies and make use of existing local citizen involvement programs established by counties and cities.
>
> The citizen involvement program shall incorporate the following components:
>
> 1. Citizen Involvement -- To provide for widespread citizen involvement. The citizen involvement program shall involve a cross-section of affected citizens in all phases of the planning process. As a component, the program for citizen involvement shall include an officially recognized committee for citizen involvement (CCI) broadly representative of geographic areas and interests related to land use and land-use decisions. Committee members shall be selected by an open, well-publicized public process. The committee for

citizen involvement shall be responsible for assisting the governing body with the development of a program that promotes and enhances citizen involvement in land-use planning, assisting in the implementation of the citizen involvement program, and evaluating the process being used for citizen involvement. If the governing body wishes to assume the responsibility for, development as well as adoption and implementation of the citizen involvement program or to assign such responsibilities to a planning commission, a letter shall be submitted to the Land Conservation and Development Commission for the state Citizen Involvement Advisory Committee's review and recommendation stating the rationale for selecting this option, as well as indicating the mechanism to be used for an evaluation of the citizen involvement program. If the planning commission is to be used in lieu of an independent CCI, its members shall be selected by an open, well-publicized public process.

FINDING: **SATISFIED**. Chapter X of the McMinnville Comprehensive Plan outlines compliance with Oregon State Land-Use Goal #1. The Planning Commission has been identified as the Committee for Citizen Involvement for the City of McMinnville per McMinnville Comprehensive Plan Policy #190.00. The Planning Commission hosted a public hearing to consider this proposed amendment on
October 21, 2021.

Policy #193.00 of Chapter X of the McMinnville Comprehensive Plan also encourages the City to engage local citizens in Project Advisory Committees for major Comprehensive Plan Amendments.

The Following Project Advisory Committee was established for this project:

Members of the Project Advisory Committee:

Name of Member	Representation
Jack Crabtree	McMinnville School District
Jamie Fleckenstein	McMinnville Planning Department / Avid Cyclist
Zack Geary	McMinnville City Council
Peter Higbee	Bicyclist Community
Charles Hillestad	Community Member / Accessibility Advocate
Barb Jones	Accessibility Advocate
Steve Macartney	McMinnville Police Department
Cole Mullis	ODOT District Manager
Bahram Refael	Linfield University
Dave Rucklos	McMinnville Downtown Association
Cyrus Scarboro-Ford	McMinnville High School Student
Lori Schanche	Planning Commission, Retired Active Transportation Planner

Oregon Statewide Planning Goal #2, Land Use Planning (OAR 660-015-0000(2)) – To establish a land use planning process and policy framework as a basis for all decisions and actions related to the use of land and to assure an adequate factual base for such decisions and actions.

FINDING: **SATISFIED**. The City of McMinnville has an acknowledged adopted Comprehensive Plan that provides a land use planning process and policy framework for all decisions and actions related to the use of land. The Comprehensive Plan is implemented through the McMinnville Municipal Code.

On February 23, 2010, the McMinnville City Council adopted Ordinance No. 4922 which adopted the *City of McMinnville Transportation System Plan* as part of Volume I of the McMinnville Comprehensive Plan.

This action amends the McMinnville Comprehensive Plan by adopting the *McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan* as a supplemental document to the McMinnville Transportation Plan.

Oregon Statewide Planning Goals #3 – 11 do not apply to this action.

Oregon Statewide Planning Goal #12, Transportation (OAR 660-015-0000(12)) – To provide and encourage a safe, convenient, and economic transportation system.

> A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle, and pedestrian; (2) be based upon an inventory of local, regional, and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans.
>
> Each plan shall include a provision for transportation as a key facility. Transportation -- refers to the movement of people and goods. Transportation Facility -- refers to any physical facility that moves or assists in the movement of people and goods excluding electricity, sewage, and water. Transportation System -- refers to one or more transportation facilities that are planned, developed, operated, and maintained in a coordinated manner to supply continuity of movement between modes, and within and between geographic and jurisdictional areas. Mass Transit -- refers to any form of passenger transportation which carries members of the public on a regular and continuing basis. Transportation Disadvantaged -- refers to those individuals who have difficulty in obtaining transportation because of their age, income, physical or mental disability.
>
> GUIDELINES
>
> A. PLANNING
> 1. All current area-wide transportation studies and plans should be revised in coordination with local and regional comprehensive plans and submitted to local and regional agencies for review and approval.
>
> 2. Transportation systems, to the fullest extent possible, should be planned to utilize existing facilities and rights-of-way within the state provided that such use is not inconsistent with the environmental, energy, land-use, economic or social policies of the state.
>
> 3. No major transportation facility should be planned or developed outside urban boundaries on Class 1 and II agricultural land, as defined by the U.S. Soil Conservation Service unless no feasible alternative exists.
>
> 4. Major transportation facilities should avoid dividing existing economic farm units and urban social units unless no feasible alternative exists.

5. Population densities and peak hour travel patterns of existing and planned developments should be considered in the choice of transportation modes for trips taken by persons. While high density developments with concentrated trip origins and destinations should be designed to be principally served by mass transit, 2 low-density developments with dispersed origins and destinations should be principally served by the auto.

6. Plans providing for a transportation system should consider as a major determinant the carrying capacity of the air, land and water resources of the planning area. The land conservation and development actions provided for by such plans should not exceed the carrying capacity of such resources.

B. IMPLEMENTATION
1. The number and location of major transportation facilities should conform to applicable state or local land use plans and policies designed to direct urban expansion to areas identified as necessary and suitable for urban development. The planning and development of transportation facilities in rural areas should discourage urban growth while providing transportation service necessary to sustain rural and recreational uses in those areas so designated in the comprehensive plan.

2. Plans for new or for the improvement of major transportation facilities should identify the positive and negative impacts on: (1) local land use patterns, (2) environmental quality, (3) energy use and resources, (4) existing transportation systems and (5) fiscal resources in a manner sufficient to enable local governments to rationally consider the issues posed by the construction and operation of such facilities.

3. Lands adjacent to major mass transit stations, freeway interchanges, and other major air, land and water terminals should be managed and controlled so as to be consistent with and supportive of the land use and development patterns identified in the comprehensive plan of the jurisdiction within which the facilities are located.

4. Plans should provide for a detailed management program to assign respective implementation roles and responsibilities to those governmental bodies operating in the planning area and having interests in carrying out the goal

FINDING: **SATISFIED**. The City of McMinnville has an acknowledged adopted Transportation System Plan that addresses Oregon Land Use Goal #12. This action focuses on one aspect of the transportation network (active trans facilities) on one major arterial in the community – Oregon Highway 99W.

Oregon Statewide Planning Goals #13 – 19 do not apply to this action.

Alignment with McMinnville's Comprehensive Plan Goals and Policies:

City of McMinnville Comprehensive Plan, Volume II, Goals and Policies

The following policies from Chapter VI, "Transportation System", support this planning effort.

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.

130.00 The City of McMinnville shall encourage implementation of the Bicycle System Plan that connects residential areas to activity areas such as the downtown core, areas of work, schools, community facilities, and recreation facilities. (Ord.4922, February 23, 2010)

132.24.00 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 Compete Streets policy is implemented:

1. *Design and construct right-of-way improvements in compliance with ADA accessibility guidelines (see below).*

2. *Incorporate features that create a pedestrian friendly environment, such as:*

    a. *Narrower traffic lanes;*

    b. *Median refuges and raised medians;*

    c. *Curb extensions ("bulb-outs");*

    d. *Count-down and audible pedestrian signals;*

    e. *Wider sidewalks;*

    f. *Bicycle lanes; and*

    g. *Street furniture, street trees, and landscaping*

3. *Improve pedestrian accommodation and safety at signalized intersections by:*

    a. *Using good geometric design to minimize crossing distances and increase visibility between pedestrians and motorists.*

    b. *Timing signals to minimize pedestrian delay and conflicts.*

    c. *Balancing competing needs of vehicular level of service and pedestrian safety. (Ord. 4922, February 23, 2010)*

132.26.00 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.

132.30.00 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.

132.31.00 The City of McMinnville shall make the design, construction, and operation of a safe transportation system for all modes of travel a high priority. (Ord. 4922, February 23, 2010)

132.35.00 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. (Ord. 4922, February 23, 2010)

132.37.00 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. (Ord. 4922, February 23, 2010)

132.39.00 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. (Ord. 4922, February 23, 2010)

132.56.00 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. Every effort will be made to retrofit existing arterials and selective collectors with bicycle lanes, as designated on the Bicycle System Plan Map. (Ord. 4922, February 23, 2010)

132.56.10 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. (Ord. 4922, February 23, 2010)

132.56.20 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 five 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. (Ord. 4922, February 23, 2010)

132.60.15 Bicycle and Pedestrian System Funding – The City should establish a new allocation and set aside 1.0% of its Motor Vehicles Fuel Tax funds for creation of on-street bicycle facilities and curb ramp replacements. (Ord. 4922, February 23, 2010)

FINDING: **SATISFIED**. The *McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan* achieves the above stated goals of the McMinnville Comprehensive Plan.

Alignment with McMinnville's Transportation System Plan:

Chapter 5 of the *City of McMinnville Transportation Plan*, the Pedestrian System Plan, identified the "need to better link and weave the Highway 99W corridor into the multi-modal fabric of greater McMinnville, with strategic pedestrian connections to Downtown. There is also 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." (Page 5-10 and 5-11 of the *City of McMinnville Transportation Plan.*)

FINDING: **SATISFIED**. The *McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan* responds to the action called for in Chapter 5 of the *City of McMinnville Transportation System Plan.*

EXHIBIT B - ORDINANCE NO. 5107

CITY OF MCMINNVILLE

OR 99W (Linfield to McDonald) ACTIVE TRANSPORTATION CONCEPT PLAN

APRIL 2021

Oregon Department of Transportation

City of McMinnville

ACKNOWLEDGMENTS

Project Management Team

Jenna Berman, ODOT Region 2, Active Transportation Liaison
Daniel Fricke, ODOT Region 2, Senior Transportation Planner
Larry Sherwood, The City of McMinnville, Engineering Services Manager
Heather Richards, The City of McMinnville, Planning Director
Mike Bisset, The City of McMinnville, Community Development Director

ODOT Review Team

Dorothy Upton, ODOT Region 2, Region Traffic Operations Engineer
Arielle Ferber, ODOT Region 2, Traffic Analysis Engineer
Kristie Gladhill, ODOT Transportation Planning Analysis Unit, Senior Transportation Analyst

Consultant Project Team

KITTELSON & ASSOCIATES, INC.
Marc Butorac, PE, PTOE, PMP, Project Principal
Nick Gross, Project Manager
Amy Griffiths, EIT, Lead Analyst
Eric Germundson, Lead Designer
Steve Rhyne
Jon Sommerville
Katie Taylor

Project Advisory Committee

Barb Jones, Accessibility Advocate
Bahram Refaei, Linfield University
Cyrus Scarboro-Ford, McMinnville High School Student
Chuck Hillestad, Former Planning Commissioner, Board of Yamhill County Historic Society
Dave Rucklos, Director of McMinnville Downtown Association
Jack Crabtree, McMinnville School District
Jamie Fleckenstein, McMinnville Planning Department and Avid Cyclist
Cole Mullis, ODOT District Manager
Peter Higbee, Bicyclist Community
Steve Macartney, Public Safety
Zack Geary, McMinnville City Council
Lori Schanche, Planning Commission, Active Transportation Planner

CONTENTS

active transportation is a term that describes self-propelled, human-powered transportation modes, such as walking, biking, skateboarding, and using a wheelchair.

1 / Introduction

An Active, Thriving Future for McMinnville

The primary purpose of the McMinnville OR 99W (Linfield to McDonald) Active Transportation Concept Plan is to identify improvements within the corridor that will result in a safer, more comfortable, more attractive place to walk, bike, roll, and facilitate transit use.

Today, the high speeds and traffic volumes on OR 99W make walking and biking uncomfortable for most people. The Adams Street-Baker Street segment of OR 99W ("the couplet") does not have bike lanes. Portions of these roads were identified in the Oregon Department of Transportation (ODOT) statewide systemic safety analysis as a high-risk corridor for people walking and biking. New walking and biking infrastructure are needed to support low-stress, safe connections for people walking and biking on and around OR 99W.

The project study area is the segment of OR 99W between NE McDonald Lane (north) to Linfield Avenue (south). Parallel neighborhood streets (under the jurisdiction of the City of McMinnville) were also considered for potential alternative bicycle routes.

This Concept Plan identifies the vision and presents a solution to address the needs of people walking, biking, and rolling along the OR 99W corridor.

Adoption of this Concept Plan into the McMinnville Transportation System Plan allows both the City and ODOT to pursue funding for the various concepts presented here. Once funding is received for implementation, the concepts will be further refined through a detailed design process before being constructed.

The Study Area

2 / Keeping the End User in Mind

Who is McMinnville?

With over 34,000 people, McMinnville is Yamhill County's largest city, and the gateway to wine country.

Downtown McMinnville's historic character, antique stores, breweries, restaurants, and galleries make it attractive to both visitors and locals traveling on foot or by bike. McMinnville High School at the north and Linfield University at the south end of the corridor generate a substantial number of walking and biking trips, particularly for student populations.

Other walking and biking activity in the area is driven by transit stops, schools, libraries, gyms, grocery stores, health clinics, municipal buildings, community centers, places of worship, bike shops, and parks.

The area surrounding the OR 99W corridor is home to many people from transportation-disadvantaged groups: people 65 and older, 17 and younger, non-white or Hispanic (who speak little or no English), low-income, with a disability, living in crowded households, or living in households without vehicle access. On average, the people living around OR 99W at the northern end of the corridor fit into slightly more transportation disadvantaged categories and the people living near Linfield University fit into slightly fewer.

Designing to Meet Community Needs

Traditionally, transportation planners and engineers applied a set of one-size-fits-all design standards to roadway projects. These standards did not necessarily fit the unique circumstances of every community or project. The result could be undesirable, sometimes uncomfortable conditions for people using the transportation system.

Performance-based or context-sensitive design is a shift away from applying strict design standards toward designing based on a community's specific setting and circumstances. Performance-based design supports planning efforts to create projects that are context-sensitive and reflect the original intended outcomes where people want to live, work, and play.

The ODOT Blueprint for Urban Design establishes a framework for determining the urban context along state roadways. Identifying desired project outcomes and understanding the urban context, and who will be using the roadway, helps decision-makers determine appropriate performance measures to evaluate the trade-offs of various design decisions.

Project Schedule & Performance-Based Approach

AUGUST-OCTOBER	SEPTEMBER-DECEMBER	DECEMBER-APRIL
Establish Project Goals, Context, and Desired Outcomes	**Evaluate Performance of Each Alternative**	**Select and Develop Concept Design**
• Corridor vision statement • Evaluation criteria and performance measures • Performance-based design framework • Plans and policy review	• Analysis methodology and assumptions • Existing and future needs • Planned improvements, alternatives, and recommendations • Draft urban design concurrence document	• Alternatives development and preferred alternative concept • Concept Plan

The Blueprint for Urban Design provides facility recommendations and modal priorities based on the urban context of the roadway. These recommendations are shown in the table below.

Existing Conditions & Recommendations by Mode

OR 99W Segment	Recommended Context	High Priority Modes	Vehicular Speed Comparison	Bicyclist Facility Comparison	Pedestrian Facility Comparison
NE McDonald Lane to NW 15th Street	Urban Mix	Pedestrian, Bicyclist, and Transit	**Existing:** 30-35 mph **Recommended:** 25-30 mph	**Existing:** standard on-street bike lanes/none **Recommended:** wide, comfortable, buffered facilities	**Existing:** standard sidewalks, no buffer **Recommended:** wide, comfortable, buffered facilities
NW 15th Street to SE 1st Street	Traditional Downtown/Central Business District	Pedestrian, Bicyclist, and Transit	**Existing:** 30 mph **Recommended:** 25 mph	**Existing:** none **Recommended:** wide, comfortable facilities	**Existing:** standard sidewalks, no buffer **Recommended:** wide, comfortable, buffered facilities
SE 1st Street to SW Linfield Avenue	Urban Mix	Pedestrian, Bicyclist, and Transit	**Existing:** 35 mph **Recommended:** 25-30 mph	**Existing:** standard, on-street bike lanes/none **Recommended:** wide, comfortable, buffered facilities	**Existing:** standard sidewalks, no buffer **Recommended:** wide, comfortable, buffered facilities

a transportation mode is a way of transporting people or goods. ODOT's Blueprint for Urban Design recognizes five modes: Motorist, Freight, Transit, Bicyclist, and Pedestrian.

Source: Wikimedia Commons, by Visitor7 - Own work, CC BY-SA 3.0, https://commons.wikimedia.org/w/index.php?curid=27376911

WHAT ABOUT PARKING?

Analysis Shows Minimal Impacts

By removing parking from the west side of Adams Street, this project can affordably provide walking, biking, and rolling facilities while maintaining space needed for motor vehicle and freight through movements.

Current and historic analysis shows that street parking along Adams Street is underused. Peak parking utilization for the total 208 spaces along Adams Street was 10%. The highest parking demand was observed along Adams Street south of 2nd Avenue and is likely generated by residences. Parking along the corridor could be accommodated below 85% occupancy—the nationally accepted target for parking utilization—during peak hours along one side of the roadway.

The study evaluated solutions that stay within the roadway's existing curb-to-curb width to reduce costs and minimize impacts to private rights of way.

Thursday Peak Hour | **Friday Peak Hour**

Parking Utilization: 0% | 1-35% | 36-85% | 86-100% | No parking

How Did We Choose the Best Concept?

The City's Transportation System Plan (TSP) established goals and policies that were used to evaluate the suitability of each alternative concept for active transportation facilities along the OR 99W corridor through McMinnville. These criteria align with the Corridor Vision for OR 99W.

The table below lists the evaluation criteria and how each was used to evaluate the alternative concepts for the corridor. Public opinion was an important factor in arriving at the preferred concept.

Evaluation Criteria & Performance Measures

Evaluation Criterion	Description
Complete Streets	The preferred concept provides comfortable facilities for people walking and biking, regardless of age and ability. The "complete streets" criterion addresses the "Complete Streets" goal and supplemental policy identified in the TSP.
Multimodal Transportation System	The preferred concept provides an integrated network of facilities and services for a variety of motorized and non-motorized travel modes based on the appropriate relative priority given the corridor context. The "multimodal transportation system" criterion addresses the "Multimodal Transportation System" goal and supplemental policy identified in the TSP.
Connectivity	The preferred concept provides comprehensive connectivity and circulation to existing active transportation facilities in McMinnville. The preferred concept encourages walking and biking to essential destinations within the city. The "connectivity" criterion addresses the "Connectivity and Circulation," "Transportation System and Energy Efficiency," and "Transportation Sustainability" goals and supplemental policies identified in the TSP.
Safety	The preferred concept establishes safety countermeasures to reduce the number of fatal and severe injury crashes. The "safety" criterion addresses the "Transportation Safety" and "Transportation Sustainability" goals and supplemental policies identified in the TSP.
Equity	The preferred concept meets the requirements set forth in the Americans with Disabilities Act (ADA) and provides transportation options to transportation disadvantaged populations. The "equity" criterion addresses the "Accessibility for Persons with Disabilities" and "Health and Welfare" goals and supplemental policies identified in the TSP.
Livability	The preferred concept minimizes impacts to adjacent property owners and encourages the use of public transit, bikeways, sidewalks, and walkways. The preferred concept provides equity and receives public support. The "livability" criterion addresses the "Livability" and "Aesthetics and Streetscaping" goals and supplemental policies identified in the TSP.
Design Feasibility	The preferred concept has no major design feasibility concerns. The "design feasibility" criterion does not directly address any goals or supplemental policies identified in the TSP.

3 / What Needs Improving

What Stands in the Way of Walking, Biking, and Rolling in McMinnville Today?

The project team reviewed the project study area's characteristics, safety conditions, and existing walking and biking facilities to identify gaps and deficiencies.

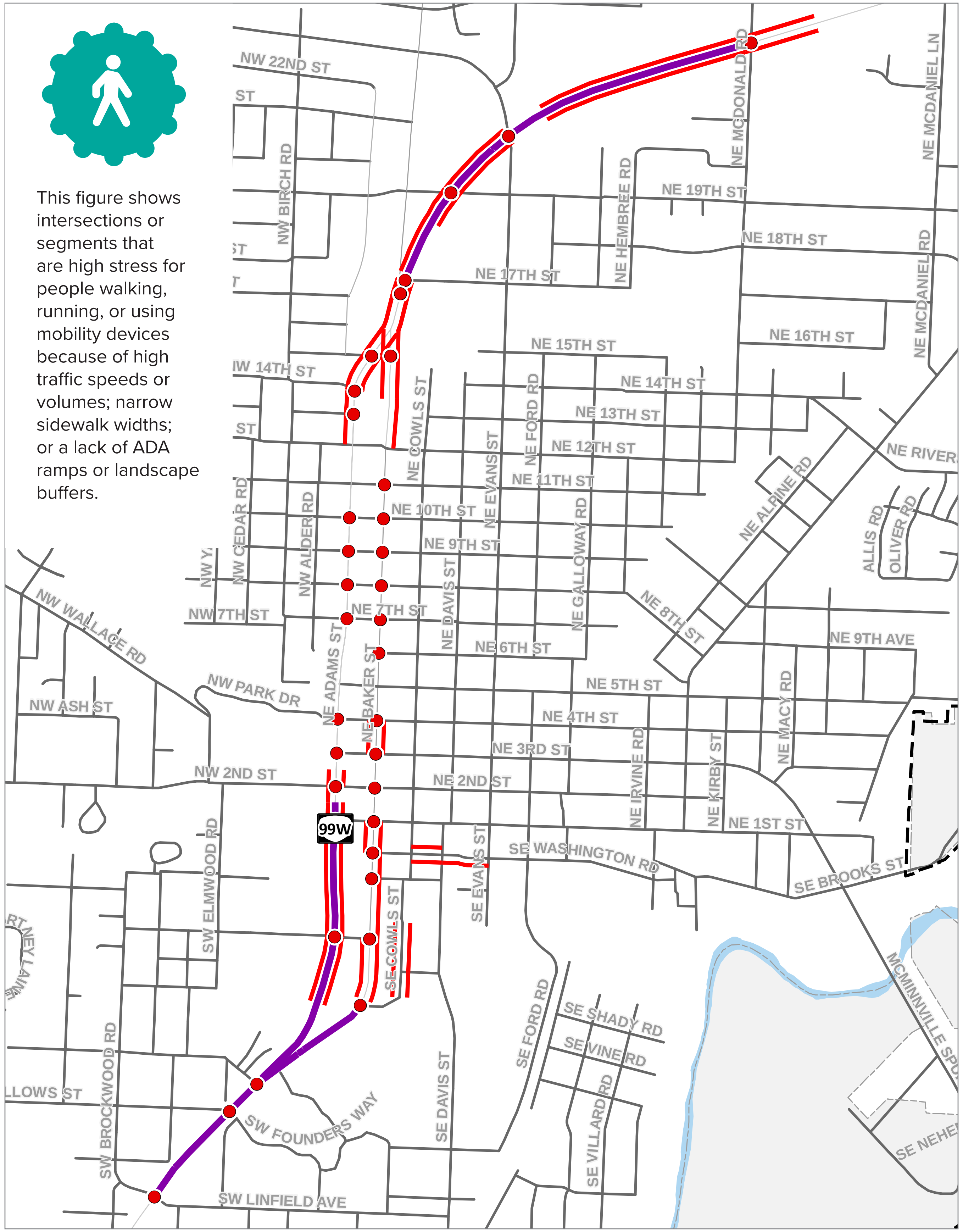
A gap is a missing link in the network—for example, a missing sidewalk, crosswalk, pedestrian ramp, or bicycle facility.

A deficiency is a pedestrian or bicycle facility—a sidewalk or bike lane, for example—that is insufficient to meet the needs of its users. An example of a deficient facility is a roadway near a school that is stressful for the students who travel on foot or by bike.

"If there were ways to **slow down vehicle traffic** and to provide clean bike lanes (often there is a lot of debris on the road), I would consider using OR 99W as my main route. However, I don't think Oregon drivers will gladly share such a main road with non-vehicular traffic based on my dealings as a cyclist with drivers."

–Public comment

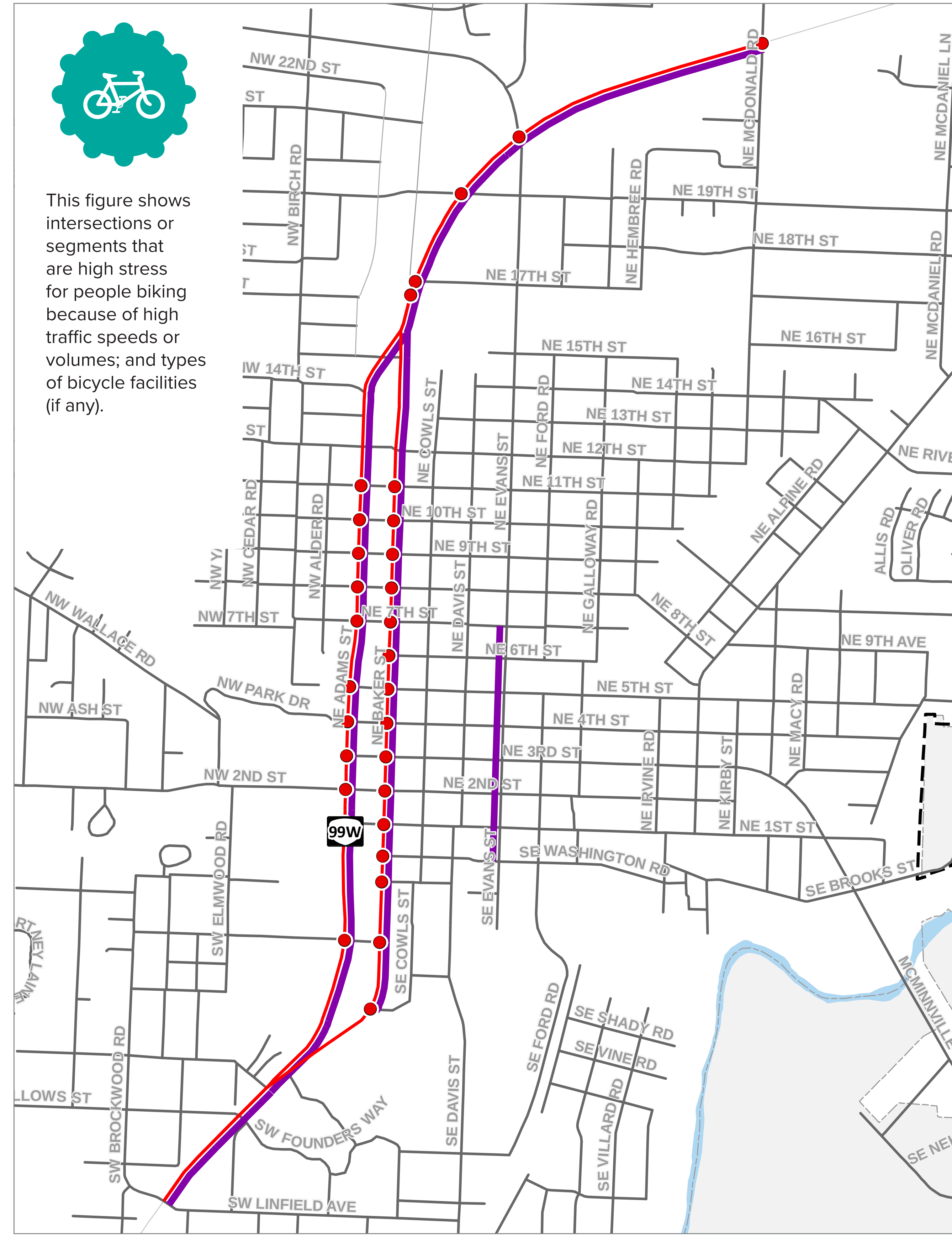
Pedestrian Gaps & Deficiencies



This figure shows intersections or segments that are high stress for people walking, running, or using mobility devices because of high traffic speeds or volumes; narrow sidewalk widths; or a lack of ADA ramps or landscape buffers.

- Exceeds recommended level of traffic stress (see supporting documentation)
- Top 40% pedestrian risk, per ODOT statewide systemic safety analysis

Bicyclist Gaps & Deficiencies



This figure shows intersections or segments that are high stress for people biking because of high traffic speeds or volumes; and types of bicycle facilities (if any).

- Exceeds recommended level of traffic stress (see supporting documentation)
- Top 40% bicyclist risk, per ODOT statewide systemic safety analysis

4 / Who Participated in the Planning Process?

Community Leadership

A diverse group of 12 community members and stakeholders—all interested in improving walking, biking, and rolling facilities along OR 99W—served on the Project Advisory Committee (PAC). Their responsibilities included attending committee meetings, reviewing and commenting on draft technical memoranda prepared by the project team, providing information about existing and future needs for active transportation facilities in the study area, attending and advertising the public virtual meeting, and providing input on the concepts described in this plan.

Virtual Open House

The project team, ODOT, and the City of McMinnville hosted a virtual open house for the project in early 2021. The goal of the virtual open house was to educate the public on the project and solicit feedback on the selection of a preferred concept for advancement into the draft Concept Plan.

The virtual open house included a survey, which was open from February 25 through March 11, 2021. A livestreamed virtual meeting was held on Thursday, March 4 and a recording of this meeting was posted to the virtual open house website.

WHO RESPONDED?

76 responses

536 page views

Comfortable biking on...

38% **Busy streets**, as long as there is a bike lane (e.g., Evans Street)

29% **Quiet, low-traffic** streets

14% **Just about anywhere** (including with traffic along OR 99W)

12% **Separated paths only**

7% **Cannot ride a bike/not interested**

How do they get around?

75 drive

66 walk

53 bike

0 roll

1 bus

Why do they walk or bike in McMinnville?

We heard you!

We received **76 comments** from community members through interactive maps, emailed comments, a community survey and virtual open house. Here's what people had to say:

THE ROAD HERE IS FAST AND GETS NARROW, WOULD THERE BE A BIKE LANE?

intersection is **not pedestrian friendly!** Cars are looking out for themselves only. I actively avoid crossing Evans or 99 at this corner.

PLEASE!! ADD A DEDICATED LEFT HAND TURN LANE GOING EAST ONTO HWY 99 AT THIS INTERSECTION!!! **IT IS SO DANGEROUS FOR KIDS/** PEDESTRIANS TRYING TO CROSS THAT HIGHWAY THERE! WITH SCHOOLS RESUMING, IT'S INCREASINGLY IMPORTANT. THANK YOU!!

I will be surprised if residents on Davis and Evans want what is proposed in their neighborhood. **Does the solution have to be one concept or another?** Can we have bike lanes on OR 99W and a neighborhood greenway?

...I SUPPORT [A SIGNAL ICON] AT 8TH AND ADAMS AND BAKER. **TRAFFIC GETS BACKED UP TO THAT POINT ALREADY**, SO IT WOULD BE NICE TO HAVE BOTH CARS AND PEDESTRIANS AWARE OF WHOSE TURN IT IS.

Evans Street is a high traffic area and primary route to the high school (with particularly young drivers) and I think this street **should be avoided entirely.**

LIGHTS NEED TO HAVE THE ABILITY TO CHANGE WHEN A CYCLIST IS IN THE BIKE LANE AWAITING A GREEN LIGHT.

Davis is fairly narrow along this strip with road parking and faster speeds, perhaps Ford Street can be a less trafficked option.

Traffic gets pretty backed up on the 99 during rush hours now. **I think we need a stop light on 8th street.** Additionally, either a bidirectional protected bike lane, or a greenway would be ideal.

Booth Bend would be great for a bike path (add wide safe shoulder).

I AM A PEDESTRIAN. I AVOID ADAMS/BAKER UNLESS MY DESTINATION IS ON THEM.

My basic route through McMinnville runs along Davis. Having an option parallel to Evans offers a **less trafficked route** with fewer stop signs, too. It makes traveling along on a bike much easier, which is my preferred and regular mode of transportation.

THE LIGHTS ALONG 99W AND ON EVANS AND 5TH NEED TO BE BICYCLE-SENSITIVE! I HAVE WASTED SOME OF MY YOUNG YEARS AWAITING A LIGHT CHANGE IN MAC ON MY BIKE.

My concern is that most of the bike traffic will end up on the street sidewalks. I have biked on these streets and they are less stressful, but still not a street biking area for young children, youth or families.

No stop signs creates huge hazards!

Linfield trail improvement to keep folks off the narrow section of Baker?

5 / Proposed Solutions

Today, around 20,000 to 30,000 vehicles pass through McMinnville on Adams and Baker Streets every day. There are no dedicated bicycle lanes and no enhanced pedestrian crossings within the couplet segment of OR 99W. As a consequence, ODOT identified the couplet as high risk for pedestrians and bicyclists in its statewide systemic safety analysis.

The OR 99W corridor needs context-sensitive solutions to support a lower-stress, safer connection within McMinnville's multimodal transportation system.

Potential Design Options

The project team developed three concepts for the McMinnville OR 99W Active Transportation Concept Plan based on an analysis of existing conditions and input from the Project Management Team (PMT), Project Advisory Committee (PAC), and public.

These concepts included:

- **Concept 1:** Two-Way Separated Bike Lane on Adams Street
- **Concept 2:** Buffered Bike Lanes on Adams Street and Baker Street
- **Concept 3:** Neighborhood Greenway on Davis Street or Evans Street

Concept layouts for these options are provided in the Appendix in TM #5: Alternatives Development and Preferred Alternative Concept.

BICYCLE DESIGN OPTIONS:

1 / Two-Way Separated Bike Lane

A two-way separated bike lane, also known as a two-way cycle track or protected bike lane, is located within the street right-of-way. It is separated from motor vehicle traffic by vertical features such as curbs, landscape planters, flexible post delineators (shown in the image on the right), or parked cars. Two-way separated bike lanes serve bicycle travel in two directions on one side of the street.

2 / Buffered Bike Lane

Buffered bicycle lanes are on-street lanes that include an additional striped buffer of typically 2-3 feet between the bicycle lane and the vehicle travel lane and/or between the bicycle lane and the vehicle parking lane.

3 / Neighborhood Greenway

Neighborhood greenways are low traffic volume, low-speed streets where people biking and people driving share road space, but where people biking are prioritized and people driving are not encouraged to use the road as a through street.

OR 99W PRELIMINARY CONCEPTS

This section presents the preliminary concepts to address the active transportation needs within the study area.

Concept 1: Two-Way Separated Bike Lane on Adams Street

Concept 1 proposes a two-way separated bike lane along the west side of Adams Street between 2nd and 15th Streets, transitioning to buffered bike lanes to the north and south and tying into existing bike lanes on OR 99W. The separated bike lanes are proposed to be at street level, separated from vehicular traffic with flexible post delineators. This concept requires removing the parking lane on the west side of Adams Street and narrowing vehicle lane widths. It creates the need to transition bicycles from one-way buffered lanes to the two-way portion. Physical buffers may make it difficult for street sweepers to maintain and could impact freight travel through the corridor. The order of magnitude, preliminary cost estimate for this concept is $857,000.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Concept 2 proposes buffered bike lanes along Adams and Baker Street. The concept requires removing parking on the west side of Adams Street and narrowing vehicle lane widths on Baker Street. Parking will be maintained on Baker Street. This concept provides vertical separation from vehicular traffic along some segments and intersections, but not throughout the whole corridor, which makes it easier for street sweepers to maintain. It would also have less impact to freight movements than the two-way separated bike lane. The order of magnitude, preliminary cost estimate for this concept is $418,000.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

Concept 3 proposes a neighborhood greenway parallel to OR 99W using signage and pavement markings to direct people through the neighborhood. These routes have lower traffic volumes and speeds compared to OR 99W, offering a more comfortable alternative to biking or walking along the highway. Additional infrastructure improvements can be used to reduce vehicle speeds and bring more attention to people walking and biking along the neighborhood greenway route, like the traffic diverters shown in the image at right. Traffic diverters prevent cut-through traffic for people driving, making the route more comfortable for people walking and biking. The neighborhood greenway concept considered two routes:

- **Concept 3A:** Davis Street Neighborhood Greenway
- **Concept 3B:** Evans Street Neighborhood Greenway.

The order of magnitude, preliminary cost estimate for these concepts is about $141,000.

Concept 1

Concept 2

Concept 3

Evaluation Criteria

The evaluation criteria listed on page 10 were used to assess the trade-offs of each concept and determine which concept best aligns with the corridor context and community needs. These criteria were developed based on McMinnville's TSP's Guiding Goals and Policies.

The scoring scale for each criterion ranges from -1 to +2. An evaluation of the concept designs according to this scale is provided below. Using this method, the project team was able to create a data-driven approach to evaluating which concept(s) best align with McMinnville's goals for the transportation system.

Evaluation Criteria	Concept 1: Two-Way Separated Bike Lane	Concept 2: Buffered Bike Lanes	Concept 3A: Davis Street Greenway	Concept 3B: Evans Street Greenway
Complete Streets	+1.5	+1	+2	+2
Multimodal Transportation System	+1	+1	+1	+1
Connectivity	+2	+2	+1.7	+2
Safety	+1.8	+1.8	+2	+1.9
Equity	+1	+ 0.8	+1	+1
Livability	+1.5	+1.5	+1.5	+1.5
Design Feasibility	-1	0	+1	0
TOTAL SCORE	**7.8**	**8.1**	**10.2**	**9.4**

Pros and Cons of Each Concept

CONCEPT 1: TWO-WAY SEPARATED BIKE LANE ON ADAMS STREET

The two-way separated bike lane would create a physically-separated facility for people biking by installing raised curbs and flex posts. The proposed two-way separated bike lane alignment also provides direct access to businesses along the couplet. A physically-separated facility, however, could impact freight maneuvers within the corridor and be challenging for maintenance crews to clean and maintain.

The facility would be bidirectional, requiring some bicycles to travel adjacent to and facing oncoming traffic. Transitioning people biking from the two-way separated bike lane to the proposed buffered bike lanes to the north and south is a significant challenge. Additional challenges include dealing with access management due to the many driveways along the corridor and designing for contra-flow bicycle traffic entering and exiting the separated bike lane safely and efficiently.

CONCEPT 2: BUFFERED BIKE LANES ON ADAMS STREET AND BAKER STREET

This relatively inexpensive option provides an intuitive, directional, and continuous route along OR 99W. Buffered bike lanes do not require vertical separation from traffic. Adding vertical separation, where feasible based on driveways, parking, and curb-to-curb widths, increases comfort and utility of the facility. This concept does not provide vertical separation throughout the couplet in the near term, which makes it easier to maintain but less comfortable for people biking.

The buffered bike lane concept does not require bicyclists to transition across the couplet at the northerly (15th Street) and southerly (2nd Street) terminus points compared to the two-way separated bike lane concept. This makes the option more attractive for people biking through the corridor and reduces challenges and costs associated with transitioning people biking across the couplet.

CONCEPT 3A: NEIGHBORHOOD GREENWAY ON DAVIS STREET

Another inexpensive option, this parallel route offers a low-stress experience for people walking and biking due to lower traffic volumes and speeds. It is comfortable for users of all ages and abilities, provides wayfinding signage and traffic calming features, and uses a signalized crossing of 3rd Street.

This option offers less-direct access to businesses along OR 99W and may not be as attractive for confident people biking who prioritize speed over comfort.

CONCEPT 3B: NEIGHBORHOOD GREENWAY ON EVANS STREET

Another inexpensive and comfortable option for users of all ages and abilities, this parallel route is similar to Concept 3A but presents some challenges based on the higher volumes and speeds along the northern segment of Evans Street and the lack of a signalized crossing at 3rd Street. Traffic calming efforts would need to be more substantial to create a lower-stress environment for people walking and biking.

Costs

Planning-level cost estimates for each concept are provided in Table 2. The estimates include costs for mobilization, signage, striping, and a 30% contingency to cover costs for administrative or engineering services related to the potential projects. The cost of the enhanced crossing concepts is provided separately. The concepts maintain existing curb-to-curb cross sections; therefore, no right-of-way costs are anticipated.

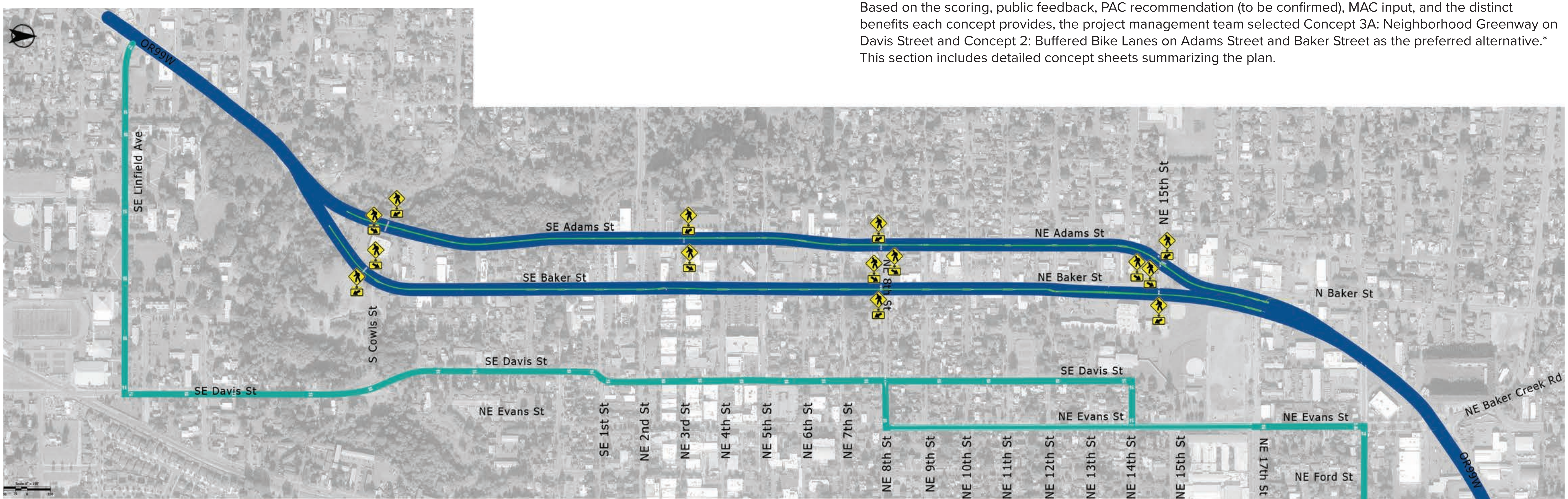
Planning-level Cost Estimates

Concept	Planning-Level Cost Estimate	Notes
Concept 1: Two-Way Separated Bike Lane on Adams Street	$857,000	• Assumes project is completed with a paving project and estimate excludes costs associated with said paving project. • Includes potential signal modifications to transition from the buffered bike lanes to the two-way separated bike lane at 2nd Street.
Concept 2: Buffered Bike Lanes on Adams Street and Baker Street	$418,000	• Assumes project is completed with a paving project; estimate excludes costs associated with said paving project. • Includes flex post delineators along Adams Street between OR 99W and 1st Street and at intersections with high turning volumes.
Concept 3A: Neighborhood Greenway on Davis Street	$141,000	• Includes the cost of the following traffic calming elements: traffic diverters at the intersection of Davis Street/8th Street, one speed hump, and two speed tables. • Includes the cost of wayfinding signage.
Concept 3B: Neighborhood Greenway on Evans Street	$141,000	• Includes the cost of the following traffic calming elements: traffic diverters at one intersection, one speed hump, and two speed tables. • Includes the cost of wayfinding signage. • Estimate based on those used for the neighborhood greenway on Davis Street. Due to the higher speeds and volumes present along Evans Street, it is likely that the cost of Concept 3B is underestimated.

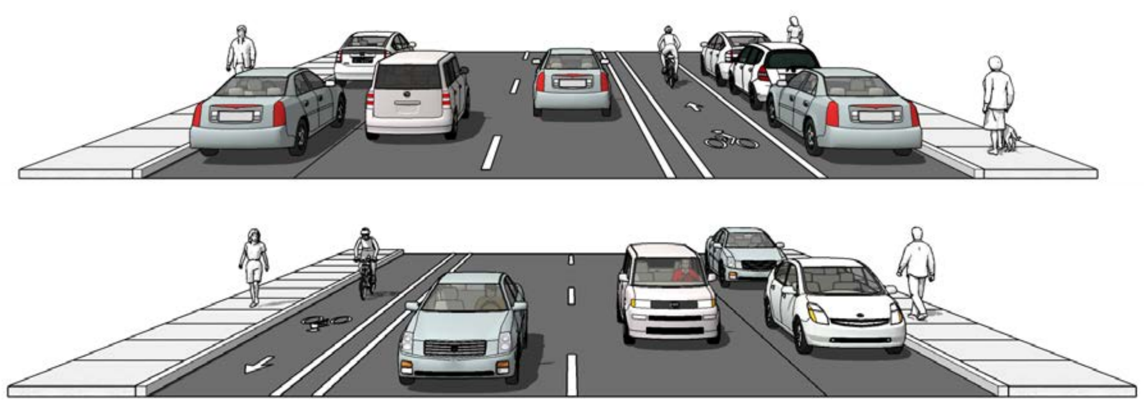
As summarized in the table above, the two-way separated bike lane is the most expensive concept, followed by the buffered bike lanes and the neighborhood greenway concepts. Maintenance costs are anticipated to be substantially higher for Concept 1 than for the other concepts because of the flex-post delineators and special maintenance equipment needed to sweep the two-way separated bike lane.

6 / Preferred Solution Concepts

Based on the scoring, public feedback, PAC recommendation (to be confirmed), MAC input, and the distinct benefits each concept provides, the project management team selected Concept 3A: Neighborhood Greenway on Davis Street and Concept 2: Buffered Bike Lanes on Adams Street and Baker Street as the preferred alternative.* This section includes detailed concept sheets summarizing the plan.



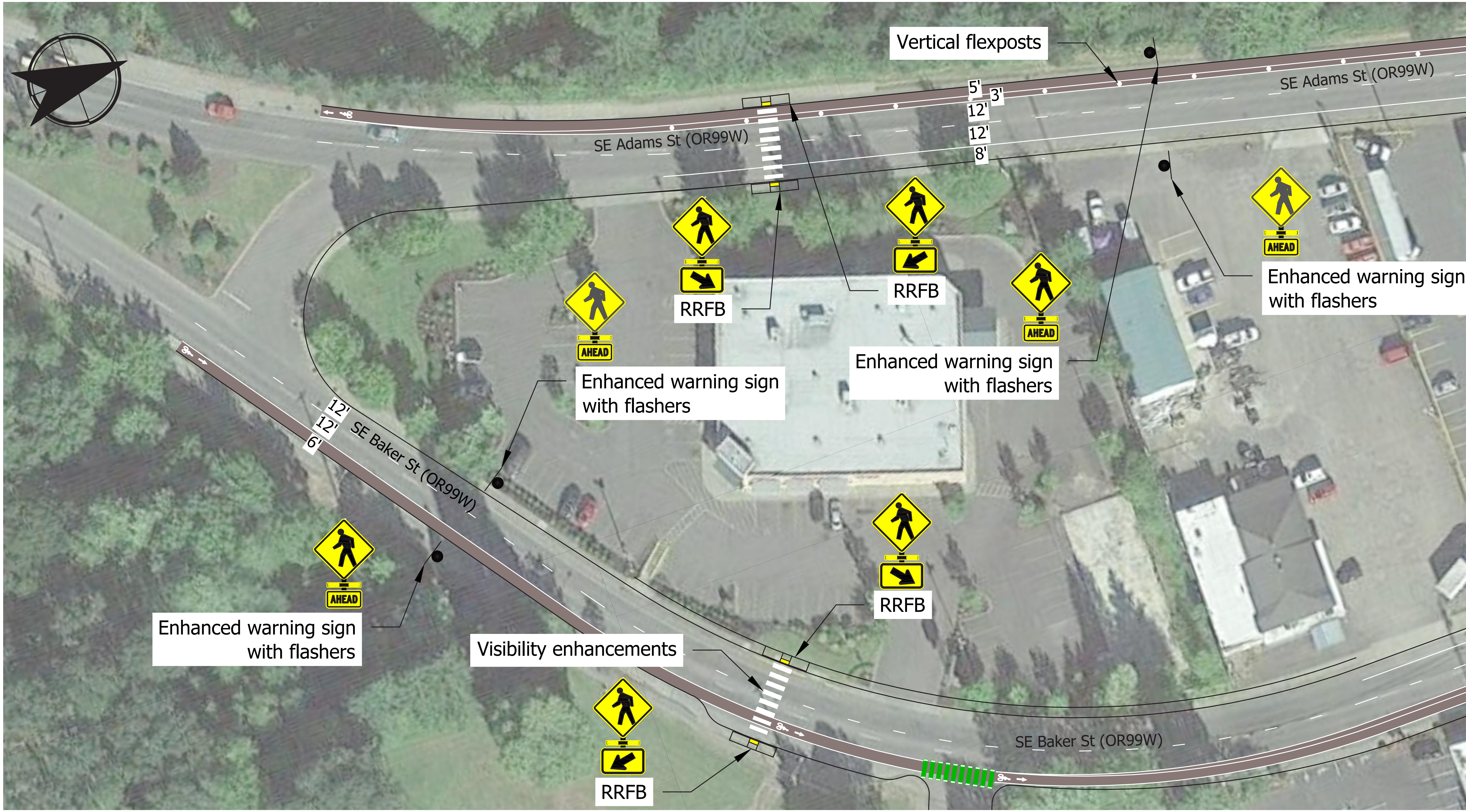
Buffered Bike Lanes on Baker and Adams Streets



Neighborhood Greenway on Davis Street

*Planning concept potentially reduces vehicle-carrying capacity of the highway; further evaluation of the project design will be required at the time of implementation to ensure compliance with ORS 366.215.

Buffered Bike Lanes on Baker and Adams Streets



Rectangular Rapid-Flashing Beacon (RRFB) crossings are recommended to provide people walking and biking protected crossing opportunities.

Vertical flexposts provide people biking with vertical separation from traffic. They are recommended in the near term along Adams Street between OR 99W and 1st Street because there are fewer driveway challenges along this segment. The type and extents of vertical separation may be updated in the future.

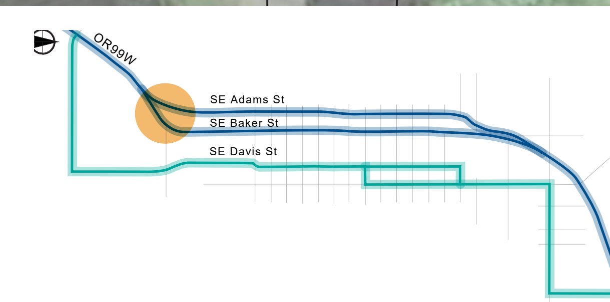
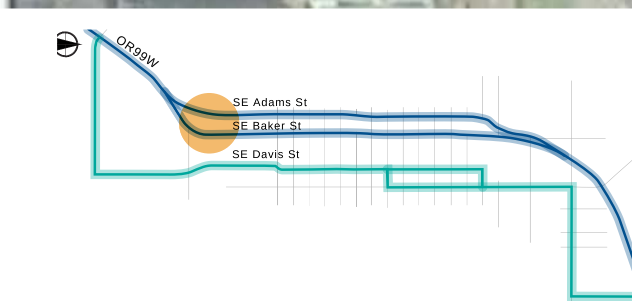


FIGURE 1

Buffered Bike Lanes on Baker and Adams Streets

Parking will be removed along the west side of Adams Street and maintained along the east side. No parking changes are recommended along Baker Street.



FIGURE

2

Buffered Bike Lanes on Baker and Adams Streets

Green paint at intersections increases awareness of the presence of people biking in conflict areas, improving safety where bike lanes cross intersections.

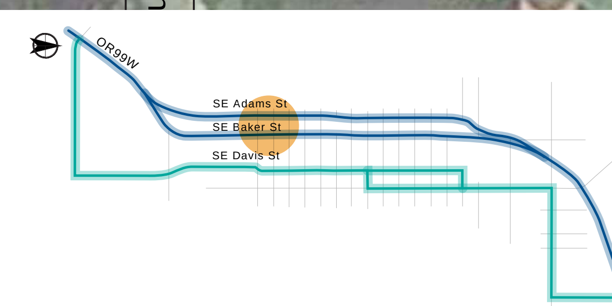


FIGURE 3

Buffered Bike Lanes on Baker and Adams Streets

Vertical flexposts are recommended approaching signalized intersections to reduce the potential for right-turn "hooks" between people biking and driving.

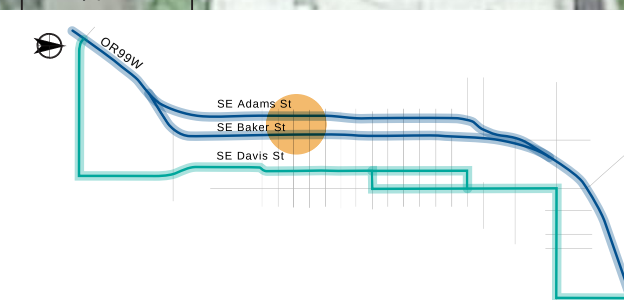


FIGURE 4

Buffered Bike Lanes on Baker and Adams Streets

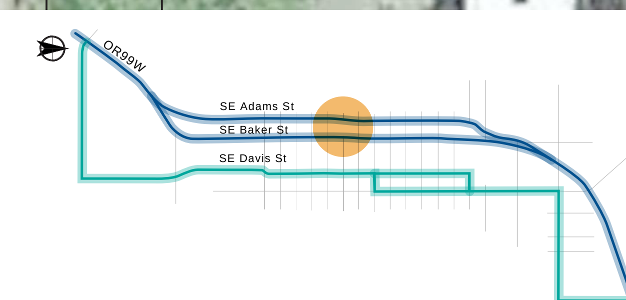


FIGURE 5

Buffered Bike Lanes on Baker and Adams Streets

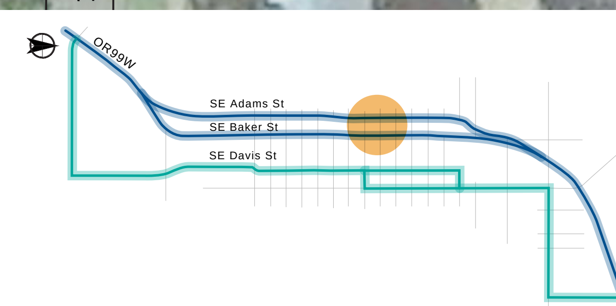


FIGURE 6

Buffered Bike Lanes on Baker and Adams Streets

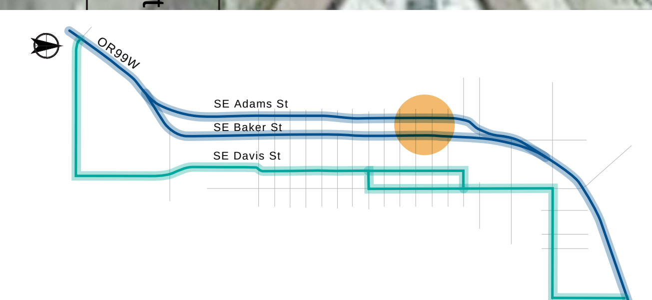


FIGURE 7

Buffered Bike Lanes on Baker and Adams Streets

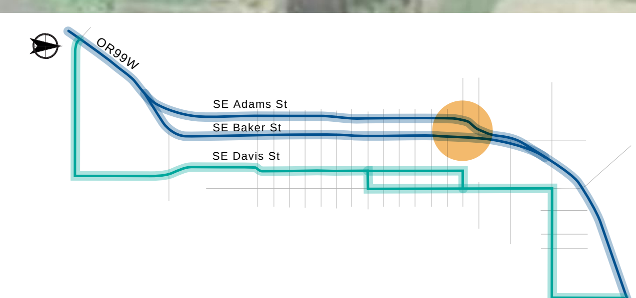
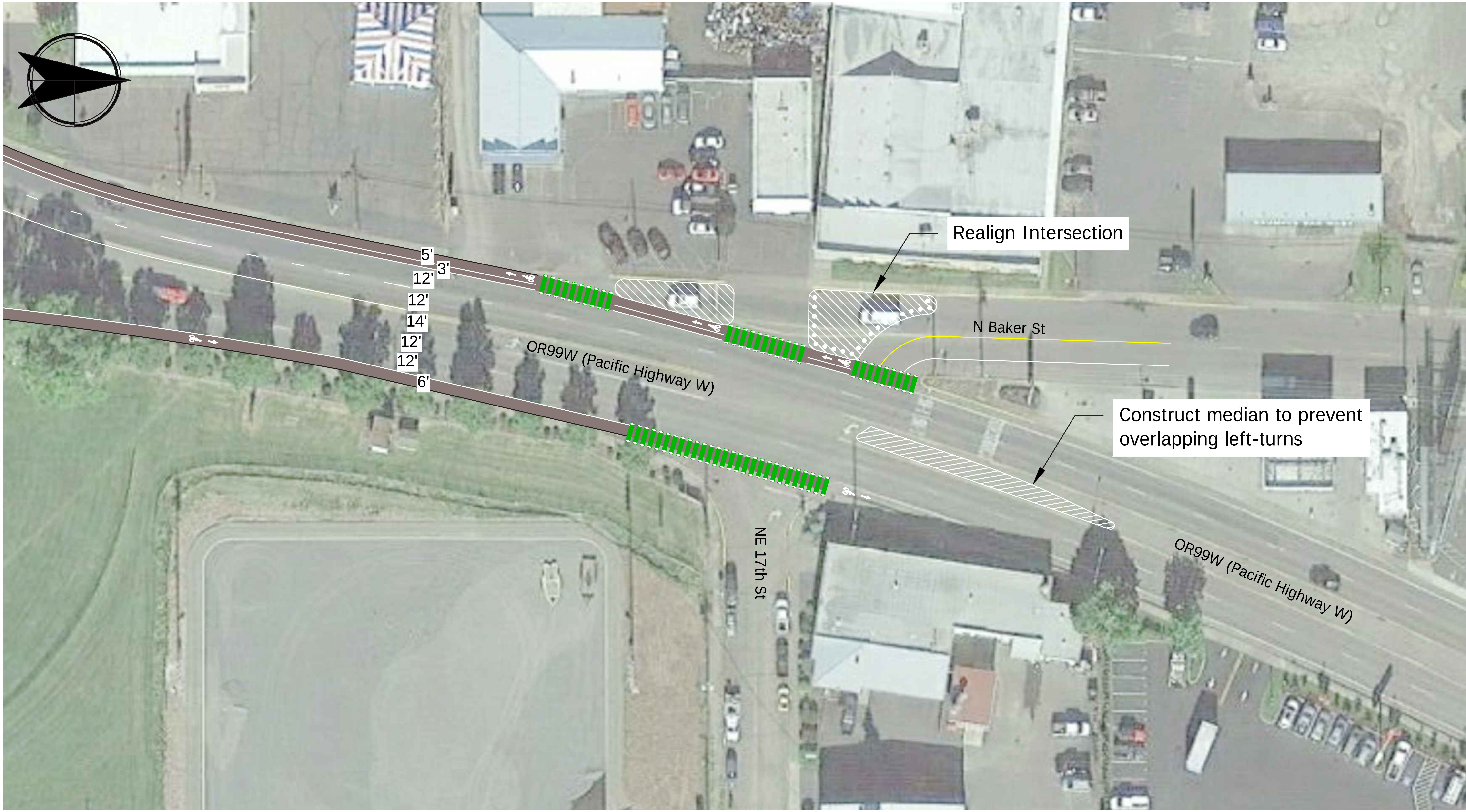


FIGURE 8

Buffered Bike Lanes on Baker and Adams Streets



The N Baker Street/OR 99W intersection is recommended to be realigned to reduce exposure for people walking and biking through the intersection and add delineation to vehicle movements. This concept uses paint and vertical flexposts to realign the intersection approach as a near-term option with raised concrete recommended as a long-term option. The final design of this intersection will be determined in the design process.

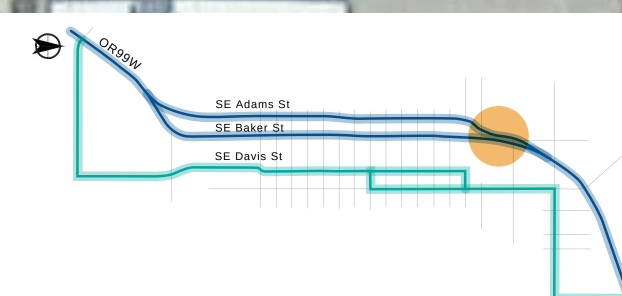


FIGURE 9

Neighborhood Greenway on Davis Street

Wayfinding "Neighborhood Greenway" signs, as pictured above, are added to the speed limit signs to increase driver awareness of people walking and biking and direct people walking and biking to the greenway route. The speed limit will be maintained through the corridor at 20 mph, consistent with residential streets in the area.

Speed humps are included to provide traffic calming, making the environment more comfortable to bike and share the roadway.

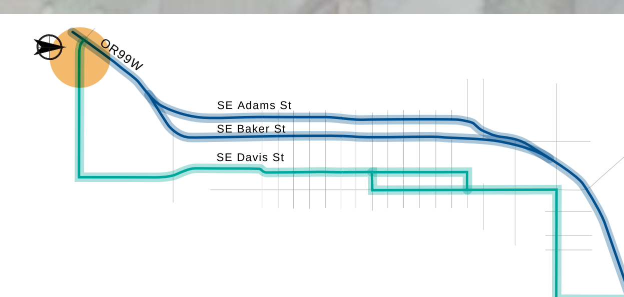


FIGURE 10

Neighborhood Greenway on Davis Street

The speed table shown above will raise the entire crosswalk at a high-volume crossing location, slowing vehicles and allowing people walking to cross the street at a consistent elevation.

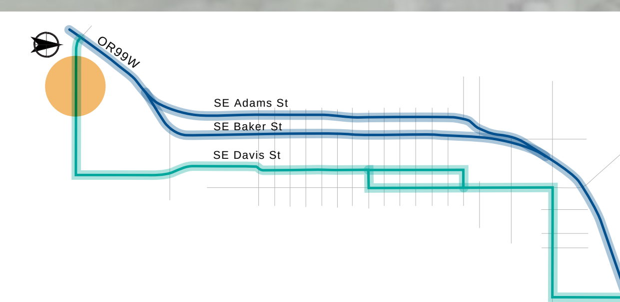


FIGURE 11

Neighborhood Greenway on Davis Street

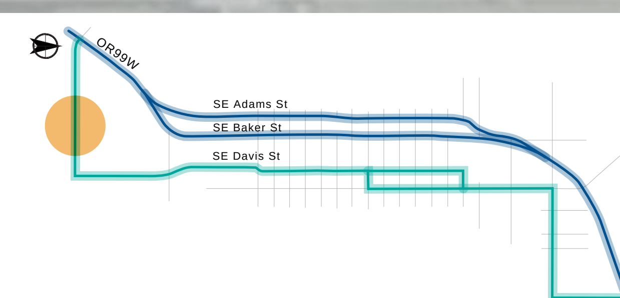


FIGURE 12

Neighborhood Greenway on Davis Street

Shared lane markings or "sharrows," like the one pictured above, use arrows to direct people biking to stay on the neighborhood greenway route.

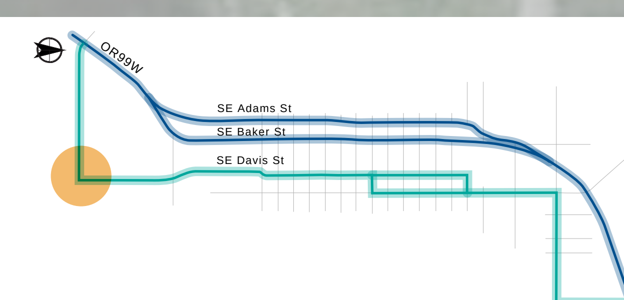


FIGURE 13

Neighborhood Greenway on Davis Street

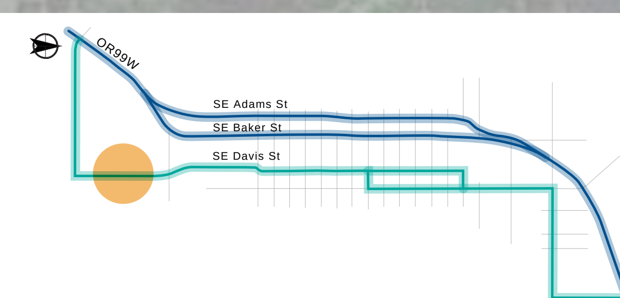


FIGURE 14

Neighborhood Greenway on Davis Street

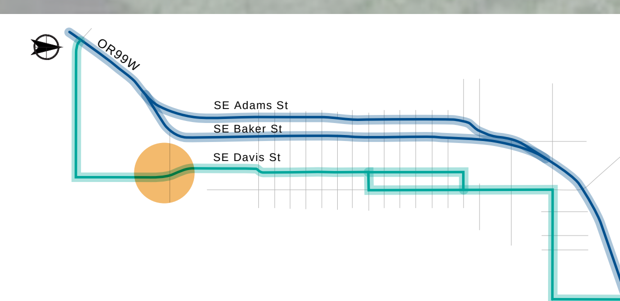


FIGURE 15

Neighborhood Greenway on Davis Street

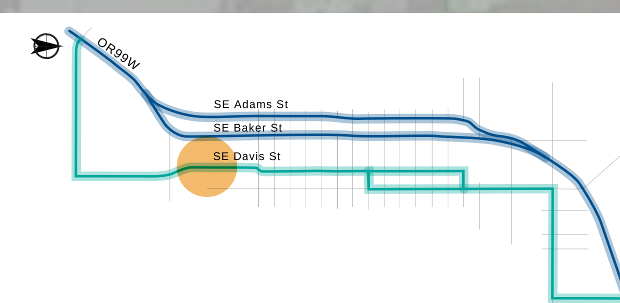


FIGURE 16

Neighborhood Greenway on Davis Street

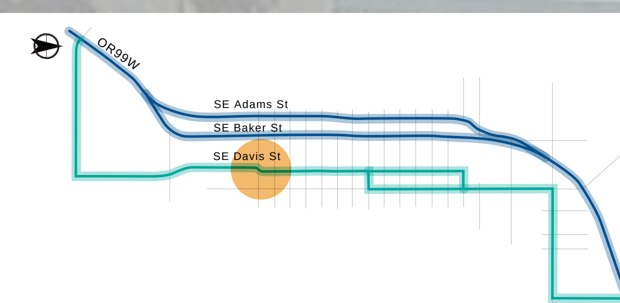


FIGURE 17

Neighborhood Greenway on Davis Street

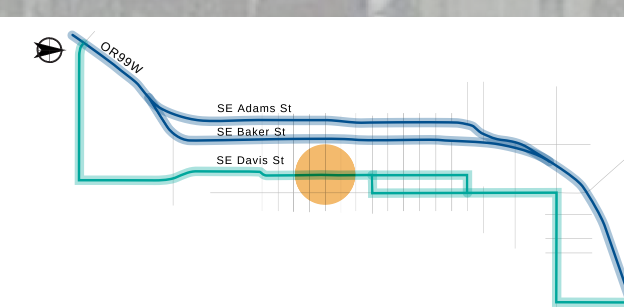
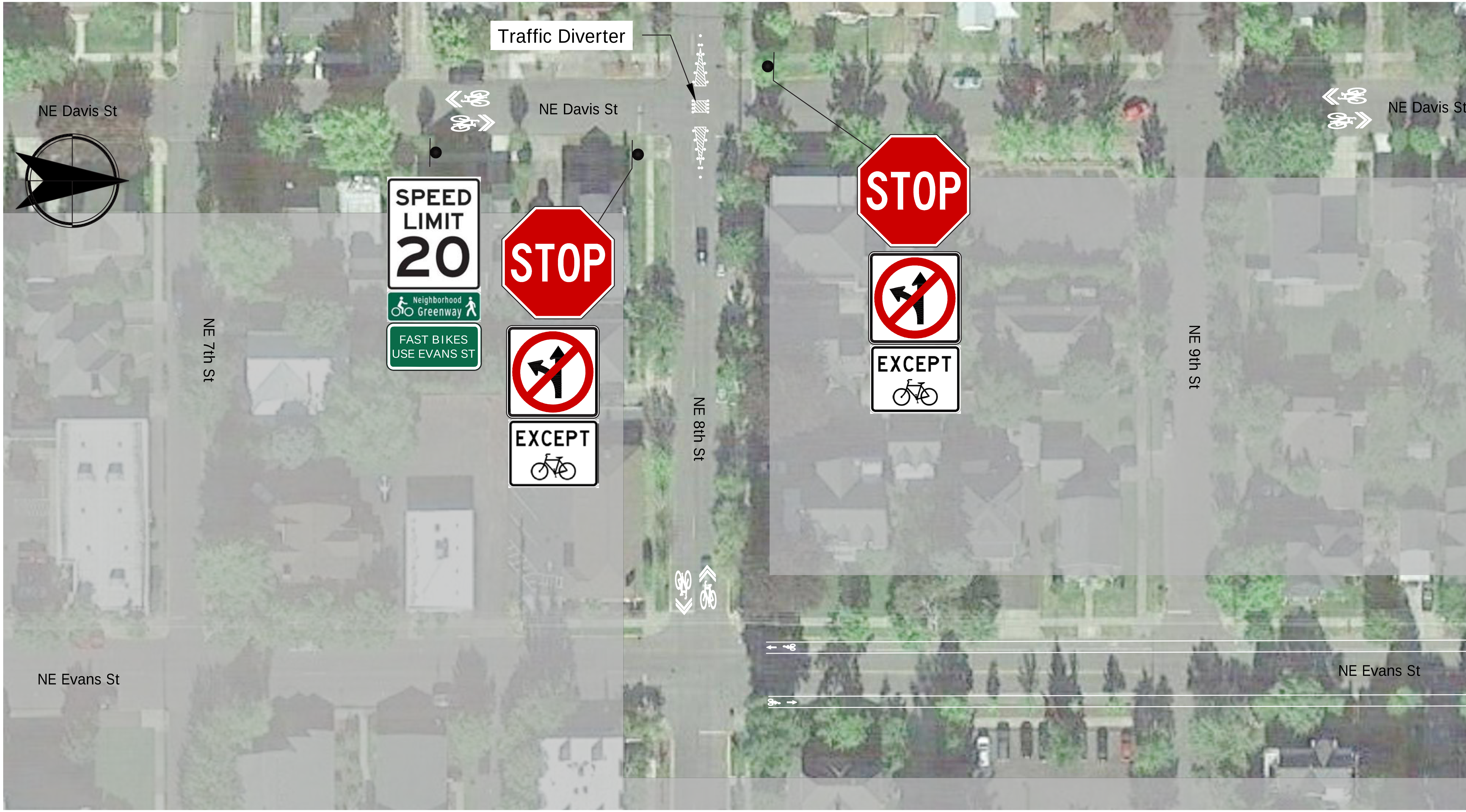


FIGURE 18

Neighborhood Greenway on Davis Street



Traffic diverters prevent people driving from cutting through, making the route more comfortable for people walking and biking. A wayfinding sign is used to direct more confident cyclists to the existing bike lanes on Evans Street, which has higher speeds and traffic volumes than Davis Street.

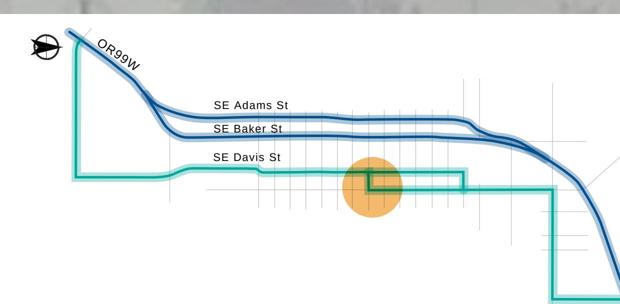


FIGURE 19

Neighborhood Greenway on Davis Street

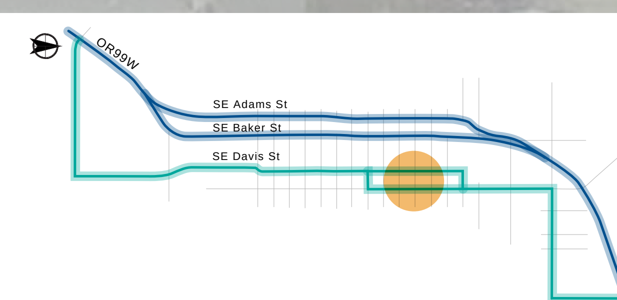
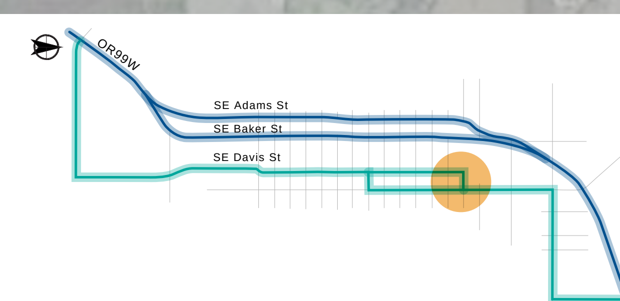


FIGURE 20

Neighborhood Greenway on Davis Street



FIGURE

21

Neighborhood Greenway on Davis Street

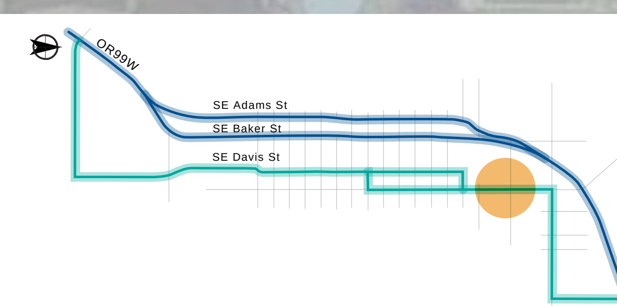


FIGURE
22

Neighborhood Greenway on Davis Street

A **shared-use path** is recommended along the east side of NE Evans Street to connect people walking and biking to OR 99W. This concept will require further refinement as part of the formal design process.

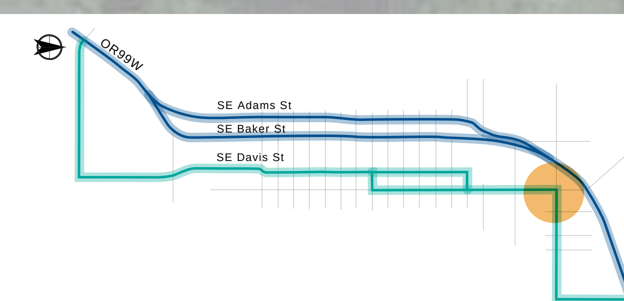


FIGURE 23

Neighborhood Greenway on Davis Street

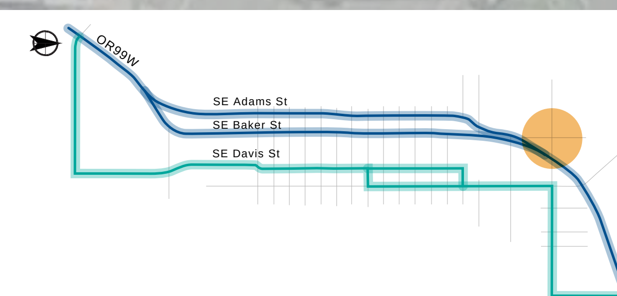
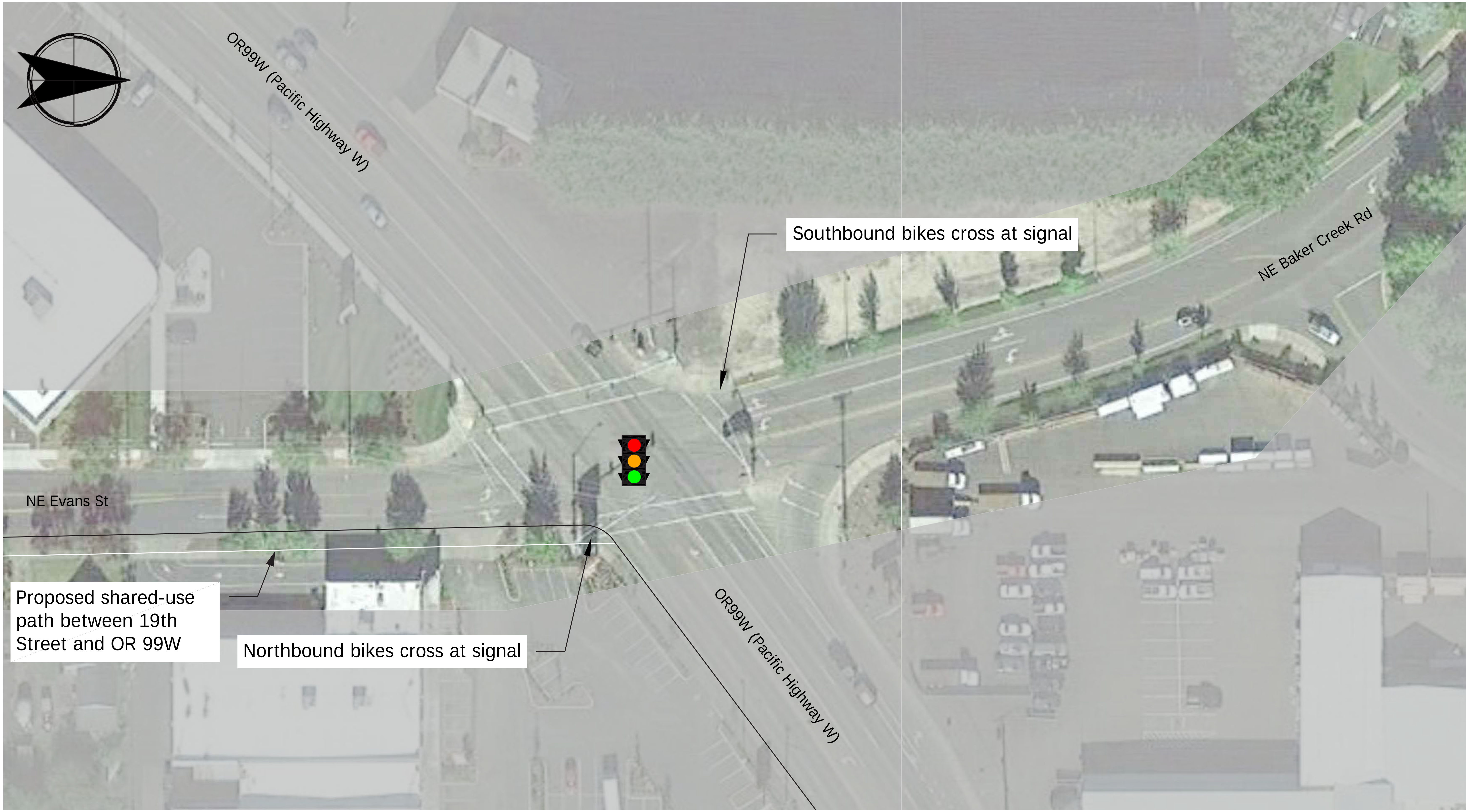


FIGURE 24

Neighborhood Greenway on Davis Street



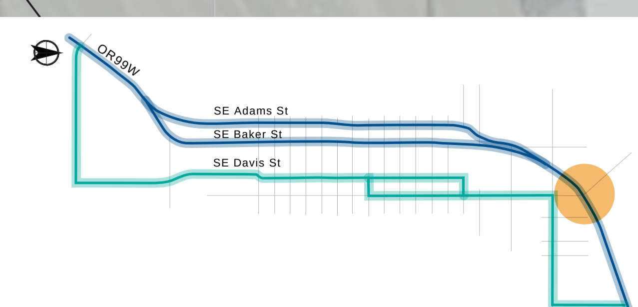


FIGURE 25

Neighborhood Greenway on Davis Street

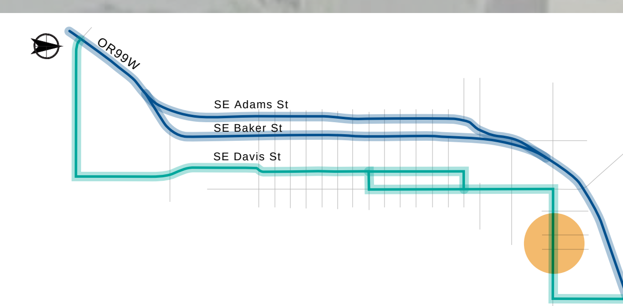


FIGURE 26

Neighborhood Greenway on Davis Street

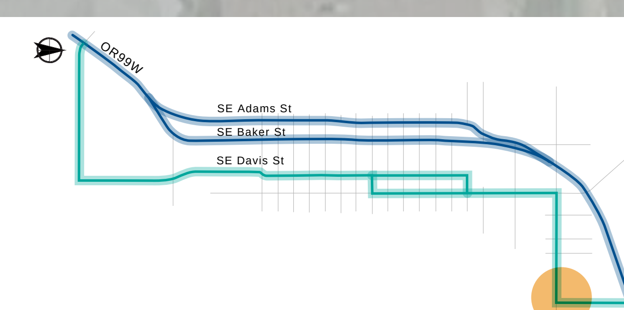


FIGURE 27

Neighborhood Greenway on Davis Street

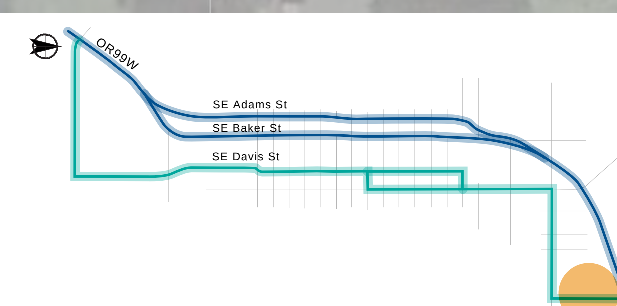


FIGURE 28

Neighborhood Greenway on Davis Street

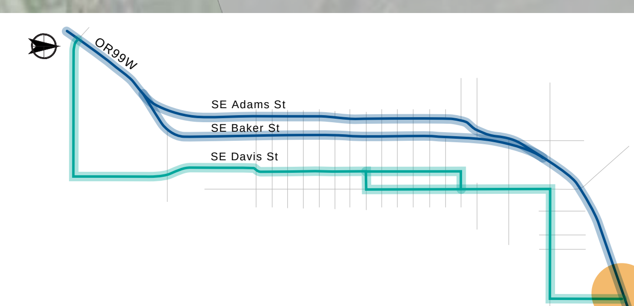


FIGURE 29

What Puts the Preferred Alternative in the Lead?

- The Davis Street Greenway provides low-stress facilities and a safe crossing at 3rd Street for users of all ages and abilities.
- The Davis Street Greenway is a low-cost option and potential diverters can be introduced as pilot projects.
- The existing character of Davis Street is more conducive to neighborhood greenway facilities; the northerly segment of Evans Street would likely require more substantial traffic calming efforts to serve as a low-stress facility due to speeds and volumes.
- The intersection of Davis Street/3rd Street is signalized, providing a more comfortable intersection crossing than the two-way, stop-controlled intersection of Evans Street/3rd Street.
- The OR 99W Buffered Bike Lanes provide direct access for people biking through the couplet and to destinations west of the couplet.
- The OR 99W Buffered Bike Lanes are a moderate-cost option that can be easily added to pavement projects along the couplet.
- Concept 2 and 3A were the public's top choices in the project survey.

PEOPLE WHO PREFER CONCEPT 2, BUFFERED BIKE LANES ON ADAMS STREET AND BAKER STREET, THINK THAT:

- It is the most intuitive and practical (due to directional flow)
- It has low maintenance requirements
- It provides direct access to businesses on OR 99W
- People would continue biking on Baker Street even if there was a two-way facility on Adams Street

PEOPLE WHO PREFER CONCEPT 3A, NEIGHBORHOOD GREENWAY ON DAVIS STREET, THINK THAT:

- It is attractive and sensible (due to low traffic volumes and speeds)
- It supports children and beginner cyclists
- It is already used as a parallel route today
- There is no advantage to making OR 99W more bike friendly because there is no need to use it in town
- Other options on OR 99W would increase congestion

Near- and Long-Term Solutions

These concepts can be broken into near-and long-term solutions to streamline construction while providing opportunities to continue making McMinnville a safer, more comfortable place to walk, bike, and roll.

The near-term solutions provide the opportunity to pilot and try out some of the design solutions, such as traffic diverters and flex-post delineators. A pilot approach can introduce McMinnville residents to lower-cost ways to calm traffic and support active modes in a temporary manner. If the "pilot" is well received, then the solutions can be left in place or installed more permanently.

NEIGHBORHOOD GREENWAY ON DAVIS STREET

Near-Term Solutions

- Sharrows
- Signage
- Traffic calming

Long-Term Solutions

- Evaluate success of traffic diverters and consider adding additional traffic calming features.
- Expand the network of neighborhood greenway routes in McMinnville.
  - » Potential connections include a multiuse path on Evans Street between 17th Street and OR 99W and bike lanes or sharrows along Lafayette Avenue, 3rd Street, 4th Street, 5th Street, Birch Street, and Alder Street. Lafayette Avenue has existing bike lanes, and 5th Street has existing sharrows.

BUFFERED BIKE LANES ON ADAMS STREET AND BAKER STREET

Near-Term Solutions

- Construct buffered bike lanes with repaving project
- Provide vertical separation at intersections with high-turn volumes along Adams Street and consistently south of 2nd Street where there are no driveway conflict points.

Long-Term Solutions

- Explore additional opportunities for vertical separation with future access consolidations associated with capital and/or redevelopment projects.

7 / Enhanced Pedestrian Crossings

Not only did the project team look at ways for all modes to travel north and south through the study area, but they also evaluated the need for safely crossing the highway—connecting people to neighborhoods and other destinations. Based on analysis, public feedback, and PAC recommendations, the project team selected the following enhanced crossing treatments at the identified crossing locations:

- High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- Advance Stop Here For Pedestrians sign and stop line
- Rectangular rapid flashing beacon (RRFB)

Locations recommended for enhanced pedestrian crossings are shown in Figure 1 (pp 26-27), Figure 4 (pp 32-33), Figure 6 (pp 36-37), and Figure 8 (pp 40-41).

The planning-level cost associated with high visibility crosswalk markings with RRFB is $125,000 per location. This estimate includes construction and professional fees for ADA ramp reconstruction on both sides of the roadway, striping, signage, and the RRFB. The estimate does not include right-of-way, utility relocations, or bicycle detection on approaches.

Coordination with Yamhill County Transit is recommended to consider relocating existing transit stops to enhanced crossing locations to facilitate transit use in the area.

Rectangular Rapid Flashing Beacon

> "This intersection is **not pedestrian friendly!** Cars are looking out for themselves only. I actively avoid crossing Evans or OR 99W at this corner."
>
> *–Public comment about the corner of OR 99W and Evans Street*

8 / Making the Preferred Concept a Reality

Adoption Process

This plan represents the project management team's preferred concepts based on information provided by the project team, the PAC's guidance, and stakeholder feedback received throughout the planning process. This preferred concept plan will be presented at hearings with the following decision-making bodies for consideration in amending the City of McMinnville's Transportation System Plan:

- McMinnville Planning Commission
- McMinnville City Council

Concept Plan design elements must be vetted through ODOT Region 2's Technical Center and, where applicable, the Oregon Mobility Advisory Committee, to ensure they meet the documented project context and goals.

To ensure projects can be funded through ODOT preservation or enhancement programs, City capital project budgets, or private development fees, the project team has prepared an Urban Design Concurrence Document for review by the Mobility Advisory Committee and approval by the Region 2 Roadway Manager following adoption by the City of McMinnville. The subsequent steps are:

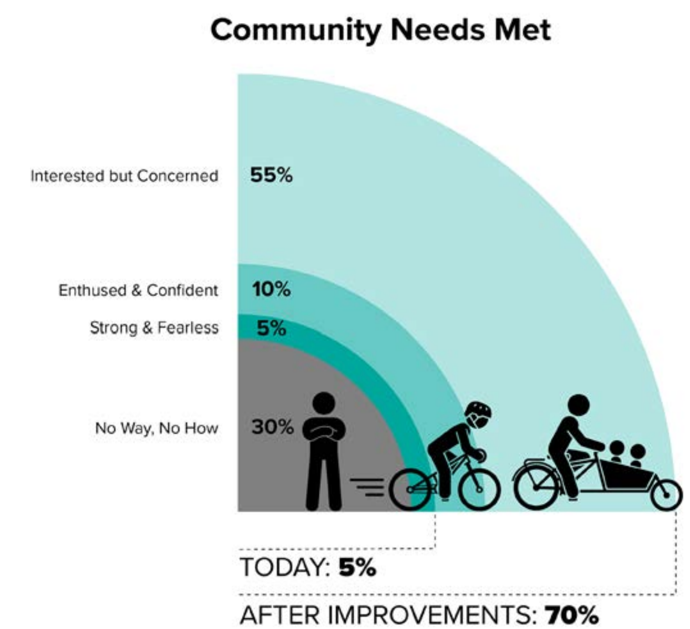
- Moving to final design and construction
- Monitoring, operating, and maintaining*

The Concept Plan and Urban Design Concurrence Document will form the basis of these subsequent steps.

If future phases differ from this Concept Plan, the project team should revisit the Corridor Vision Statement Memorandum and Urban Design Concurrence Document, and determine if the original intended outcomes for the project should change. If a change appears appropriate, then justification should be provided and documented.

Implementation and Funding

The McMinnville OR 99W (Linfield to McDonald) Active Transportation Concept Plan solutions can be separated into distinct projects to support incremental implementation as funding sources are identified. Securing funding for construction of the Davis Street Neighborhood Greenway should be prioritized. If funding sources are identified for any other project, however, that project may be implemented first. Timing and potential funding sources for each project are outlined on the following page.



Serving the Interested but Concerned

Facilities for people biking along the OR 99W corridor today are suitable only for 'strong and fearless' cyclists—those comfortable cycling under any conditions. Making the preferred concepts presented in this plan a reality will provide protected facilities for bicyclists, increasing the likelihood the 'interested but concerned' majority will feel safe traveling through McMinnville by bike.

* For additional information, see the Blueprint for urban Design.

Potential Funding Sources

Project	Priority Order	Timing	Preliminary Budget for Near-Term Recommendations	Potential Funding Sources
Davis Street Neighborhood Greenway	1	As soon as funding can be made available	$141,000	• Safe Routes to Schools
OR 99W Buffered Bike Lanes	2	Improvements should occur as part of the next resurfacing preservation project	$418,000	• Safe Routes to Schools • STIP Preservation funding
Adams Street/15th Street Enhanced Crossings	3	Construct these two crossings at the same time,* or with development	$250,000	• Private development • Transportation Safety Division grants • STIP Preservation funding
Baker Street/ Cowls Street Enhanced Crossing	4	Time with upcoming development	$125,000	• Upcoming private development • Transportation Safety Division grants • STIP Preservation funding
Adams Street/8th Street Enhanced Crossing **Baker Street/8th Street Enhanced Crossing**	5	Construct these two crossings at the same time,** or with development	$250,000	• Private development • Transportation Safety Division grants • STIP Preservation funding
Adams Street/3rd Street Enhanced Crossing	6	Time with upcoming development	$125,000	• Private development • Transportation Safety Division grants • STIP Preservation funding
Adams Street/ Walgreens Crossing	7	Time with upcoming development	$125,000	• Private development • Transportation Safety Division grants • STIP preservation funding

* The priority order of enhanced crossing projects was established based on PAC input.
** Constructing enhanced crossings in pairs may reduce costs and help make the full connection across the couplet, however enhanced crossings can be designed and constructed separately if there is only available funding for one crossing.
*** A midblock enhanced crossing at Adams Street across from the Baker Street/Cowls Street Enhanced Crossing was added based on input from the PAC, PMT, Planning Commission, and City Council. Formal analysis was not conducted at that location as part of this planning effort.

SENATE BILL 408 REQUIREMENTS

Oregon Senate Bill (SB) 408 requires balancing competing interests on facility plans (e.g., Concept Plan) developed by ODOT. An example of competing interest is described in ODOT's Oregon Greenhouse Gas Reduction Toolkit: Strategy Report (Reference 2): "Preserving the economic interests of property owners (who place a high value on convenient access to their property) will require finding a balance between private property interests and the safety and operations of public roadways."

The concepts developed to address the multimodal needs along OR 99W are not anticipated to impact the access to or reduce capacity of the OR 99W corridor. The neighborhood greenway will not impact facilities along OR 99W; the buffered bike lanes maintain a minimum of 11-foot-wide travel lanes along the couplet and include flex posts along limited segments of the corridor where there are no access management or parking concerns.

9 / Supporting Documentation

- **Detailed Cost Estimates**
- **Blueprint for Urban Design Documentation**
- **Technical Memoranda**
- **Public Involvement & PAC Meeting Notes**

Oregon Department of Transportation

City of McMinnville

EXHIBIT C - ORDINANCE NO. 5107

CITY OF MCMINNVILLE

OR 99W (Linfield to McDonald) ACTIVE TRANSPORTATION CONCEPT PLAN

Supporting Documentation

APRIL 2021

Oregon Department of Transportation

City of McMinnville

Detailed Cost Estimates

McMinnville OR 99W Active Transportation Concept Plan
Concept 1: Two-Way Separated Bike Lane (Cycle Track)
ODOT

KITTELSON & ASSOCIATES

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE	*Date: April 16, 2021*
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac	
This Estimate has a Rating of:	**3C** *(See rating scale guide below.)*

ITEM	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
MOBILIZATION	LS	ALL	$37,000.00	$37,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$8,000.00	$8,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$24,000.00	$24,000.00
STRIPE REMOVAL	FOOT	500	$0.50	$250.00
LEGEND REMOVAL	SQFT	250	$3.00	$750.00
BAR REMOVAL	SQFT	500	$3.00	$1,500.00
PERMANENT SURFACE MOUNTED TUBULAR MARKERS	EACH	350	$200.00	$70,000.00
METHYL METHACRYLATE, EXTRUDED	FOOT	16,500	$4.00	$66,000.00
PAVEMENT LEGEND, TYPE B-HS: ARROWS	EACH	10	$20.00	$200.00
PAVEMENT BAR, TYPE B-HS	SQFT	2,000	$10.00	$20,000.00
PAVEMENT LEGEND, TYPE B-HS: ON-STREET PARKING	EACH	10	$250.00	$2,500.00
GREEN BICYCLE LANE, METHYL METHACRYLATE	SQFT	33,500	$5.00	$167,500.00
REMOVE EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
REMOVE AND REINSTALL EXISTING SIGNS	LS	ALL	$10,000.00	$10,000.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$10,000.00	$10,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	500	$25.00	$12,500.00
SIGNAL MODIFICATIONS	LS	ALL	$100,000.00	$100,000.00
TOTAL CONSTRUCTION COST			**$**	**535,200**
TOTAL PROJECT SUBTOTAL			**$**	**535,200**
30% Engineering & Administrative Services			**$**	**160,560**
30% Contingency			**$**	**160,560**
TOTAL ESTIMATED PROJECT COST			**$**	**857,000**

Assumptions:

- Cycle track assumed to be painted green
-
-
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

McMinnville OR 99W Active Transportation Concept Plan

Concept 2: OR99W Buffered Bike Lanes

ODOT

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE		*Date: April 16, 2021*		
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
MOBILIZATION	LS	ALL	$23,000.00	$23,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$5,000.00	$5,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$12,000.00	$12,000.00
STRIPE REMOVAL	FOOT	1,000	$0.50	$500.00
LEGEND REMOVAL	SQFT	500	$3.00	$1,500.00
BAR REMOVAL	SQFT	1,000	$3.00	$3,000.00
METHYL METHACRYLATE, EXTRUDED	FOOT	33,500	$4.00	$134,000.00
PAVEMENT LEGEND, TYPE B-HS: ARROWS	EACH	20	$20.00	$400.00
PAVEMENT BAR, TYPE B-HS	SQFT	4,000	$10.00	$40,000.00
PAVEMENT LEGEND, TYPE B-HS: ON-STREET PARKING	EACH	20	$250.00	$5,000.00
TUBULAR MARKERS	EACH	70	$125.00	$8,750.00
REMOVE EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
REMOVE AND REINSTALL EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$5,000.00	$5,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	500	$25.00	$12,500.00
			TOTAL CONSTRUCTION COST $	**260,650**
			TOTAL PROJECT SUBTOTAL $	**260,650**
			30% Engineering & Administrative Services $	**78,195**
			30% Contingency $	**78,200**
			TOTAL ESTIMATED PROJECT COST $	**418,000**

Assumptions:

-
-
-
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

McMinnville OR 99W Active Transportation Concept Plan

Concept 3: Neighborhood Greenway on Davis Street

ODOT

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE			*Date: April 16, 2021*	
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac				
This Estimate has a Rating of:			**3C**	*(See rating scale guide below.)*
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
MOBILIZATION	LS	ALL	$8,000.00	$8,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$2,000.00	$2,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$4,000.00	$4,000.00
PAVEMENT BAR, TYPE B-HS	SQFT	50	$10.00	$500.00
PAVEMENT LEGEND, TYPE B-HS	EA	94	$300.00	$28,200.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$5,000.00	$5,000.00
TRAFFIC SEPARATOR	EA	1	$5,000.00	$5,000.00
SPEED HUMPS	EA	3	$10,000.00	$30,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	200	$25.00	$5,000.00
TOTAL CONSTRUCTION COST			**$**	**87,700**
TOTAL PROJECT SUBTOTAL			**$**	**87,700**
30% Engineering & Administrative Services			**$**	**26,310**
30% Contingency			**$**	**26,310**
TOTAL ESTIMATED PROJECT COST			**$**	**141,000**

Assumptions:

-
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

McMinnville OR 99W Active Transportation Concept Plan

Concept 3: Neighborhood Greenway on Evans Street

ODOT

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE		*Date: April 16, 2021*		
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
MOBILIZATION	LS	ALL	$8,000.00	$8,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$2,000.00	$2,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$4,000.00	$4,000.00
PAVEMENT BAR, TYPE B-HS	SQFT	50	$10.00	$500.00
PAVEMENT LEGEND, TYPE B-HS	EA	94	$300.00	$28,200.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$5,000.00	$5,000.00
TRAFFIC SEPARATOR	EA	1	$5,000.00	$5,000.00
SPEED HUMPS	EA	3	$10,000.00	$30,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	200	$25.00	$5,000.00
TOTAL CONSTRUCTION COST			**$**	**87,700**
TOTAL PROJECT SUBTOTAL			**$**	**87,700**
30% Engineering & Administrative Services			**$**	**26,310**
30% Contingency			**$**	**26,310**
TOTAL ESTIMATED PROJECT COST			**$**	**141,000**

Assumptions:

-
-
-
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Blueprint for Urban Design Documentation

Date: April 22, 2021

Project/Corridor Title: McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan

Key Number: NA

EA: 21PF220/721

Planning Document Summary
City of McMinnville Transportation System Plan (2010): The Goal and Policy Guidance established in the City of McMinnville Transportation System Plan (TSP) were used as the basis for developing the Corridor Vision Statement for the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan (Concept Plan). The TSP identifies a list of prioritized projects including active transportation (AT) recommendations along OR 99W to improve safety for people walking and biking within the project study area. **City of McMinnville Comprehensive Plan (Volume II) (2004)**: The transportation system policies identified in Chapter VI of the Comprehensive Plan were reviewed when developing the Corridor Vision Statement to ensure consistency. Relevant policies identified in Chapter VI include, but are not limited to: • Complete Streets • Multi-Modal Transportation System • Connectivity and Circulation • Transportation Safety • Transportation Sustainability • Pedestrian Programs • Bicycle System Plan **City of McMinnville Downtown Strategic Parking Management Plan (2018):** The qualitative and quantitative data provided in the Downtown Strategic Parking Management Plan, most notably along OR 99W, was reviewed and analyzed as part of the existing conditions and future needs assessment. The analysis was incorporated as part of the alternative development considering the recommendations identified in the Downtown Strategic Parking Management Plan to inform decision making for alternative development located along OR 99W. **McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan Project Vision:** Identify improvements in the OR 99W corridor that will result in a safer, more comfortable, and attractive place to walk, bike, roll and facilitate transit use. It is anticipated that the Concept Plan will be adopted into the City's TSP Update, scheduled to begin in Summer 2021.

General Project Information

Route Information	Rt. No.	Hwy No.	NHS	Functional Classification	State Classification	Reduction Review Rt	Truck %	Posted Speed	Current ADT
	OR 99W	091	Yes ☒ No ☐	Other Urban Principal Arterial	Regional	Yes ☒ No ☐	16.37 (Baker)	30-35 Note: School Speed zone 20 (7A-5P) @ north end of couplet	13,000 (Adams) 12,600 (Baker)

Project Information	Funding Category	City and County	Begin MP	End MP	Speed	Future ADT (20 Years)
	SPR/Planning	McMinnville, Yamhill County	36.36 (north)	38.46 (south)	**Design: 30** **Target: 25**	13,500 – 14,100 (Adams) 14,600 – 16,300 (Baker)

Defining Character	Building Setback	Adjacent Land Use (Existing / Future)	Pedestrian Crossings	On-Street Parking	# Accesses Per Block
	None ☐ **Shallow** ☐ **Medium** ☒ **Large** ☐	**Comm/Industrial** ☐ ☐ **Retail** ☒ ☒ **Residential** ☒ ☒ **Mixed** ☒ ☒ **Park/Rec** ☐ ☐ **Other:** ☒ ☒ Public (library, fire station, police department) **Note:** Many of the residential buildings were converted to businesses, resulting in character more of a business area than residential directly along corridor.	**Spacing:** **Type:** Marked & unmarked crosswalks/signals	**Yes** ☒ **No** ☐	Average of 0-3 per block
			Bicycle Facility	**Type**	**Block Size**
			None ☒ **Shared Lane** ☐ **Std. Lane** ☐ **Width:** ____ **Other:** ☒ No bike facilities in couplet. Marked bike lane from MP 38.1-38.46 (south end of couplet) and from MP 37-36.36 (north of couplet).	**Parallel** ☒ **Diagonal** ☐ **Back-in** ☐	Most ~350' with a few "double" blocks of ~750' on the south side of the couplet

Project Goals and Outcomes	
Brief Project Description	A repaving “preservation” project along the Baker/Adams Couplet (OR 99W) from MP 37.04 to MP 38.13 was proposed for the 2021-2024 STIP cycle but was not selected for funding. This project is not currently slated for the 2024-2027 STIP cycle, but an ADA ramp project is scheduled for 2024 and could potentially be combined with a repaving preservation project. The goal of the Concept Plan is to advance the “readiness” of active transportation investments and elements to be incorporated into the future preservation project. The solutions identified in this Concept Plan can also comprise a standalone active transportation project or portions could be funded through the Safe Routes to School construction program. The **primary purpose of the McMinnville OR 99W Active Transportation Concept Plan is to identify improvements in the OR 99W corridor that will result in a safer, more comfortable, and attractive place to walk, bike, roll and facilitate transit use**. This Concept Plan identified specific multimodal elements that could be added to future projects based on the context and guiding principles from the BUD. All concepts/alternatives were vetted extensively through public outreach and approved by the City of McMinnville as an amendment to their Transportation System Plan. Through this planning process, the project team addressed the following needs. • Preserved two northbound and two southbound lanes to accommodate traffic demand • Addressed bicycle facility needs by providing on-street buffered bicycle lane facilities along OR 99W and a low-stress, neighborhood parallel route • Ensured connectivity and access for all users in McMinnville • Addressed OR 99W safety issues for people walking and rolling (wheelchairs, hover boards, skateboards, etc.)

Community Engagement	
Describe Community Outreach Summarize Commitments, Expectations	There was on-going coordination with the City throughout the project as they were active participants on the Project Management Team (PMT). Specific community outreach engagement and strategies are described below: 1) The PMT formed a Project Advisory Committee (PAC), made up of citizens representing diverse modal perspectives as well as representation from local business owners, emergency service providers, the school district, and a member from the City Planning Commission and Council. The PAC also included ODOT District/Maintenance representatives. The PAC met three times, at key project milestones, to provide input on the project material and the Concept Plan. 2) The PMT hosted a virtual public meeting to solicit broad input on analysis, alternatives/concepts, and preferred alternative concept development. The virtual meeting included a live presentation and several weeks for people to add comments through email, a survey, or an interactive map. 76 community comments were received. 3) An “information only” presentation was provided to ODOT’s Mobility Advisory Committee (MAC) Stakeholder Forum. Alternatives/concepts were presented since they could potentially impact the OR 99W cross-section which is a Reduction Review Route. The MAC responded positively regarding the buffered bike lane concept as well as the neighborhood greenway. 4) City of McMinnville held a joint Planning Commission/City Council Work Session and conducted Planning Commission and City Council hearing resulting in the adoption on the Concept Plan into the city’s TSP on XXXX XX, 2021.

Modal Integration		
Determine Modal Integration	**Existing Modal Integration**	**Future Modal Integration**
	Pedestrians ☐ High ☒ Medium ☐ Low	**Pedestrians** ☒ High ☐ Medium ☐ Low
	Bicycles ☐ High ☐ Medium ☒ Low	**Bicycles** ☒ High ☐ Medium ☐ Low
	Transit ☐ High ☒ Medium ☐ Low	**Transit** ☒ High ☐ Medium ☐ Low
	Freight/Motor Vehicles ☒ High ☐ Medium ☐ Low	**Freight/Motor Vehicles** ☒ High ☐ Medium ☐ Low

Context
Traditional Downtown/CBD ☒ **Urban Mix** ☒ **Commercial Corridor** ☐ **Residential Corridor** ☐ **Suburban Fringe** ☐ **Rural Community** ☐

Context Discussion
STUDY AREA: The McMinnville Active Transportation Concept Plan study area is contained to the 2.1 mile segment of OR 99W between NE McDonald Road (MP 36.36) and SW Linfield Avenue (MP 38.46). Just north of NE 15th Street (MP 37.12), OR 99W splits into a couplet configuration with northbound travel along NE Baker Street and southbound travel along NW Adams Street. The couplet merges back at SW Edmunston Road (MP 38.22). **CONTEXT OVERVIEW**: North of the couplet, the adjacent land uses of OR 99W primarily consist of commercial with shallow setbacks, off-street parking, and medium block sizes. Throughout the couplet, the adjacent land uses consist of a mix of residential and commercial with minimal setbacks, on-street parking, consistently spaced small blocks, and buildings orientated towards the roadway. At SE 1st Street (MP 37.81), the context of OR 99W changes as the couplet prepares to merge back. The adjacent land uses of OR 99W between SE 1st Street and SW Linfield Avenue are less defined, similar to the northern portion of the corridor, with shallow setbacks, off-street parking, and medium block sizes. **CONTEXT SELECTION**: The project team selected two contexts for the project area – **Traditional Downtown/CBD** and **Urban Mix**. The urban context recommendations for OR 99W considered the existing and future desired contexts of the corridor and surrounding land uses. **NE McDonald Lane (MP 36.36) to NW 15th Street (MP 37.12):** Between NE McDonald Lane and NW 15th Street, adjacent zoning is primarily C-3 (General Commercial) with one M-1 (Light Industrial) parcel and one R-2 (Single-Family Residential) parcel. Building setbacks are primarily medium to large with off-street parking typically located between business frontages and the roadway. The majority of building orientation does not face the roadway, but rather the parking areas serving the respective businesses. Building coverage adjacent to the right-of-way is medium to low. Block sizes are not well defined and vary between large and medium. • Based on the existing and future desired context as well as the envisioned modal priorities, **Urban Mix** is recommended as the BUD context that is most appropriate and best aligns with the corridor vision within this segment. **NW 15th Street (MP 37.12) to SE 1st Street (MP 37.81):** Between NW 15th Street and SE 1st Street, adjacent zoning is entirely C-3 (General Commercial) with R-4 (Multi-Family Residential) located behind. Building setbacks are shallow and the majority of building facades are orientated toward the roadway. On-street parking exists throughout this segment with occasional off-street parking areas. Building coverage adjacent to the right-of-way is medium with a mix of parking and commercial frontages. Block sizes are well defined, consistent, and relatively small. • Based on the existing and future desired context as well as the envisioned modal priorities, **Traditional Downtown/Central Business District** is recommended as the BUD context that is most appropriate and best aligns with the corridor vision within this segment. **SE 1st Street (MP 37.81) to SW Linfield Avenue (MP 38.46):** Between SE 1st Street and SW Linfield Avenue, adjacent zoning is a primarily R-4 (Multi-Family Residential); however, a small mix of C-3 (General Commercial) and O-R (Office/Residential) is present. The Cozine Creek, zoned F-P (Flood Plain) runs along the west side of OR 99W within this segment resulting in little to no development north of SW Edmunston Street. Building setbacks are shallow to medium with

most buildings orientated towards the roadway. On-street parking is present between SE 1st Street and SE Handley Street, with private driveways providing residential off-street parking. Building coverage adjacent to the right-of-way is medium to low. Block sizes are not well defined and vary between large and medium.

- Based on the existing and future desired context as well as the envisioned modal priorities, **Urban Mix** is recommended as the BUD context that is most appropriate and best aligns with the corridor vision within this segment.

OREGON DEPARTMENT OF TRANSPORTATION
Urban Design Concurrence
DESIGN DECISION DOCUMENTATION

Section Name:	McMinnville Couplet: OR 99W (NE McDonald Lane to Linfield Avenue)					**Route No.:**	OR 99W
Highway Name:	Pacific Highway West					**Highway No.:**	091
County Name:	Yamhill	**Region:**	2	**Key No.:**	NA	**EA No.:**	NA
Begin MP:	36.36	**RDWY ID:**	1 ☐ 2 ☐	**Mileage Type:**			0 ☒ Z ☐
End MP:	38.46	**Mileage Overlap Code:**		0 ☒ 1 ☐ 2 ☐			

PROJECT DATA

Functional Classification:		Urban Principal Arterial		State Classification:	Regional		
Current ADT (Year):		13,000 (west side), 12,600 (east side)		**Design ADT (Year):**			
% Trucks:	16.37	**Vertical Clearance / Reduction Review Route:**		☒Yes ☐No			
Posted Speed:	30 MPH, 35 MPH on the west side, south of 2nd St.	**Design Speed:**		30	**Target Speed:**	25	
Funding:		NA					
Current Estimate:				**Context**	Urban Mix		
Federal Highway Approval (PODI) Required:	Yes ☐ No ☐	**Design Category**	3R ☐ 1R ☐ 4R ☐ SF ☐	**NHS:** ☒ **Non NHS:** ☐		**Top 10% SPIS Site:**	Yes ☒No ☐

Design Element Summary Table		Width (ft.) **
Pedestrian Realm	**Frontage Zone**	1’
	Pedestrian Zone	5’
	Buffer Zone	7’-8’
	Curb/Gutter	.5’
Transition Realm	**Separated Bicycle Lane (Curb Constrained Facility)**	NA
	On-Street Bicycle Lane (Not Including Buffer)	5’
	Bicycle/Street Buffer	3’
	Right Side Shoulder (If Travel Lane Directly Adjacent to Curb	NA
	On-street Parking	7-8’
Travelway Realm	**Travel Lane**	11’-12’ (Adams St. stays at 12’ while Baker St. narrows slightly to 11’)
	Right Turn Lane (Including Shy)	NA
	Left Turn Lane	NA

	Left Side/Right Side Shy Distance	NA
	Two-Way Left Turn Lane	14
	Raised Median – No Turn Lane (Including Shy Distances)	NA
	Left-Turn Lane with Raised Curbed Median/Separator (Includes 16" Separator and Shy Distance	NA

****For dimensions less than range defined in the Blueprint for Urban Design, a design exception is required**

Modal Integration	
Appropriate Modal Integration	**Pedestrians** ☐ **High** ☒ **Medium** ☐ **Low** **Bicycles** ☐ **High** ☒ **Medium** ☐ **Low** **Transit** ☐ **High** ☒ **Medium** ☐ **Low** **Freight/Motor Vehicles** ☒ **High** ☐ **Medium** ☐ **Low**
Briefly Discuss Final Modal Integration Decisions	Chapter 2, Section 2.1.4 provides guidance for designing for multimodal users. Section 2.2.2 highlights other roadway characteristics to consider. OR 99W is a Reduction Review Route, therefore freight mobility is important to maintain. At the same time, the primary goals of the McMinnville Active Transportation Concept Plan is to improve connectivity, safety, and transportation options for active modes. While freight access must be maintained, pedestrian and bicycle access and safety is a high priority. A future repaving and/or ADA project will provide the opportunity to update active transportation element while also addressing pavement conditions and maintaining freight movements.

Pedestrian Realm	
Discuss final Dimensions of Pedestrian Realm Elements	Chapter 3, Table 3-4 provides general guidance for the Pedestrian Realm. Tables 3-11 and 3-12 provide specific guidance (based on the context) for the Pedestrian Realm design. This realm includes sidewalks as well as buffer zones. The McMinnville OR99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan does not include changes to the pedestrian/buffer zones since it was focused on curb-to-curb improvements. The Concept Plan therefore maintains the existing 6' sidewalk (5' sidewalk plus 1' frontage zone in CBD) with a 7'-8' buffer with on-street parking. The curb zone is 0.5.' The project team also evaluated the need for safely crossing the highway – connecting people to neighborhoods and other destinations. Based on the analysis, public feedback, and PAC recommendations, the project team selected the following enhanced crossing treatments at the identified crossing locations: • High visibility crosswalk markings • Parking restrictions on crosswalk approach • Adequate nighttime lighting levels

	• Crossing warning signs • Advance Stop Here For Pedestrians sign and stop line • Rectangular rapid flashing beacon (RRFB) The identified locations include: • 15th Street / NE Adams Street • 15th Street / NE Baker Street • 8th Street / NE Adams Street • 8th Street / NE Baker Street • 3rd Street / NE Adams Street • SE Cowls Street / SE Baker Street The Concept Plan proposes removing parking on the west side of Adams St. due to extremely low utilization rates (peak use of the 208 parking spaces was at 10%) combined with BUD guidance and strong City/community desire for bicycle facilities on OR 99W. This parking space will be replaced with a buffered bike lane which will continue to serve (like the parking did) as an 8' buffer for pedestrians.

Transition Realm	
Discuss final Dimensions of Transition Realm Elements	Chapter 3, Table 3-5 provides general guidance for the Transition Realm. Tables 3-11 and 3-12 provide specific guidance (based on the context) for the Transition Realm design. This realm includes the bicycle facility design, parking space, and maintenance. The Concept Plan looked at several alternatives for this realm including a two-way separated bike lane, buffered bike lanes, and neighborhood greenways (on the local roadway system). The preferred plan includes **buffered bike lanes on OR 99W as well as a local, parallel neighborhood greenway route**. The buffered bike lane option for OR 99W was selected based on evaluation criteria as well as extensive outreach which included early input from the MAC. This option was selected in part because it is more cost effective, has lower maintenance costs/challenges, and has less impacts on freight movements than the two-way separated bike lane concept. The community also liked that people riding bikes are still going with the direction of traffic (more intuitive) that that it would connect people directly to businesses along both corridors. The MAC stakeholders verbally supported the buffered bike lanes combined with the neighborhood route, and made several positive comments about vertical flexposts which are proposed along select segments. In order to get buffered bike lanes on Adams St. (southbound), parking will be removed on the west side of the highway. A parking utilization study was completed to assess this option and parking demand was found to be extremely low. When presented to the City, the PAC, the MAC, and the general public, adding buffered bike lanes where there is currently parking was strongly supported.

	The buffered bike lane design concept includes a **5' lane with a 3' buffer space on both Adams St. and Baker St**. The Concept Plan recommends **vertical flexposts** and **green pavement markings** at key locations. *Note: Region 2 Traffic Operations Engineer vetted the concept and preliminarily agreed to the 7' parking with 11' travel lanes since there is a buffered bike lane (5' and 3') immediately adjacent to the parking and travel lanes. Region Traffic and District 3 also reviewed and agreed to the proposed use of green pavement markings and vertical flexposts, however final design approval is still needed as well as an agreed upon maintenance plan.*

Travelway Realm	
Discuss final Dimensions of Travelway Realm Elements	Chapter 3, Table 3-6 provides general guidance for the Travelway Realm. Tables 3-11 and 3-12 provide specific guidance (based on the context) for the Travelway Realm design. This realm includes travel lane widths and turning lane widths. The Plan's preferred alternative includes maintaining two lanes of travel for both the northbound and southbound directions with the travel lanes ranging from 11'-12' due to the existing width variations and other design elements. Both directions (Adams St. and Baker St.) will have buffered bike lanes. On the north end of the couplet where the roadways are wider, the **travel lanes are at 12' with a 14'** middle turn lane. When you get into the couplet, **Adams St. maintains 12' travel lanes** throughout, but **Baker St. narrows down (south of NE 12th St.) to 11' travel lanes,** which allows the corridor to maintain both parking and provide for buffered bike lanes.

Design Element Less Than Approved Range	
Final Design Elements Less Than Approved Range Dimension	**Are Any Final Design Elements Less Than the Approved Dimension Range?** **No ☒** **Yes ☐ If yes, list the elements below and attach an approved design exception for each**

<u>Signatures</u>

Prepared By: ______________________ **Date:** ______________

Prepare By

Company Name:	Kittelson & Associates, Inc.

Concurred By: ______________________ **Date:** ______________

(ODOT Region Maintenance Manager or Region Maintenance Operations Manager)

____
(Print Name)

Approved By: ____________________________ **Date:** ________________
(Region Technical Center Manager)

____
(Print Name)

Technical Memoranda

KITTELSON & ASSOCIATES

851 SW 6th AVENUE, SUITE 600
PORTLAND, OR 97204
P 503.228.5230 F 503.273.8169

MEMORANDUM

Date:	October 7, 2020	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Nick Gross, Amy Griffiths, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville Active Transportation Concept Plan	
Subject:	Final Corridor Vision Statement	

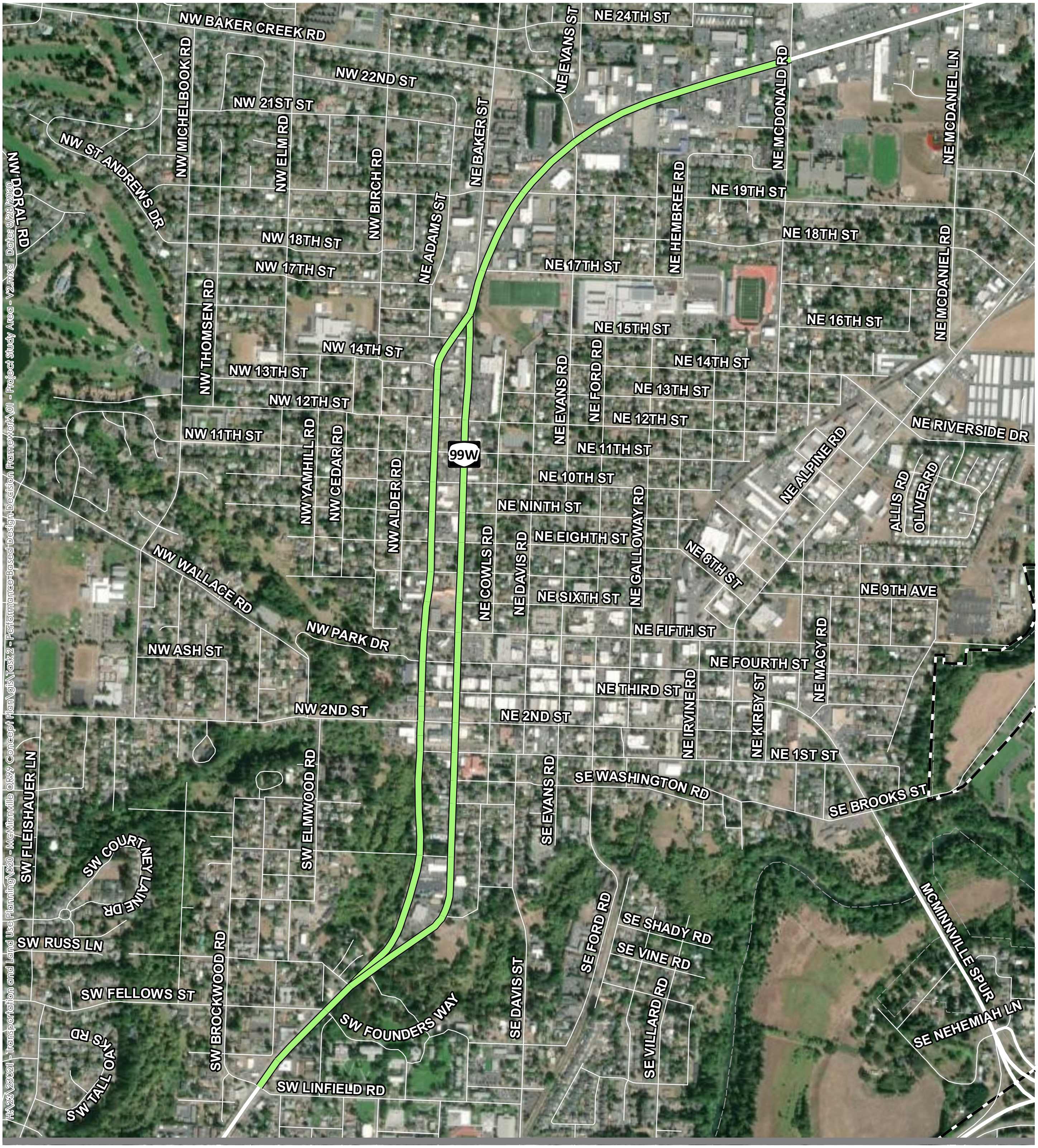
PURPOSE

The purpose of this memorandum is to identify the corridor vision statement of the McMinnville Active Transportation Concept Plan by establishing the existing and future desired urban contexts of OR99W within the study area. Establishing the urban context(s) helps better understand the anticipated users of OR99W, identify appropriate modal prioritization, and provides general guidance on design direction for various elements of the roadway design including bicycle facility selection, pedestrian crossings, and target speeds.

PROJECT STUDY AREA

The McMinnville Active Transportation Concept Plan study area is contained to the 2.1 mile segment of OR99W between NE McDonald Road (mile point [MP] 36.36) and SW Linfield Avenue (MP 38.46). Just north of NE 15th Street (MP 37.12), OR99W splits into a couplet configuration with northbound travel along NE Baker Street and southbound travel along NW Adams Street. The couplet merges back at SW Edmunston Road (MP 38.22). Figure 1 illustrates the project study area.

North of the couplet, the adjacent land uses of OR99W primarily consist of commercial with shallow setbacks, off-street parking, and medium block sizes. Throughout the couplet, the adjacent land uses consist of a mix of residential and commercial with minimal setbacks, on-street parking, consistently spaced small blocks, and buildings orientated towards the roadway. At SE 1st Street (MP 37.81), the context of OR99W changes as the couplet prepares to merge back. The adjacent land uses of OR99W between SE 1st Street and SW Linfield Avenue are less defined, similar to the northern portion of the corridor, with shallow setbacks, off-street parking, and medium block sizes. Figure 2 illustrates the City of McMinnville Zoning and Figure 3 illustrates the City of McMinnville Comprehensive Plan.



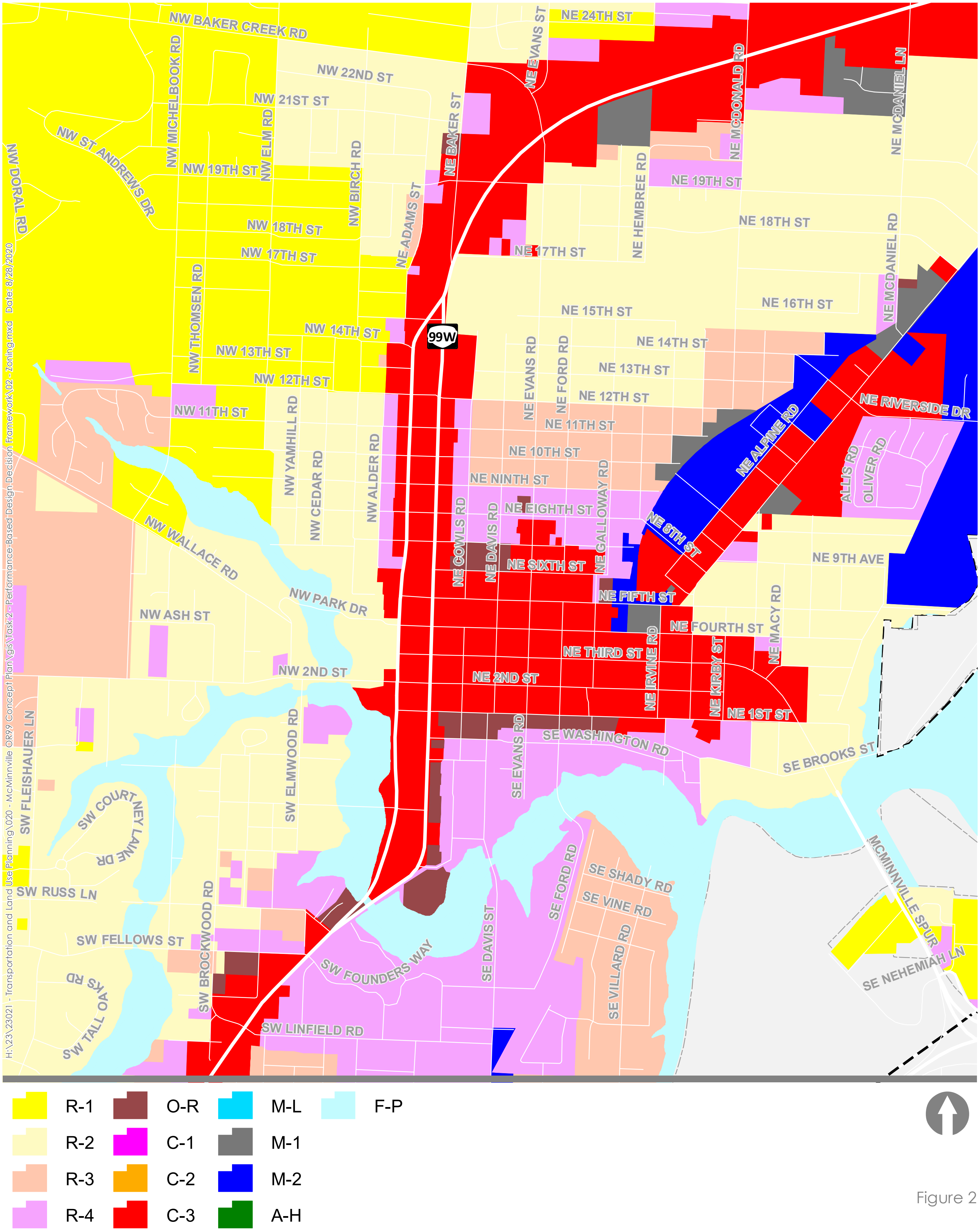
OR99W Project Extents

UGB

Figure 1

KITTELSON & ASSOCIATES

Project Study Area
McMinnville, OR

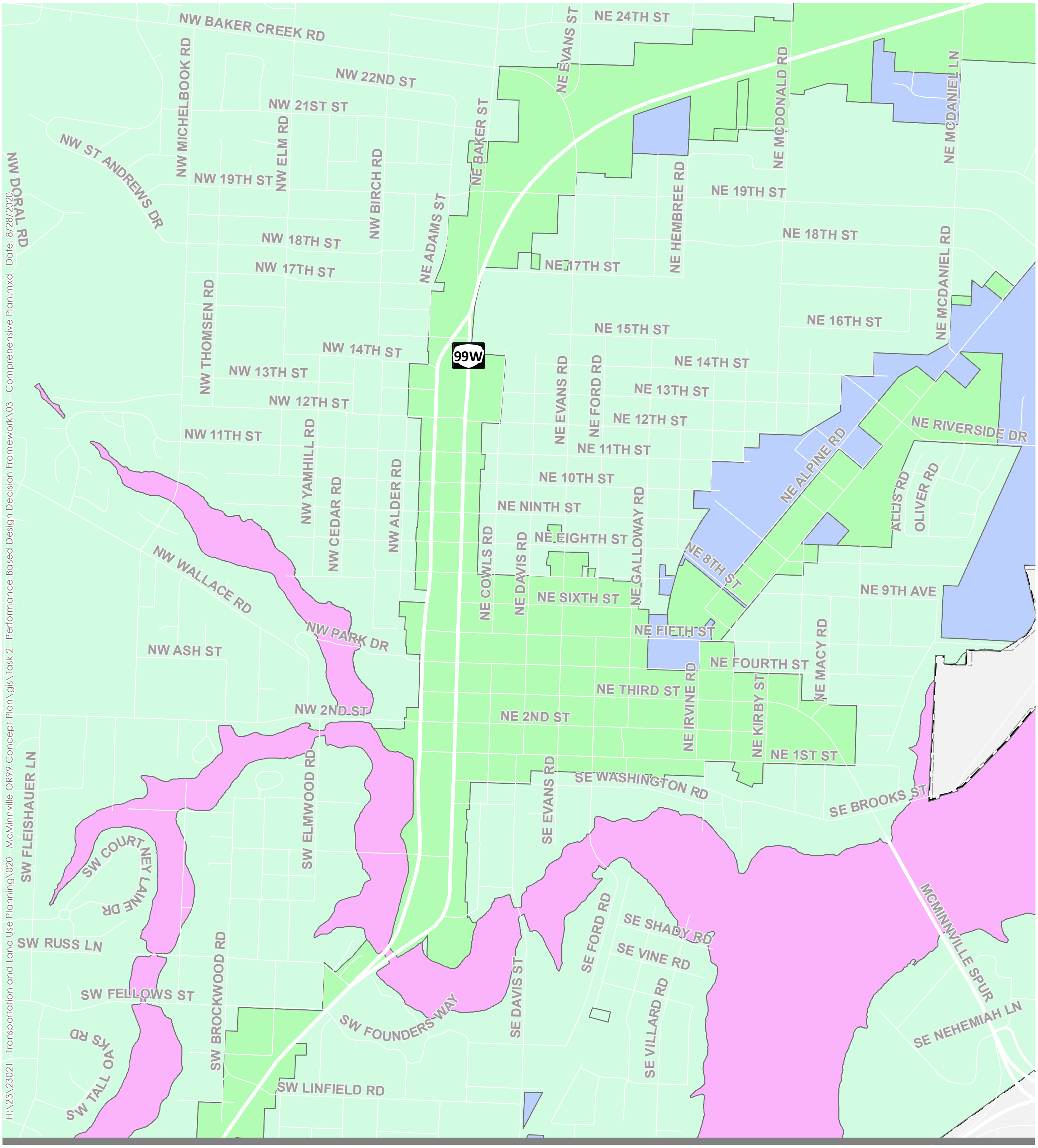


H:\23\23021 - Transportation and Land Use Planning\020 - McMinnville OR99 Concept Plan\gis\Task 2 - Performance-Based Design Decision Framework\02 - Zoning.mxd Date: 8/28/2020

Figure 2

KITTELSON & ASSOCIATES

Zoning
McMinnville, OR



Commercial
Mixed Use Urban
Flood Plain
Industrial
Residential

Figure 3

KITTELSON & ASSOCIATES

Comprehensive Plan
McMinnville, OR

ESTABLISHING THE URBAN CONTEXT

The Oregon Department of Transportation (ODOT) Blueprint for Urban Design (BUD) establishes a framework for determining the urban context along state roadways. Identifying the context helps understand the relative need of each type of users and the "intensity of use" that can be expected within each urban context. Table 1 summarizes the six types of land use contexts as described in the BUD.

Table 1: ODOT Urban Context Matrix

Land Use Context	Setbacks *Distance from the building to the property line*	Building Orientation *Buildings with front doors that can be accessed from the sidewalks along a pedestrian path*	Land Use *Existing or future mix of land uses*	Building Coverage *Percent of area adjacent to right-of-way with buildings, as opposed to parking, landscape or other uses*	Parking *Location of parking in relation to the building along the right-of-way*	Block Size *Average size of blocks adjacent to the right-of-way*
Traditional Downtown/CBD	Shallow/None	Yes	Mixed (residential Commercial, Park/Recreation)	High	On-street/ garage/shared in back	Small, consistent block structure
Urban Mix	Shallow	Some	Commercial fronting, residential behind or above	Medium	Mostly off-street/Single row in front/In back/ On side	Small to medium blocks
Commercial Corridor	Medium to Large	Sparse	Commercial, Institutional, Industrial	Low	Off-street/In front	Large blocks, not well defined
Residential Corridor	Shallow	Some	Residential	Medium	Varies	Small to medium blocks
Suburban Fringe	Varies	Varies	Varied, interspersed development	Low	Varies	Large blocks, not well defined
Rural Community	Shallow/None	Some	Mixed (Residential, Commercial, Institutional, Park/Recreation)	Medium	Single row in front/In back/ On side	Small to medium blocks

The following section provides urban context recommendations for OR99W based on a review of the existing OR99W corridor within the study area and local implementation-oriented plans including the City of McMinnville Transportation System Plan (TSP – Reference 1), the City of McMinnville Comprehensive Plan (Reference 2), and the City of McMinnville Downtown Strategic Parking Management Plan (Reference 3). The urban context recommendations for OR99W consider the existing and future desired contexts of the corridor and surrounding land uses. Identifying an urban context that is reflective of a desired outcome rather than an existing condition will help decision-makers and practitioners achieve the overall corridor vision.

NE McDonald Road (MP 36.35) to NW 15th Street (MP 37.12)

Between NE McDonald Road and NW 15th Street, adjacent zoning is primarily C-3 (General Commercial) with one M-1 (Light Industrial) parcel and one R-2 (Single-Family Residential) parcel. Building setbacks are primarily medium to large with off-street parking typically located between business frontages and the roadway. The majority of building orientation does not face the roadway, but rather the parking areas serving the respective businesses. Building coverage adjacent to the right-of-way is medium to low. Block sizes are not well defined and vary between large and medium.

- Based on the existing and future desired context as well as the envisioned modal priorities, **Urban Mix** is recommended as the BUD context that is most appropriate and best aligns with the corridor vision within this segment.

NW 15th Street (MP 37.12) to SE 1st Street (MP 37.81)

Between NW 15th Street and SE 1st Street, adjacent zoning is entirely C-3 (General Commercial) with R-4 (Multi-Family Residential) located behind. Building setbacks are shallow and the majority of building facades are orientated toward the roadway. On-street parking exists throughout this segment with occasional off-street parking areas. Building coverage adjacent to the right-of-way is medium with a mix of parking and commercial frontages. Block sizes are well defined, consistent, and relatively small.

- Based on the existing and future desired context as well as the envisioned modal priorities, **Traditional Downtown/Central Business District** is recommended as the BUD context that is most appropriate and best aligns with the corridor vision within this segment.

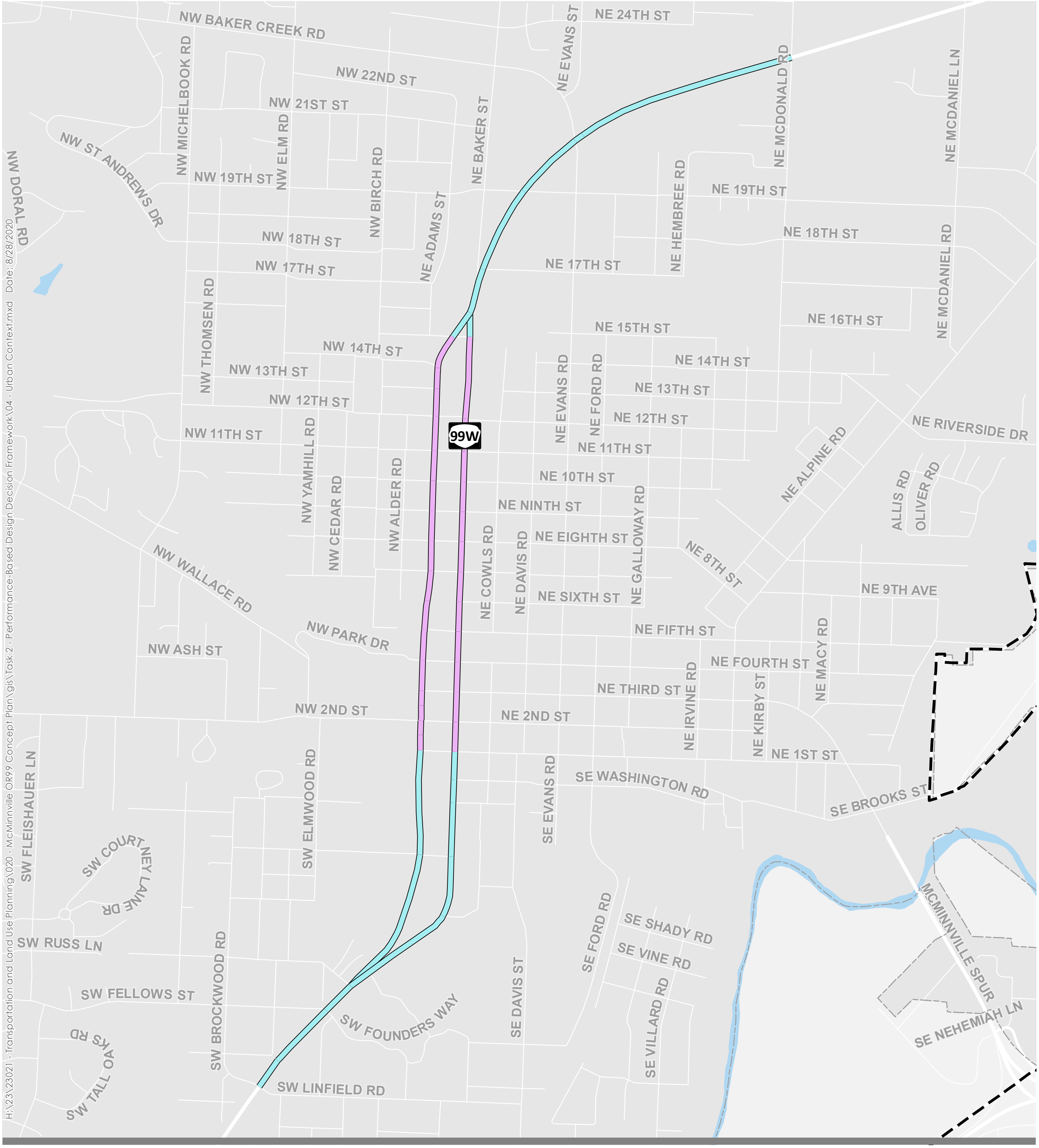
SE 1st Street (MP 37.81) to SW Linfield Avenue (MP 38.46)

Between SE 1st Street and SW Linfield Avenue, adjacent zoning is a primarily R-4 (Multi-Family Residential); however, a small mix of C-3 (General Commercial) and O-R (Office/Residential) is present. The Cozine Creek, zoned F-P (Flood Plain) runs along the west side of OR99W within this segment resulting in little to no development north of SW Edmunson Street. Building setbacks are shallow to medium with most buildings orientated towards the roadway. On-street parking is present between SE 1st Street and SE Handley Street, with private driveways providing residential off-street parking. Building coverage adjacent to the right-of-way is medium to low. Block sizes are not well defined and vary between large and medium.

- Based on the existing and future desired context as well as the envisioned modal priorities, **Urban Mix** is recommended as the BUD context that is most appropriate and best aligns with the corridor vision within this segment.

Recommended Urban Contexts

Figure 4 illustrates the recommended urban contexts for the study area based on the ODOT BUD contexts described in Table 1.



Traditional Downtown/CBD

Urban Mix

City Boundary

UGB

Figure 4

KITTELSON & ASSOCIATES

Proposed Urban Contexts
McMinnville, OR

CORRIDOR VISION STATEMENT

The primary purpose of the McMinnville Active Transportation Concept Plan is to identify improvements in the OR99W corridor that will result in a safer, more comfortable, and attractive place to walk, bike, roll and facilitate transit use. *A supplemental memorandum establishing the draft goals, policies, and evaluation criteria is included in Attachment "A".*

Table 2 summarizes the relative importance for considering the need of each user type to drive planning and design decisions. As summarized previously, the recommended land use contexts for the OR99W corridor within the project study area are **Traditional Downtown/CBD** and **Urban Mix**. Based on these contexts, the general modal considerations for transit, bicyclist, and pedestrians are "High", consistent with the project purpose and vision.

Table 2: General Modal Consideration in Different Urban Contexts

Land Use Context	Motorist	Freight	Transit	Bicyclist	Pedestrian
Traditional Downtown/CBD	**Low**	**Low**	**High**	**High**	**High**
Urban Mix	**Medium**	**Low**	**High**	**High**	**High**
Commercial Corridor	High	High	High	Medium	Medium
Residential Corridor	Medium	Medium	Low	Medium	Medium
Suburban Fringe	High	High	Varies	Low	Low
Rural Community	Medium	Medium	Varies	High	High

High: Highest level facility should be considered and prioritized over other modal treatments.
Medium: Design elements should be considered; trade-offs may exist based on desired outcomes and user needs.
Low: Incorporate design elements as space permits.

Designing Based on Context and Classification

The following section describes the guiding principles and design considerations based on the guidance provided in the ODOT BUD. These guiding principles and design considerations align with the project purpose, goals, and vision.

"Traditional Downtown/Central Business District*: To best serve all users, vehicle speeds should be 25 mph or below, and higher levels of congestion are expected. Transit stops should be placed at frequent intervals, and transit priority treatments can help with transit mobility, even in congested conditions. Bicycle and pedestrian facilities should be relatively wide and comfortable to serve anticipated users. Curbside uses are important and may include loading/unloading, parking (vehicles, bicycles, etc.), and other uses. Landscaping and street trees, following ODOT placement and spacing guidelines, are appropriate in this context."*

***"Urban Mix:** To best serve all users, vehicle speeds are typically 25 to 30 mph, and higher levels of congestion are acceptable. Transit stops should be placed in proximity to origins and destinations. Bicycle and pedestrian facilities should be relatively wide and comfortable to serve anticipated users. Where low speeds cannot be achieved, practitioners must consider a buffer between travel lanes and bicycle and pedestrian facilities. Curbside uses are important and may include loading/unloading, parking (vehicles, bicycles, etc.), and other uses. Landscaping and street trees, following ODOT placement and spacing guidelines, are appropriate in this context."*

Table 3 summarizes the consistencies and inconsistencies between the guiding principles and modal considerations described above for ***Traditional Downtown/Central Business District** and **Urban Mix** within the study area.* Understanding the inconsistencies between the guiding principles and the existing characteristics of the OR99W segments helps to establish the gaps and deficiencies and eventual alternative development.

Table 3: Modal Consideration Comparison

OR99W Segment	Recommended Context	Vehicular Speeds Comparison	Bicyclist Facility Comparison	Pedestrian Facility Comparison
NE McDonald Road to NW 15th Street	Urban Mix	**Existing:** 30 - 35 MPH **Recommended:** 25 – 30 MPH	**Existing:** Standard on-street bike lanes/None **Recommended:** Wide, comfortable, buffered facilities	**Existing:** Standard sidewalks, no buffer **Recommended:** Wide, comfortable, buffered facilities
NW 15th Street to SE 1st Street	Traditional Downtown/CBD	**Existing:** 30 MPH **Recommended:** 25 MPH	**Existing:** None **Recommended:** Wide, comfortable facilities	**Existing:** Standard sidewalks, no buffer **Recommended:** Wide, comfortable, buffered facilities
SE 1st Street to SW Linfield Avenue	Urban Mix	**Existing:** 35 MPH **Recommended:** 25 – 30 MPH	**Existing:** Standard on-street bike lanes/None **Recommended:** Wide, comfortable, buffered facilities	**Existing:** Standard sidewalks, no buffer **Recommended:** Wide, comfortable, buffered facilities

NEXT STEPS

The Corridor Vision has been reviewed by the project management team (PMT) and updated to produce the Final Corridor Vision. The urban contexts established within this document will be used to inform the performance-based design decision making framework and ultimate conceptual design alternative development.

REFERENCES

1. City of McMinnville. *Transportation System Plan, 2010*.
2. City of McMinnville. *Comprehensive Plan, 2018.*
3. City of McMinnville. *Downtown Strategic Parking Management Plan, 2018*.

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MEMORANDUM

Date:	October 7, 2020	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Nicholas Gross, Nick Gross, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville Active Transportation Concept Plan	
Subject:	Final Evaluation Criteria and Performance Measures	

INTRODUCTION

The purpose of this document is to articulate the goals and objectives, evaluation criteria, and performance measures to fulfill the Corridor Vision Statement for the McMinnville Active Transportation Concept Plan. Understanding and executing a performance-based approach with clear, actionable, and measurable evaluation criteria enables project teams to make informed decisions about the performance trade-offs of alternative solutions to best suit the project goals based on the corridor context and needs of the intended users. The corridor context and relative need of the intended users are set according to the Oregon Department of Transportation (ODOT) Blueprint for Urban Design (BUD – Reference 1) and the Draft Corridor Vision (Reference 2).

GUIDING GOALS AND POLICIES

The primary purpose of the McMinnville Active Transportation Concept Plan is to identify improvements along the OR99W corridor in the City of McMinnville that will result in a safer, more comfortable, and attractive place to walk, bike, roll and facilitate transit. The City of McMinnville Transportation System Plan (TSP – Reference 3) identifies guiding goals and policies for the transportation vision for the City. The goals and policies relevant to the McMinnville Active Transportation Concept Plan are included in Table 1 on the following page.

Table 1: TSP Goal and Policy Guidance

TSP Goals and Supplemental Policies	
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."*
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."*
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" including "walking and bicycling."*
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."*
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)."*
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."*

EVALUATION CRITERIA AND PERFORMANCE MEASURES

The goals and policy guidance from the TSP have been converted into draft evaluation criteria for the Active Transportation Concept Plan. These criteria align with the Draft Corridor Vision for OR99W. The performance measures provide a performance-based decision framework for the selection of a preferred alternative. Aligning with guidance from the BUD, the performance measures are designed to be understandable, consistent, measurable, able to differentiate between alternatives, and specific to this project.

Table 2 provides the draft evaluation criteria and performance measures for the McMinnville Active Transportation Concept Plan.

- **Evaluation Criteria** are derived from the goal and supplemental policies from the McMinnville TSP and will be used to evaluate draft alternatives.
- **Description** includes the purpose and general explanation of the evaluation criteria, connecting the criteria to the specific community or agency values (based on the TSP) goals and desired outcomes for the project.
- **Performance Measures** are the measurements used to assess the evaluation criteria.
- **Proposed Methodology** describes how the criterion will be measured, whether it is qualitative or quantitative, and the data needed to evaluate the criteria.

Table 3 provides a scoring scale from -1 to +2, reflecting the extent to which a project achieves the prioritization measure and describes the data required to complete the scoring. Performance measure sub-categories within each evaluation criterion are scored individually, and then averaged to provide an overall score for the evaluation criterion. Each evaluation criteria score can result in a range between -7 (worst possible score) to +14 (best possible score) based on the seven evaluation criteria listed in Table 2.

Appendix A provides a sample evaluation of potential projects.

Table 2: Evaluation Criteria and Performance Measures

Evaluation Criterion	Description	Proposed Performance Measures
Complete Streets	The alternative provides comfortable facilities for people walking and biking, regardless of age and ability. The "complete streets" criterion addresses the "Complete Streets" goal and supplemental policy identified in the TSP.	• Bicycle Level of Traffic Stress (BLTS) • Pedestrian Level of Traffic Stress (PLTS)
Multi-Modal Transportation System	The alternative provides integrated network of facilities and services for a variety of motorized and non-motorized travel modes based on the appropriate relative priority given the corridor context. The multi-modal transportation system criterion addresses the "Multi-Modal Transportation System" goal and supplemental policy identified in the TSP.	• Type and presence of pedestrian, bicycle, transit, motor vehicle, and freight facilities align with the recommendations from the Blueprint for Urban Design (provided in Appendix B)
Connectivity	The alternative provides comprehensive connectivity and circulation to existing active transportation facilities in the City of McMinnville. The alternative encourages walking and biking to essential destinations within the City of McMinnville. The "connectivity" criterion addresses the "Connectivity and Circulation", "Transportation System and Energy Efficiency", and "Transportation Sustainability" goals and supplemental policies identified in the TSP.	• Connection of alternative to the existing and planned bicycle and pedestrian network • Barriers to walking and biking (including an unsafe crosswalk or facilities in poor condition) removed by the alternative • Facility gap filled by alternative • Proximity of alternative to essential destinations • Proximity of alternative to activity generators
Safety	The alternative provides safety countermeasures that reduce the number of fatal and severe injury crashes. The "safety" criterion addresses the "Transportation Safety" and "Transportation Sustainability" goals and supplemental policies identified in the TSP.	• Percentage (%) of anticipated crash reduction based on crash reduction factor (CRF) scaled by planning-level cost of project • Bicyclist and pedestrian crash history • Pedestrian Risk Factor • Bicyclist Risk Factor
Equity	The project meets the requirements set forth in the Americans with Disabilities Act (ADA) and provides transportation options to transportation disadvantaged populations. The "equity" criterion addresses the "Accessibility for Persons with Disabilities" and "Health and Welfare" goals and supplemental policies identified in the TSP.	• This will use the Transportation Disadvantaged Population (TDP) Index from the ODOT Active Transportation Needs Inventory (ATNI). The index considers the following characteristics of a census block: elderly populations (65 and older), youth populations (under 18), non-white and Hispanic populations, low-income populations (households earning less than 200% of the poverty level as determined by the census), limited English proficiency population (aggregate of census populations who speak English "not well" or "not at all"), households without access to a vehicle, and people with a disability (severe or non-severe disability) • This criterion will also consider impacts to ADA compliance.
Livability	The alternative minimizes impacts to adjacent property owners and encourages the use of public transit, bikeways, sidewalks, and walkways. The project provides equity and receives public support. The "livability" criterion addresses the "Livability" and "Aesthetics and Streetscaping" goals and supplemental policies identified in the TSP.	• Right-of-way acquisition needs • Neighborhood street modification, business access and parking • Anticipated public support based on Open House and Public Advisory Committee Comments
Design Feasibility	The alternative has no major design feasibility concerns. The "design feasibility" criterion does not directly address any goals or supplemental policies identified in the TSP.	• Constructability (including, but not limited to, right-of-way availability, existing terrain, utility location, visibility concerns, etc.)

Table 3: Evaluation Criteria Scoring

Evaluation Criterion	Performance Measure	Scoring Scale				Resources
		-1	0	+1	+2	
Complete Streets	Quantitative: BLTS	Project **degrades** existing BLTS	Project makes **no change** to existing BLTS	Project **improves** existing BLTS by **1 point**	Project **improves** existing BLTS by **2 or 3 points**	Posted speed, traffic volumes, number of lanes, and bicycle facility type
	Quantitative: PLTS	Project **degrades** existing PLTS	Project makes **no change** to existing PLTS	Project **improves** existing PLTS by **1 point**	Project **improves** existing PLTS by **2 or 3 points**	Posted speed, traffic volumes, number of lanes, and pedestrian facility type
Multi-Modal Transportation System	Qualitative: Type and presence of pedestrian, bicycle, transit, motor vehicle, and freight facilities align with the recommendations from the Blueprint for Urban Design (provided in Appendix B)	Project **degrades** modal priorities based on urban context.	Project has **no impact** on modal priorities based on urban context.	Project **improves** modal priorities for urban context.	Project **significantly improves** modal priorities for urban context.	Posted speed, travel lane characteristics, shy distance, median, bicycle facility type and characteristics, pedestrian facility type and characteristics, parking type and characteristics The urban context was determined to be Traditional Downtown/CBD and Urban Mix in the Corridor Vision (Reference 2). Based on recommendations from the Blueprint for Urban Design, Transit, Bicyclist, and Pedestrian are "High" priority modes (reference table provided in Appendix B)
Connectivity	Qualitative: Project is identified by the City of McMinnville Transportation System Plan (TSP) or is located on the Safe Routes to School (SRTS) Network.	N/A	The project **is not** identified by the TSP **or** located on the SRTS Network	The project **is** identified by the TSP **or** is located on the STRS Network	The project **is** identified by the TSP **and** is located on the SRTS Network	City of McMinnville Transportation System Plan, Safe Routes to School Network
	Qualitative: Project removes barrier to walking and biking or fills gap in the walking and biking transportation network	Project **creates** barriers or gaps in the walking and biking transportation network	Project has **no impacts** to barriers or gaps in the walking and biking transportation network	Project **indirectly addresses** barriers or gaps in the walking and biking transportation network	Project **directly addresses** barriers or gaps in the walking and biking transportation network	Existing conditions inventory
	Quantitative: Proximity to activity generators and essential destinations	N/A	Project would serve **no** active generators or essential destinations in ¼ mile radius	Project would serve **some** active generators or essential destinations in ¼ mile radius	Project would serve **many** active generators or essential destinations in ¼ mile radius	Count of active generators and essential destinations within ¼ mile of the project location.
Safety	Quantitative: Crash Reduction Factor C/Planning Level Project Cost	N/A	The project is **not** anticipated to reduce crashes at a location.	The project provides a **moderate** value crash reduction factor given the project cost.	The project provides a **high** value crash reduction factor given the project cost.	This is a quantitative measurement based on crash countermeasures and planning-level cost estimates.
	Quantitative: Crash History	N/A	There were **no** bicyclist or pedestrian crashes reported in the 5-year crash history within 250 feet of the project.	There were **1 or 2** bicyclist or pedestrian crashes reported in the 5-year crash history within 250 feet of the project.	There were **3 or more** bicyclist or pedestrian crashes reported in the 5-year crash history within 250 feet of the project.	5-Year Crash History
	Quantitative: Pedestrian Risk Factor Scoring	N/A	The project is **not** located on, or perpendicular to a **Medium or High** risk factor location.	The project is located on, or perpendicular to a **Medium** risk factor location.	The project is located on, or perpendicular to a **High** risk factor location.	This is a quantitative measure based on the ODOT Statewide Pedestrian and Bicycle Safety Plan's established risk factor scoring for systemic safety.
	Quantitative: Bicyclist Risk Factor Scoring	N/A	The project is **not** located on, or perpendicular to a **Medium or High** risk factor location.	The project is located on, or perpendicular to a **Medium** risk factor location.	The project is located on, or perpendicular to a **High** risk factor location.	

Table 3: Evaluation Criteria Scoring

Evaluation Criterion	Performance Measure	Scoring Scale				Resources
		-1	0	+1	+2	
Equity	Quantitative: Project impact to transportation disadvantaged populations based on the ODOT Transportation Disadvantaged Population (TDP) Index	Project **degrades** transportation options and facilities for transportation disadvantaged populations	Project has **no impact** on transportation options and facilities for transportation disadvantaged populations	Project **indirectly improves** transportation options and facilities for transportation disadvantaged populations	Project **directly improves** transportation options and facilities for transportation disadvantaged populations	Census block data
	Qualitative: Project impact to ADA compliance	Project **degrades** ADA compliance	Project makes **no improvements** to ADA compliance	Project makes **moderate improvements** to ADA compliance	Project makes **significant improvements** to ADA compliance	ODOT ADA Inspection Summary, ADA Standards for Accessible Design
Livability	Quantitative: Right-of-way acquisition needs	The project requires **significant** right-of-way acquisition	The project requires **minor** right-of-way-acquisition	The project requires **no** right-of-way acquisition	N/A	Right-of-way maps
	Qualitative: Neighborhood street modification, business access and parking	The project **degrades** access and/or mobility to residential and commercial areas	The project **has no impact** to access and/or mobility to residential and commercial areas	The project **indirectly improves** access and/or mobility to residential and commercial areas	The project **directly improves** access and/or mobility to residential and commercial areas	Parking inventories, locations of residential and commercial properties in study area
	Qualitative: Public response based on Open House and Public Advisory Committee Comments	The project has (or is expected to have) significant **negative** public response	The project has (or is expected to have) a **neutral** public response	The project has (or is expected to have) a **positive** public response	The project has (or is expected to have) **strong support** from the public	Open House and Public Advisory Committee Comments
Design Feasibility[1]	Qualitative: High-level feasibility of constructing the intended project at the location.	The project poses **significant** design challenges	The project poses **moderate** design challenges	The project poses **minor** design challenges	The project poses **no notable** design challenges	Constructability (including, but not limited to, right-of-way availability, existing terrain, utility location, visibility concerns, etc.)

[1] ADA design requirements will be considered but not included as a precluding factor to design feasibility.

NEXT STEPS

The Evaluation Criteria and Performance Measures has been reviewed by the project management team (PMT) and updated to produce the Final Evaluation Criteria and Performance Measures. The Evaluation Criteria will be used to compare the alternatives developed as part of Task 5: Alternatives Development, Analysis, and Preferred Alternative Concept.

REFERENCES

1. Oregon Department of Transportation. *Blueprint for Urban Design, 2020.*
2. Kittelson & Associates, Inc. *Corridor Vision, 2020.*
3. City of McMinnville. *Transportation System Plan, 2010.*

Appendix A Sample Evaluation

Bulb-Out Improvements at NE 8th Street / NE Baker Street Intersection[1]		
Evaluation Criterion	**Score**	**Methodology[1]**
Complete Streets	1	Posted speed: 30 mph Number of Lanes: 2 AADT: 14300 Change in LTS: 1 point
Multi-Modal Transportation System	1	The project improves facilities for people walking and biking, improving modal priorities for the urban context.
Connectivity	1.3	The TSP recommended that new curb extensions should be installed at the NE 8th Street / NE Baker Street Intersection. The project is not on a SRTS network. There are some essential destinations and active transportation generators within ¼ mile of the intersection. The project directly addresses a barrier in the walking transportation network.
Safety	1.8	Two crashes involving pedalcyclists within a 5-Year Period: 1 serious injury crash and 1 minor injury crash. Install Curb Ramps and Extensions with a Marked Crosswalk and Pedestrian Warning Signs (BP12) has a Crash Reduction Factor of 37% for pedestrian crashes. This is a high value crash reduction factor given the project cost. Project is located on a high risk factor location for bicyclists and pedestrians.
Equity	2	Project highly improves ADA compliance at a location. Project directly improves transportation options and facilities for transportation disadvantaged populations.
Livability	0.3	The project requires no right-of-way acquisition. The project indirectly improves access to residential and commercial areas. The project is expected to have a negative public response.
Feasibility	2	The project has no significant design challenges
Total Score	9.4	

[1] The scoring provides an example of the evaluation criteria and performance metrics, however the methodology includes incomplete data and analysis. The scoring for this particular project would need to be refined in the project development process if it is considered in Task 5 of this project.

RRFB at NE 8th Street / NE Baker Street Intersection[2]		
Evaluation Criterion	**Score**	**Methodology[1]**
Complete Streets	2	Posted speed: 30 mph Number of Lanes: 2 AADT: 14300 Change in Crossing LTS: 2 points
Multi-Modal Transportation System	2	The project significantly improves modal priorities for urban context, as it provides an enhanced crossing for people walking and biking.
Connectivity	1.3	The TSP recommended that new curb extensions should be installed at the NE 8th Street / NE Baker Street Intersection. The project is not on a SRTS network. There are some essential destinations and active transportation generators within ¼ mile of the intersection. The project directly addresses a barrier in the walking transportation network.
Safety	1.5	Two crash involving pedalcyclists in 5-year period: 1 minor injury crash and 1 fatal injury crash Install Rectangular Rapid Flashing Beacon (2-Lane Road) (BP8) has a Crash Reduction Factor of 10% for pedestrian crashes. This is a moderate value crash reduction factor given the project cost. Project is located on a high risk factor location for bicyclists and pedestrians.
Equity	2	Project highly improves ADA compliance at a location. Project directly improves transportation options and facilities for transportation disadvantaged populations.
Livability	0.7	The project requires no right-of-way acquisition. The project indirectly improves access to residential and commercial areas. The project is expected to have a neutral public response.
Feasibility	2	The project has no significant design challenges.
Total Score	11.5	

[2] The scoring provides an example of the evaluation criteria and performance metrics, however the methodology includes incomplete data and analysis. The scoring for this particular project would need to be refined in the project development process if it is considered in Task 5 of this project.

Bike Lane along Baker Street between NE 1st Street and 5th Street[3]		
Evaluation Criterion	**Score**	**Methodology**
Complete Streets	1.5	Posted speed: 30 mph Number of Lanes: 2 AADT: 14300 Change in BLTS: improve by 2 points Change in PLTS: improve by 1 point
Multi-Modal Transportation System	1	Based on the context the BUD recommends buffered facilities. Therefore, although this project improves modal priorities for urban context, it does not provide ideal facilities.
Connectivity	1.3	The project is not identified by the TSP or located on the SRTS Network. The project directly addresses a gap in the biking transportation network. The project would serve many active generators and essential destinations in a ¼ mile radius.
Safety	1.8	There were 3 or more crashes involving pedalcyclist in a 5-year period. Install Bike Lanes (BP18) has a Crash Reduction Factor of 36% reduction for crashes involving bicyclist. This is a high value crash reduction based on project cost. Project is located on a medium pedestrian risk factor location and high bicyclist risk factor location.
Equity	1	Does not impact ADA compliance. Project directly improves transportation options and facilities for transportation disadvantaged populations.
Livability	1.3	The project requires no right-of-way acquisition. The project directly improves mobility to residential and commercial areas. The project is expected to have a positive public response.
Feasibility	2	The project has no anticipated design challenges.
Total Score	9.9	

[3] The scoring provides an example of the evaluation criteria and performance metrics, however the methodology includes incomplete data and analysis. The scoring for this particular project would need to be refined in the project development process if it is considered in Task 5 of this project.

Appendix B Blueprint for Urban Design

Designing based on urban context, considering roadway designations and activity of different modes

Urban Context	Target Speed (MPH)[4]	Travel Lanes[2]	Turn Lanes[1,2]	Shy Distance[1,3]	Median[1,2]	Bicycle Facility[1,2,5]	Sidewalk	Target Pedestrian Crossing Spacing Range (feet)[6]	On-street parking[1]
Traditional Downtown/ CBD	20-25	Start with minimum widths, wider by roadway characteristics	Minimize additional crossing width at intersections	Minimal	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility	Ample space for sidewalk activity (e.g., sidewalk cafes, transit shelters)	250-550 (1-2 blocks)	Include on-street parking if possible
Urban Mix	25-30	Start with minimum widths, wider by roadway characteristics	Minimize additional crossing width at intersections	Minimal	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Ample space for sidewalk activity (e.g., sidewalk cafes, transit shelters)	250-550 (1-2 blocks)	Consider on-street parking if space allows
Commercial Corridor	30-35	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Typically used for safety/ operational management	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks, with space for transit stations	500-1,000	Not Applicable
Residential Corridor	30-35	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks	500-1,000	Generally Not Applicable, Consider roadway characteristics
Suburban Fringe	35-40	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks	750-1,500	Not typical
Rural Community	25 - 35	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks, sized for desired use	250-750	Consider on-street parking if space allows

Source: ODOT Blueprint for Urban Design, Volume 1
Orange box indicates Urban Contexts considered as part of this project.

General Modal Considerations in Different Urban Concepts

Land Use Context	Motorist	Freight	Transit	Bicyclist	Pedestrian
Traditional Downtown/CBD	Low	Low	High	High	High
Urban Mix	Medium	Low	High	High	High

Source: ODOT Blueprint for Urban Design, Volume 1

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FINAL TECHNICAL MEMORANDUM #1

Date:	October 30, 2020	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Amy Griffiths, Nick Gross, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan	
Subject:	Final TM#1: Performance-Based Design Decision Framework	

PURPOSE

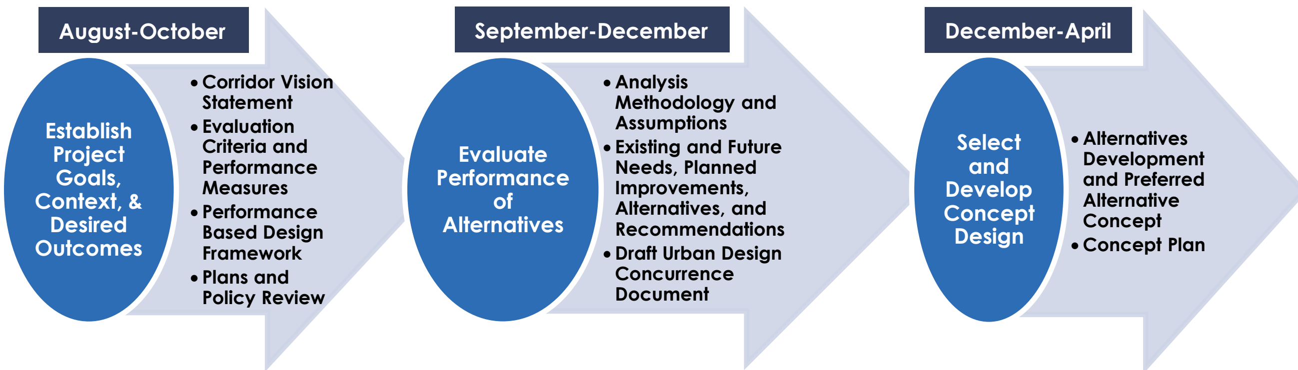
The purpose of this memorandum is to document the performance-based design approach and guiding framework for the success of the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan.

PERFORMANCE BASED APPROACH

As stated in the Oregon Department of Transportation's recently published Blueprint for Urban Design (BUD), identifying the desired project outcomes and understanding the urban context and primary roadway users can guide the Project Management Team (PMT) and Project Advisory Committee (PAC) in determining appropriate performance measures to evaluate the trade-offs of various design decisions.

Figure 4-5 in the BUD identifies the existing processes and project types based on ODOT's Design Decision Framework. The McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan most closely reflects the project type of Facility Planning and will therefore be taken through the Program Development phase of ODOT's Transportation System Lifecycle Process. Figure 1 illustrates the performance-based design decision framework for the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan.

Figure 1: McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan – Performance-Based Approach



Documentation is a key component throughout each step of the Performance-Based Design Decision Framework. After each step is completed, project outcomes and decision making must be vetted against the documented project goals and desired outcomes. The overview and order of deliverables is provided in the "Overview of Deliverables" section of this memorandum.

PERFORMANCE BASED PROJECT FLOW

The following section identifies the key steps in relation to project deliverables and schedule that will be incorporated into the project flow. Understanding how to integrate practical design strategies and a performance-based approach into the project flow can help guide the PMT in setting up a PAC, documenting decisions, and identifying solutions that serve the intent of the urban context and users within that context (BUD). All decision making throughout the project development process will be tied back to the established project goals, context, and desired outcomes identified in Step 1 below.

Step 1 – Establish Project Goals, Context & Desired Outcomes

Establishing project goals and desired outcomes is completed early in the project flow. The goals and vision should be linked to the existing and future desired land uses and developed to be easily understood by community members. Key components to documenting the project context and goals include identifying the *Vision of Place*, *Desired Role of the Facility*, and *Major Users of the Facility*.

The McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan will accomplish Step 1 through the **Corridor Vision Statement Memorandum**. The Corridor Vision identifies the urban contexts: Urban Mix and Traditional Downtown/Commercial Business District (CBD). These contexts serve as the basis for all decision making based on the project vision, envisioned modal priorities, and anticipated users of the OR 99W facility. This decision-making framework is rooted in the existing and future desired urban contexts and has been informed by the **Evaluation Criteria and Performance Measures Memorandum** and **TM#2: Plan and Policy Review** deliverables.

Step 2 – Evaluate Performance of Alternatives & Develop Concept Design and Estimate

The project needs identified in the **TM#4: Existing and Future Needs, Planned Improvements, Alternatives, and Recommendations** deliverable will inform the development of the **TM#5: Alternatives Development and Preferred Alternative Concept** deliverable**.**

The project-level performance measures established as part of the **Evaluation Criteria and Performance Measures Memorandum** will be used to evaluate the alternatives and will be tied back to the project goals and desired outcomes. If PMT and PAC discussions or alternative evaluations lead to changes in the performance measures or project goals, this information and subsequent decisions should be clearly documented. The range of alternatives should meet the original intended outcomes of the project documented as part of the **Corridor Vision Statement Memorandum.**

Step 3 – Select and Develop Preliminary Design

The selection and development of a preferred alternative will be identified in the **Draft Concept Plan** deliverable and further refined through feedback from the PAC to develop the **Final Concept Plan** deliverable.

Subsequent Steps

The design phases for implementing projects identified within the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan must be vetted through the ODOT's Region 2's Technical Center and where applicable the Oregon Mobility Advisory Committee to ensure designs meet the documented project context and goals. To further ensure the ability to implement projects through either ODOT preservation or enhancement project, City of McMinnville capital projects, or private development projects, the PMT will prepare an **Urban Design Concurrence Document** for review by the Mobility Advisory Committee and approval by the Region 2 Roadway Manager. These subsequent steps are:

- Step 4 - Moving to Final Design and Construction
- Step 5 - Monitoring, Operating, and Maintaining

The **Final Concept Plan** and **Urban Design Concurrence Document** will form the basis during these subsequent steps. If future phases differ from the Final Concept Plan, then the PMT should revisit the **Corridor Vision Statement Memorandum** and **Urban Design Concurrence Document**, and determine if the original intended outcomes for the project should change. If a change appears appropriate, then justification should be provided and documented.

OVERVIEW OF DELIVERABLES

The McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan will be guided by a series of technical memorandums cited in the previous section, following the performance-base design decision framework outlined in the BUD. The initial technical memorandums provide the building blocks for the success of the project outcome and adoption by the City of McMinnville into its Transportation System Plan (TSP), and will be prepared in coordination with the PMT, PAC, and feedback received during the public virtual meeting. The general chronology of activities is summarized below.

- Corridor Vision Statement Memorandum
- Evaluation Criteria and Performance Measures Memorandum
- TM#1: Performance-Based Design Decision Framework
- TM#2: Plans and Policy Review
- TM#3: Analysis Methodology and Assumptions
  - PAC Meeting #1
- TM#4: Existing and Future Needs, Planned Improvements, Alternatives, and Recommendations
- First Draft Urban Design Concurrence Document
  - PAC Meeting #2
  - Public Virtual Meeting
- TM#5: Alternatives Development and Preferred Alternative Concept
- Second Draft Urban Design Concurrence Document
- Draft Concept Plan
  - PAC Meeting #3
- Final Draft Urban Design Concurrence Document
- Final Concept Plan
  - Joint Planning Commission/City Council Work Session
  - City of McMinnville Planning Commission Hearing
  - City of McMinnville City Council Hearing

Note: The final Urban Design Concurrence Document will be part of the Design Acceptable Package (DAP).

PROPOSED MEETING SCHEDULE

A proposed meeting schedule is summarized in Table 1. For each meeting, the date and time, and key deliverables to be discussed are listed. The schedule of meetings will be finalized based on input from the PMT. PAC members are asked to notify ODOT, the City, and the consultant team of potential conflicts based on the proposed schedule. The meeting locations and times are subject to change based on participant availability.

Table 1: McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan Meeting Schedule

Meeting	Date, Time, & Location	Deliverables
PAC #1	December 10, 2021 3:00-5:00 PM Virtual Meeting	Final Corridor Vision Statement Memorandum Final Evaluation Criteria and Performance Measures Memorandum Final TM #1: Performance-Based Design Decision Framework Final TM #2: Plans and Policy Review Final TM #3: Analysis Methodology and Assumptions Draft TM#4: Existing and Future Needs, Planned Improvements, Alternatives, and Recommendations
PAC #2	February 18, 2021 3:00-5:00 PM Virtual Meeting	Draft TM#5: Alternatives Development and Preferred Alternative Concept
Public Virtual Meeting	First week of March 2021 (Exact date to-be Determined)	Draft TM#5: Alternatives Development and Preferred Alternative Concept
PAC #3	April 15, 2021 3:00-5:00 PM Virtual Meeting	Draft Concept Plan
Planning Commission/ City Council Work Session	May 11, 2021 7:00 PM McMinnville Civic Hall 200 NE 2nd Street	Final Draft Concept Plan

NEXT STEPS

This document will serve as a public-facing document outlining the project development process, timeline, and deliverables.

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FINAL TECHNICAL MEMORANDUM #2

Date:	October 30, 2020	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Nick Gross, Amy Griffiths, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan	
Subject:	Final TM#2: Plan and Policy Review	

OVERVIEW

This memorandum summarizes the existing plans, regulations, and policies that are relevant to the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan and broader planning-level efforts within the City of McMinnville. The summary explains the relationship between each document reviewed and its relevance to the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan, identifying potential issues and considerations that will factor into the planning process.

This memorandum is also intended to guide development of preferred active transportation concept alternatives and identify potential amendments to pertinent documents and regulations needed to implement these alternatives. It is oriented as a literature review of state and local documents. A summary of the documents reviewed and their application to this effort is provided in Table 1.

Table 1: Documents Reviewed

	Document	Key Applications for Active Transportation Concept Plan
State	Oregon Highway Plan (1999, last amended 2018)	Includes policies to guide proposed improvements, modifications, or policies that could affect OR 99W in the city.
	Oregon Administrative Rule for Access Management (2014)	Guidance on state requirements for OR 99W, including access management
	Oregon Freight Plan (2011, last revised 2017)	Guidance on maintaining and enhancing efficiency of the truck and rail freight system
	Oregon Transportation Safety Action Plan (2016)	Guidance on local goals, policies, and strategies to improve safety in Oregon
	Oregon Bicycle and Pedestrian Plan (2016)	Bicycle and pedestrian policies and design guidance that apply to state highway facilities in McMinnville
	Statewide Planning Goal #12 (1974)	Guides the goals of local comprehensive planning.
	Statewide Transportation Improvement Program (2018-2021 and 2021-2024)	The current 2018-2021 STIP does not include any projects within the City of McMinnville. The 2021-2024 STIP includes a project with signal improvements along OR 99W from MP 21.46 to MP 39.06. A repaving "preservation" project along the Baker/Adams Couplet from MP 37.04 to MP 38.13 is proposed for the 2021-2024 STIP cycle but has not yet been selected for funding. The recommendations of this plan will be used as a reference when selecting key locations to evaluate enhanced crossings.
	Oregon Intersection Safety Implementation Plan (2012)	Guidance on intersection-related safety measures, crash trends, cost effective countermeasures.
	Oregon Bicycle and Pedestrian Safety Implementation Plan (2016)	Guidance on countermeasures and risk factor implementation
	Oregon Resilience Plan (2013)	Guidance and priorities to maintain the seismic integrity of Oregon's multi-modal transportation system.
	Oregon Blueprint for Urban Design (2020)	Guidance and framework for determining the appropriate alternatives and facility selection based on the established urban context and corridor vision.
Local	Oregon Department of Transportation (ODOT) American's with Disability Act (ADA) Inspection Summary	Informs investment and prioritization along OR 99W within the project study area.
	City of McMinnville Transportation System Plan (2010)	Informs the Corridor Vision Statement and is a reference for identifying projects within the project study area.
	City of McMinnville Comprehensive Plan (2004)	Provides overarching transportation policies and guidance for the Corridor Vision Statement and alternatives development.
	City of McMinnville Downtown Strategic Parking Management Plan (2020)	Provides qualitative and quantitative parking data along OR 99W to inform decision making and alternatives evaluation.

State Plans

Oregon Highway Plan (1999, last amended 2018)

The Oregon Highway Plan (OHP) is a modal plan of the Oregon Transportation Plan (OTP) that guides planning, operations, and financing for ODOT's Highway Division. Policies in the OHP encourage the efficient management of the highway system to increase safety and to extend highway capacity, partnerships with other agencies and local governments, and the use of new techniques to improve road safety and capacity. These policies also link land use and transportation, set standards for highway performance and access management, and emphasize the relationship between state highways and local road, bicycle, pedestrian, transit, rail, and air systems.

The following policies are relevant to the Active Transportation Concept Plan process.

Policy 1A: State Highway Classification System

The OHP classifies the state highway system into four levels of importance: Interstate, Statewide, Regional, and District. ODOT uses this classification system to guide management and investment decisions regarding state highway facilities. The classification system also guides facility plan development and ODOT's review of local plan and zoning amendments, highway project selection, design and development, and facility management decisions including road approach permits.

Pacific Highway West (OR 99W) is classified as a Regional Highway in the study area. The purpose and management objectives of these highways are provided in Policy 1A, as summarized below.

- Regional Highways (OR 99W) typically provide connections and links to regional centers, Statewide or Interstate Highways, or economic or activity centers of regional significance. The management objective is to provide safe and efficient, high-speed, continuous-flow operation in rural areas and moderate- to high-speed operations in urban and urbanizing areas. A secondary function is to serve land uses in the vicinity of these highways.

Policy 1C: State Highway Freight System

The primary purpose of the State Highway Freight System is 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 select Statewide, Regional, and District Highways, and includes routes that carry significant tonnage of freight by truck and serve as the primary interstate and intrastate highway freight connection to ports, intermodal terminals, and urban areas. Highways included in this designation have higher highway mobility standards than other statewide highways.

- Pacific Highway West (OR 99W) is <u>not</u> designated as a Freight Route within the study area according to the OHP.
- Pacific Highway West (OR 99W) is designated as a Reduction Review Route[1], subject to ORS 366.215.

Policy 1G: Major Improvements

This policy requires maintaining performance and improving safety on the highway system by improving efficiency and management on the existing roadway network before adding capacity. The state's highest

[1]Per OAR Rule 731-012-0030 Reduction Review Routes "include all parts of the state highway(s) that must be travelled to complete the prescribed route and/or connect with other state highway."

priority is to preserve the functionality of the existing highway system. Tools that could be employed to improve the function of the existing interchanges include access management, transportation demand management, traffic operations modifications, and changes to local land use designations or development regulations.

After existing system preservation, the second priority is to make minor improvements to existing highway facilities, such as adding ramp signals, or making improvements to the local street network to minimize local trips on the state facility.

The third priority is to make major roadway improvements such as adding lanes to increase capacity on existing roadways.

- As part of this Active Transportation Concept Plan development, ODOT will work with the City to determine appropriate bicycle and pedestrian strategies and improvements that can be implemented through ODOT preservation or enhancement projects, City capital projects, and/or development related project and consistent with this policy.

Policy 2B: Off-System Improvements

This policy recognizes that the state may provide financial assistance to local jurisdictions to make improvements to local transportation systems if the improvements would provide a cost-effective means of improving the operations of the state highway system.

- As part of this Active Transportation Concept Plan development process, ODOT will work with the City to identify improvements to the local road system that support the planned land use designations in the study area and that will help enhance the safety, preserve capacity and ensure the long-term efficient and effective operation of OR 99W.

Policy 2F: Traffic Safety

This policy emphasizes the state's efforts to improve safety of all users of the highway system. Action 2F.4 addresses the development and implementation of the Safety Management System to target resources to sites with the most significant safety issues.

- The Active Transportation Concept Plan development process will include a crash analysis along OR 99W to identify sites with a history of fatal and serious injury crashes and identify potential countermeasures to reduce existing and future crashes.

Policy 3A: Classification and Spacing Standards

State policy seeks to manage the location, spacing, and type of road intersections on state highways in a manner that ensures the safe and efficient operation of state highways consistent with their highway classification.

Action 3A.2 calls for spacing standards to be established for state highways based on highway classification, type of area, and posted speed. Tables in the OHP Appendix C present access spacing standards which consider urban and rural highway classification, traffic volumes, speed, safety, and operational needs. The access management spacing standards established in the OHP are implemented by OAR 734, Division 51.

- OR 99W within the study area is a regional highway with annual average daily traffic (AADT) over 5,000 vehicles in an urban area with a posted speed of 30 & 35 mph. Therefore, based on Table 15 of OHP Appendix C, the access management spacing standards for unsignalized approaches is along OR 99W within the study area is 350 feet.

Policy 4B: Alternative Passenger Modes

Policy 4B encourages the development of alternative passenger services and systems as part of broader corridor strategies. The policy promotes the development of alternative passenger transportation services located off the highway system to help preserve the performance and function of the state highway system. Yamhill County Transit provides public transportation service in McMinnville.

- Improving safety, access, and mobility for pedestrians and bicyclists and enhanced connections to transit are objectives of the Active Transportation Concept Plan development process.

Project Relevance:

OHP policies provide guidance related to the accessibility, mobility, and function of state highways. The Active Transportation Concept Plan development process will consider policies in the OHP to guide proposed improvements, modifications, or policies that could affect any of the state facilities in the City. The Active Transportation Concept Plan is being developed in coordination with ODOT and the City of McMinnville so that projects, policies, and regulations proposed as part of the Concept Plan will be consistent with the standards and targets established in the OHP related to safety, access, and mobility.

Oregon Administrative Rule for Access Management (OAR 734-051) (2014)

Oregon Administrative Rule (OAR) 734-051 defines the State's role in managing access to highway facilities to maintain functional use and safety and to preserve public investment. OHP Policy 3A and OAR 734-051 set access spacing standards for driveways and approaches to the state highway system. The most recent amendments presume that existing driveways with access to state highways have written permission from ODOT as required by ORS 734. The standards are based on state highway classification and differ depending on posted speed and average daily traffic volume.

Project Relevance:

Analysis for the Active Transportation Concept Plan development and final project recommendations will need to reflect state requirements for state facilities; the Active Transportation Concept Plan will comply or move in the direction of meeting access management standards for state facilities. Implementation measures that will be developed for the Active Transportation Concept Plan may entail amendments to the development code to ensure its requirements are consistent with these access management requirements as well as the draft Active Transportation Concept Plan recommendations related to access management.

Oregon Freight Plan (2011, last revised 2017)

The Oregon Freight Plan (OFP) is a modal plan of the OTP that implements the state's goals and policies related to the movement of goods and commodities. Its purpose statement identifies the intent to "improve freight connections to local, Native America, state, regional, national and global markets in order to increase trade-related jobs and income for workers and businesses." The objectives of the plan include prioritizing and facilitating investments in freight facilities (including rail, marine, air, and pipeline infrastructure) and adopting strategies to maintain and improve the freight transportation system. The plan defines a statewide strategic freight network. OR 99W is not designated as a strategic corridor in the OFP.

The segment of OR 99W between MP 34.7 and MP 37.0 is identified in by the OHP under Freight Highway Delay as a Tier 3 need to address delay because it is on a Seismic Phase 1 & 2 Route.

Project Relevance:

Maintaining and enhancing the efficiency of truck and rail freight system along OR 99W between MP 36.4 and MP 37.0 will be an objective of the Active Transportation Concept Plan.

Oregon Bicycle and Pedestrian Plan (2016)

The intent of the Oregon Bicycle and Pedestrian Plan (OBPP) is to create a policy foundation that supports decision-making for walking and biking investments, strategies, and programs that help to develop an interconnected, robust, efficient, and safe transportation system. The OBPP establishes the role of walking and biking as essential modes of travel within the context of the entire transportation system and recognizes the benefit of these modes to the people and places in Oregon.

The OBPP provides direction for what needs to be achieved, including 20 policies and associated strategies designed to help develop, sustain, and improve walking and biking networks. It identifies nine goals based upon the broader goals of the Oregon Transportation Plan (OTP) that reflect statewide values and desired accomplishments relating to walking and biking:

- Goal 1: Safety
- Goal 2: Accessibility and Connectivity
- Goal 3: Mobility and Efficiency
- Goal 4: Community and Economic Vitality
- Goal 5: Equity
- Goal 6: Health
- Goal 7: Sustainability

- Goal 8: Strategic Investment
- Goal 9: Coordination, Cooperation, and Collaboration

The OBPP also provides background information related to state and federal law, funding opportunities, and implementation strategies proposed by ODOT to improve bicycle and pedestrian transportation. It outlines the role that local jurisdictions play in the implementation of the Plan, including the development of local pedestrian and bicycle plans as stand-along documents within Concept Plans and Transportation System Plans (TSPs).

The Oregon Bicycle and Pedestrian Design Guide is the technical element of the plan that guides the design and management of bicycle and pedestrian facilities on state-owned facilities. It is an appendix to the HDM and provides best practices and design guidelines for bicycle and pedestrian facilities.

Project Relevance:

The policies and design guidance in the OBPP apply to OR 99W in McMinnville. State policy and design guidance will be considered in evaluating and planning for the bicycle and pedestrian elements as part of the Concept Plan development. Through the development of the Concept Plan, the project team will identify gaps in the regional walking and biking network within the study area and prioritize projects accordingly.

Oregon Transportation Safety Action Plan (2016)

An element of the OTP, the Oregon Transportation Safety Action Plan (TSAP) provides long-term goals, policies and strategies and near-term actions to eliminate deaths and life-changing injuries. The TSAP addresses all modes on all public roads in Oregon. Over the long term, the goals of the TSAP are:

- Infrastructure – Develop and improve infrastructure to eliminate fatalities and serious injuries for users of all modes.
- Healthy, Livable Communities – Plan, design, and implement safe systems. Support enforcement and emergency medical services to improve the safety and livability of communities, including improved health outcomes.
- Technology – Plan, prepare for, and implement technologies (existing and new) that can affect transportation safety for all users.

The plan identifies actions that jurisdictions can take to increase transportation safety. They include adopting a Safe Communities Program and Safe Routes to School, which is a collaborative partnership with the National Highway Traffic Safety Administration and ODOT to promote safety. The Safe Routes to School program is a local initiative supported by grant funding that targets safety improvements to encourage walking and biking to school. In addition, the TSAP also identifies activities and roles for local jurisdictions that can improve safety. They include:

- Evaluate local spot-specific systemic safety needs; develop plans and programs to address needs.

- Collaborate with the state and stakeholder partners to educate the public about transportation safety-related behavioral issues.
- Integrate safety programming, planning, and policy into local planning.

Project Relevance:

The TSAP will be used as a resource while developing the Active Transportation Concept Plan to develop local goals, policies, and strategies to improve safety in McMinnville.

Statewide Planning Goal #12 (Transportation) (1974)

This goal is to provide and encourage a safe, convenient, and economic transportation system. It requires that a transportation plan, amongst other things, consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle, and pedestrian.

Project Relevance:

The Statewide Planning Goal #12 will be used as a resource while developing the Active Transportation Concept Plan to develop local goals, policies, and strategies to improve safety in McMinnville.

Statewide Transportation Improvement Program (2018-2021 and 2021-2024)

The Statewide Transportation Improvement Program (STIP) is the Oregon Department of Transportation's (ODOT's) capital improvement program for state and federally funded projects. The Oregon Transportation Commission (OTC) and ODOT developed the STIP in coordination with a wide range of stakeholders and general public. The STIP is divided into two broad categories: "Fix-It" and "Enhance." The "Enhance" category will fund activities that enhance, expand, or improve the transportation system. The "Fix-It" category will fund activities that fix or preserve the transportation system. The STIP identifies funding for, and scheduling of, transportation improvement projects and programs. Bicycle and pedestrian improvements receiving federal funds must be identified in the STIP.

- The Final 2018-2021 STIP was released in December 2017.
- The Final 2021-2024 STIP was adopted July 15, 2020.

Project Relevance:

The current 2018-2021 STIP does not include any projects within the study area.

The 2021-2024 STIP identifies a project to install reflectorized signal backplates, countdown pedestrian timers, and advanced dilemma zone protection at various signals along OR 99W between MP 21.46 to MP 39.06 in McMinnville, Newberg, and Dundee (Project number: 20130).

A repaving "preservation" project along the Baker/Adams Couplet from MP 37.04 to MP 38.13 is proposed for the 2021-2024 STIP cycle but has not yet been selected for funding. This pavement resurfacing project will repair cracking, improve smoothness, and reduce long-term maintenance costs. The project recommends ADA ramp upgrades, which are assumed to require new curb construction for the entire length of the project. The project proposal evaluated the bicycle and pedestrian crash history and recommends bulb-outs at the intersections 1st Street, 3rd Street, 5th Street, 8th Street, and 12th Street within the couplet. Rectangular Rapid Flash Beacons (RRFBs) are recommended for consideration at the Baker Street and Adams Street intersections with 15th Street. The total funding cost is estimated to be $16 million. The recommendations of this plan will be used as a reference when selecting key locations to evaluate enhanced crossings.

Oregon Intersection Safety Implementation Plan (2012)

The Oregon Intersection Safety Implementation Plan (ISIP) was also developed in conjunction with the TSAP and provides for intersection-related safety measures to reduce fatal crashes. The ISIP requires an analysis of crash trends, cost effective countermeasures, and for pairing low cost improvements with education and enforcement.

Project Relevance:

The intersection-related safety measures, crash trends, cost effective countermeasures will be reviewed and applied as part of the safety analysis in addition to the safety procedures and guidance outlined in ODOT’s All Roads Transportation Safety (ARTS) program.

Oregon Bicycle and Pedestrian Safety Implementation Plan (2016)

The Oregon Bicycle and Pedestrian Safety Implementation Plan was developed in conjunction with the TSAP with the intent of reducing the frequency and severity of pedestrian and bicycle related crashes. Like the Intersection Safety Implementation Plan, the Bicycle and Pedestrian Safety Implementation Plan identifies priority locations and countermeasure options.

Project Relevance:

No priority locations in the City of McMinnville were identified in the Bicycle and Pedestrian Safety Implementation Plan.

Oregon Resilience Plan (2013)

The Oregon Resilience Plan provides policy guidance and recommendations to mitigate risks, accommodate emergency response and recovery, and support the resilience of government and business before, during, and after a Cascadia earthquake and tsunami. The plan includes an assessment of the seismic integrity of Oregon’s multi-modal transportation system, including bridges and highways, rail, airports, water ports, and public transit systems.

The plan classifies highway lifeline routes as Tier 1, 2, and 3, where Tier 1 routes are those that make up the transportation backbone system, which is considered to provide the greatest benefits for short-term rescue and longer-term economic recovery. Targets for recovery in all mode categories fall into three levels: minimal, operational, and functional.

Project Relevance:

OR 99W identified as a Tier 1 Route. Resiliency targets for Tier 1 Routes are to have a minimum level of service restored within one to three days, a functional level of service within three to seven days, and to restore the facility to 90% capacity within one to four weeks.

The Oregon Resilience Plan provides guidance and priorities to maintain the seismic integrity of Oregon's multi-modal transportation system. Policies and standards adopted by the City of McMinnville should consider additional guidance, concepts, and strategies for design related to facility resiliency in the event of seismic activity.

Oregon Blueprint for Urban Design (2020)

The Blueprint for Urban Design (BUD) serves as a "bridging document" to the Highway Design Manual (HDM) and establishes an approach for designing state facilities in Oregon communities. The HDM is the design guidance required for all projects on state facilities. The BUD applies to urban land use contexts that broadly identify the various built environments along ODOT roadways.

The urban context is based on existing and future land use characteristics, development patterns, and roadway connectivity of an area. The BUD provides planning and design principles and guidance focused on all roadways within the urban content except for interstates and limited-access freeways (expressways) with interchanges.

Project Relevance:

The McMinnville Active Transportation Concept Plan will follow the guidance and framework outlined in the BUD for determining the appropriate alternative and facility selection based on the agreed upon urban context and corridor vision. The McMinnville Active Transportation Concept Plan will develop and seek approval of Urban Design Concurrence documentation based on a performance-based design decision framework used to ultimately select a preferred alternative.

Oregon Department of Transportation American's with Disabilities Act Inspection Summary

Oregon Department of Transportation (ODOT) American's with Disabilities Act (ADA) Inspection Summary provides an assessment of the ADA ramps, push buttons, and corners along the state highway system. The assessment provides a condition rating for each ADA element on a scale of Poor, Fair, and Good.

Project Relevance:

The ODOT ADA Inspection Summary will help to inform investment and prioritization along OR 99W within the project study area. The ADA will be followed in recommending any and all improvements within the study area.

Local Plans

City of McMinnville Transportation System Plan (2010)

The TSP guides the development and management of transportation facilities in the city, reflecting the community goals and objectives and providing consistency with state, regional, and local plans. The current plan was adopted in 2010 and is approaching the mid-way point of its planning horizon.

The 2010 TSP includes goals and objectives, which are used in conjunction with transportation goals and policies in the Comprehensive Plan to evaluate land use and transportation actions. The TSP identifies a list of prioritized projects including recommendations along OR 99W within the project study area for the Active Transportation Concept Plan.

Project Relevance:

The Goal and Policy Guidance established in the City of McMinnville TSP were used as the basis for developing the Corridor Vision Statement (Reference 1). Projects identified within the TSP that are located within the project study area for the McMinnville Active Transportation Concept Plan will be referenced as the starting point for alternative development.

City of McMinnville Comprehensive Plan (Volume II) (2004)

The City of McMinnville Comprehensive Plan (Volume II) contains the goal, policy, and proposal statements which shall be applied to all land use decisions within the urban growth boundary (UGB). Its goals and policies work collaboratively with the goals and policies stated in the City's TSP to provide direction on transportation system and land use decision-making in the City.

Project Relevance:

The transportation system policies identified in Chapter VI of the Comprehensive Plan were reviewed when developing the Corridor Vision Statement (Reference 1) to ensure consistency. Relevant policies identified in Chapter VI include but are not limited to:

- Complete Streets
- Multi-Modal Transportation System
- Connectivity and Circulation
- Transportation Safety

- Transportation Sustainability
- Pedestrian Programs
- Bicycle System Plan

City of McMinnville Downtown Strategic Parking Management Plan (2018)

Rick Williams Consulting completed the Downtown Strategic Parking Management Plan in 2018 analyzing the existing downtown off-street parking supply and developing an objective data set for recommendations. The findings of the study create the foundation for a comprehensive strategic parking management plan that responds to the unique environment, goals, and objectives of downtown McMinnville.

Project Relevance:

The qualitative and quantitative data provided in the Downton Strategic Parking Management Plan, most notably along OR 99W, will be reviewed and analyzed as part of the alternative analysis development. Recommendations identified in the Downton Strategic Parking Management Plan will be considered and reviewed to inform decision making for alternatives located along OR 99W.

NEXT STEPS

The information provided in this memorandum will guide development of preferred active transportation concept alternatives and identify potential amendments to pertinent documents and regulations needed to implement these alternatives.

REFERENCES

1. Kittelson & Associates, Inc. *Corridor Vision Statement, 2020.*

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TECHNICAL MEMORANDUM #3

Date:	October 30, 2020	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Nick Gross, Amy Griffiths, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan	
Subject:	Final TM #3: Analysis Methodologies and Assumptions	

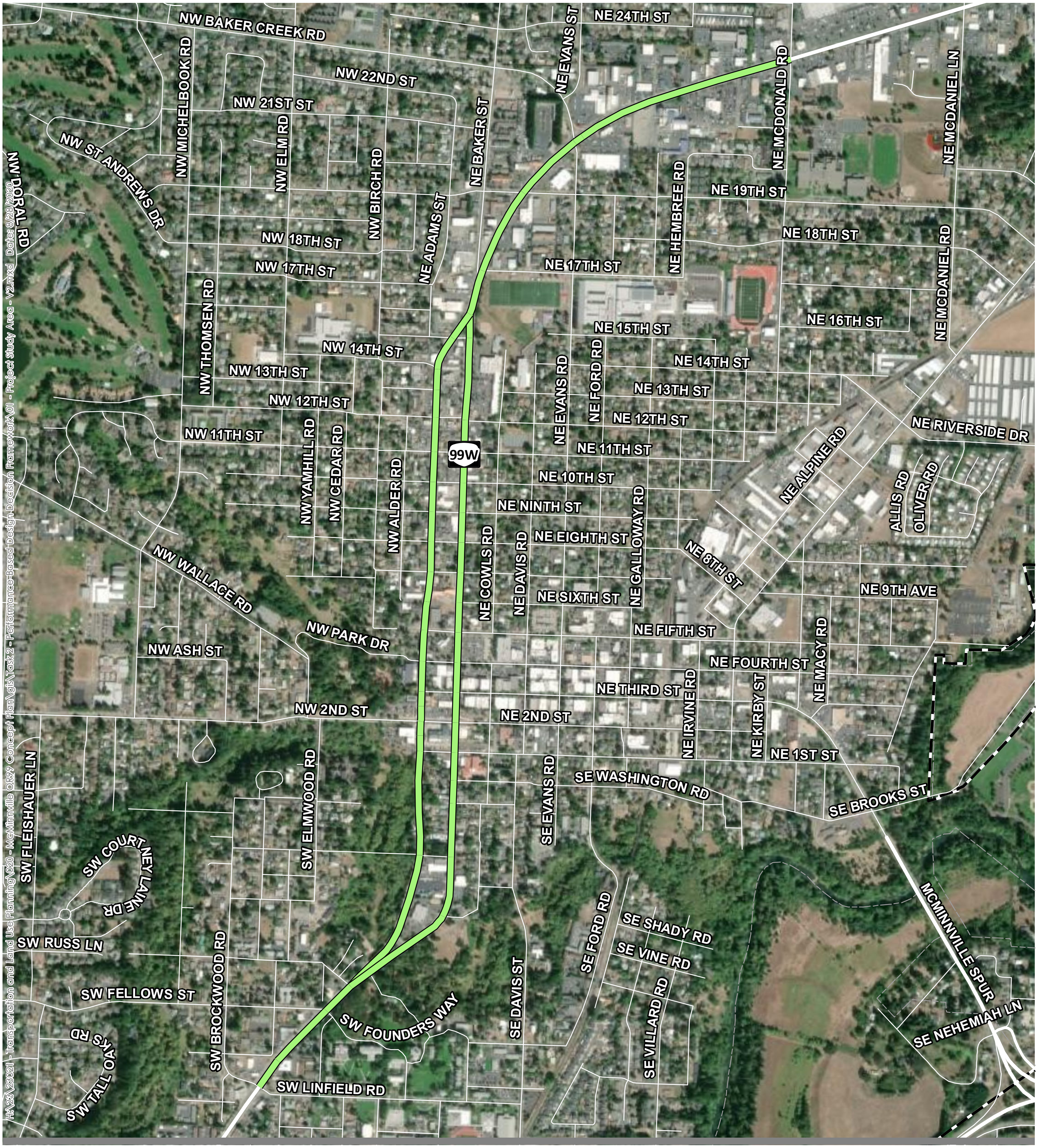
PURPOSE

This memorandum documents the safety and multimodal analysis methodologies and assumptions for the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan (Plan). The methodologies and assumptions will rely primarily on the Oregon Department of Transportation (ODOT) Analysis Procedures Manual (APM – Reference 1) to evaluate the existing and future multimodal conditions within the project study area.

The methodologies and assumptions identified in this memorandum focus on pedestrian and bicycle multimodal analyses, consistent with the project vision of identifying improvements in the OR 99W corridor that will result in a safer, more comfortable, and attractive place to walk, bike, roll and facilitate transit use (Corridor Vision – Reference 2). The project Evaluation Criteria and Performance Measures (Reference 3) have been developed with the multimodal analyses and procedures identified in the ODOT APM in mind (e.g., pedestrian and bicycle level of traffic stress). Motor vehicle traffic volumes and crash data will be used to inform the multimodal analysis; however, a traditional motor vehicle operational and safety analysis will not be performed. When necessary, 2040 will be the assumed horizon year as part of the multimodal analysis.

PROJECT STUDY AREA

The McMinnville OR 99W Active Transportation Concept Plan project study area is contained to the 2.1-mile segment of OR 99W between NE McDonald Lane (mile point [MP] 36.36) and SW Linfield Avenue (MP 38.46).. Intersections along the OR 99W couplet will be evaluated to determine potential enhanced crossing locations and potential modifications to intersection geometry to increase safety for people walking and biking. The project study area and multimodal analysis will be generally contained to the area located between Adams Street and Evans Streets, with the parallel side streets considered for potential alternative bicycle routes. Figure 1 illustrates the project study area.



OR99W Project Extents

UGB

Figure 1

Project Study Area
McMinnville, OR

KITTELSON & ASSOCIATES

SAFETY ANALYSIS

Safety analyses will include reviewing historical crash data and examining roadway crossings for the active transportation modes including bicyclists and pedestrians, as described in the following sections.

Crash Analysis

The five most recent years of crash data will be obtained from ODOT's Crash Analysis and Reporting Unit and reviewed to gain an understanding of multimodal crash history within the project study area, consistent with the methodologies outlined in the ODOT APM.

According to the APM, "when analysis has few records of crashes involving pedestrians and bicyclists, reporting the details of those crashes with a narrative may be the only option available." Therefore, critical crash rate will not be calculated throughout the corridor, and the HSM Predictive method will not be used to calculate expected crash frequency. The crash analysis will consider the project study area holistically rather than evaluate each intersection in the study area individually. The crash data will be analyzed for a variety of factors including severity, crash type and characteristics, crash rates, and location to identify potential crash patterns or area-wide trends. Additional attention will be directed toward locations with multiple pedestrian and bicyclist crashes and locations along the corridor identified as top 5% or 10% locations from the most recent three (3) Safety Priority Index System (SPIS) site listings.

Potential countermeasures (and resulting crash percentage reduction) will be identified from the All Roads Transportation Safety (ARTS) Crash Reduction Factors (CRF) listing or the CRF Appendix when available (ARTS—Reference 4). The countermeasures will be ranked by benefit/cost.

Crossing Analysis

Key crossings will be evaluated to determine whether the type of crossing currently presented may meet minimum criteria for an enhancement. This review will include assessing the crossing using *NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings* (NCHRP—Reference 5) procedures. These crossings will be identified based on the crash analysis and the Statewide Transportation Improvement Program (STIP). In addition, the ODOT American's with Disabilities Act (ADA) ramp inventory will be reviewed to understand which ramps within the OR 99W corridor are not ADA compliant.

Per the scope, ODOT and the City will provide crosswalk locations, treatments, dimensions, and conditions. Where needed, the Consultant will supplement this data using satellite imagery to identify existing marked and unmarked crossings as well as existing bulb-out locations. The pedestrian and bicycle crossing analysis will use available data provided by ODOT TransGIS including average annual daily traffic (AADT) and posted speed to determine appropriate levels of crosswalk protection at uncontrolled crossing locations.

PEDESTRIAN AND BICYCLE NETWORK ANALYSIS

The existing pedestrian and bicycle network will be reviewed to identify gaps and deficiencies in the project study area. A gap is defined as a missing link in the network, such as an identified key walking or biking route that is missing sidewalk or bicycle facility. A deficiency is defined as a pedestrian or bicycle facility that does not meet the standard or is insufficient to meet the users' needs. Examples of deficiencies include, but are not limited to:

- On-street connection that has a Bicycle Level of Traffic Stress rating greater than 2.
- On-street connection that has a Pedestrian Level of Traffic Stress rating greater than 2.
- Roadway crossings where minimum criteria may be met for an enhanced crossing facility according to the Crossing Analysis described previously.
- A sidewalk which has inefficient width for a wheelchair to pass due to a utility pole placed in the sidewalk.

The review will include an inventory and general condition of sidewalks and bike lanes, a feasibility assessment of potential roadway reorganizations along the OR 99W couplet (identified in the McMinnville TSP – Reference 6) in order to provide bicycle facilities in the project study area, and a level of traffic stress analysis for pedestrians and bicyclists. Focus will be placed on potential crossing improvements and on-street facility connections along identified Safe Routes to School (SRTS) walking routes.

Level of Traffic Stress

Pedestrian Level of Traffic Stress (PLTS) and Bicycle Level of Traffic Stress (BLTS) intersection and segment analyses will be performed on key roadway crossings and any necessary on-road routes required within the project study area as they relate to the active transportation system. The analyses will be conducted in accordance with the procedures outlined in the ODOT APM. The target level of traffic stress for the bicycle system is an LTS 2 as this target most closely appeals to most of the potential bicycle riding population and maximizes the available bicycle mode share. The target level of traffic stress for the pedestrian system is also LTS 2 as this target will generally be acceptable to the majority of users. Within ¼-mile of schools, the desirable level of level of traffic stress is LTS 1, since it is targeted at 10-year-old children (5^{th} grade) or parents of younger children.

Bicycle and Pedestrian Network Connectivity

Per the scope, ODOT and the City will provide the consultant with the location and trip characteristics of major bicycle and pedestrian generators. Multimodal activity generators will be assessed and utilized in the development of the concept alternatives and facility selection. Connectivity improvements to the existing and planned bicycle and pedestrian networks, SRTS routes, and transit stops will be assessed from a gaps and deficiencies perspective.

MOTOR VEHICLE VOLUMES AND ANALYSIS

An assessment of potential roadway reorganizations along OR 99W, as identified in the City's TSP, will be conducted to determine the feasibility of installing bicycle facilities. Geometric (lane numbers and arrangements, cross-section elements, etc.) and operational (posted speeds, intersection control, parking, etc.) data will be collected through a combination of Google Earth satellite imagery and field data observation. Guidance on cross section elements including dimensions will rely on the Blueprint for Urban Design (BUD) recommendations based on the identified urban context. This roadway reorganization may include adjusting roadway widths or removing a parking lane; no vehicle travel lanes will be removed as part of a project recommendation. Therefore, the feasibility of the roadway reorganization will be conducted with respect to parking, not motor vehicle volumes.

Motor vehicle traffic volumes and crash data will be used to inform the multimodal analysis; however, a traditional motor vehicle operational and safety analysis will not be performed.

Parking

An assessment of potential consolidation of on-street parking to improve sight distance and accommodate enhanced crossing facilities will be performed along the OR 99W corridor within the project study area. *The City of McMinnville Downtown Strategic Parking Management Plan* (Reference 7) and the Parking Demand Data Collection conducted and provided by ODOT as part of this plan effort will be reviewed to determine the feasibility of potential on-street parking removal or relocation along the OR 99W corridor within the project study area. Removal of on-street parking will be assumed feasible if existing on-street parking demand can be accommodated within a two-block radius either through off-street public parking or alternative on-street parking locations while remaining below 85% peak occupancy.

Freight

Major freight routes within the project study area will be identified and evaluated to determine the potential impacts including accessibility mobility, safety, and freight passage through, into, and from the project study area. Pacific Highway West (OR 99W) is designated as a Reduction Review Route[1], subject to ORS 366.215. A qualitative assessment of potential impacts to freight will be performed and concept alternatives will be developed to not preclude freight mobility standards according the *Oregon Freight Plan*.

[1] Per OAR Rule 731-012-0030 Reduction Review Routes "include all parts of the state highway(s) that must be travelled to complete the prescribed route and/or connect with other state highway."

EVALUATION CRITERIA, DATA NEEDS, AND METHODOLOGIES

Table 1 summarizes the evaluation criteria, performance measures from the Evaluation Criteria and Performance Measures Memorandum. It also provides the methodologies proposed to assess these criteria and the data needs required for the methodologies.

Table 1: Evaluation Criteria, Performance Measures, Methodology, and Data Needs

Evaluation Criterion	Performance Measures	Methodology	Data Needs
Complete Streets	• Bicycle Level of Traffic Stress (BLTS) • Pedestrian Level of Traffic Stress (PLTS)	• ODOT APM Chapter 14 LTS criteria	• BLTS provided by ODOT for OR 99W • Sidewalk condition and width, buffer type and width, bike lane width, parking width, number of lanes and posted speed, land use, presence of lighting, sidewalk ramps, median refuge, functional class, ADT, lane configuration
Multi-Modal Transportation System	• Type and presence of pedestrian, bicycle, transit, motor vehicle, and freight facilities align with the recommendations from the BUD	• Recommendations from the Blueprint for Urban Design	• Speed limit, travel lane characteristics, shy distance, median, bicycle facility type and characteristics, pedestrian facility type and characteristics, parking type and characteristics
Connectivity	• Connection of alternative to the existing and planned bicycle and pedestrian network • Barriers to walking and biking (including an unsafe crosswalk or facilities in poor condition) removed by the alternative • Facility gap filled by alternative • Proximity of alternative to essential destinations • Proximity of alternative to activity generators	• Map review of existing plans, existing conditions, and proximity to generators	• City of McMinnville TSP maps • SRTS network map • PLTS and BLTS maps • Existing conditions inventory • Location of active generators and essential destinations
Safety	• Percentage (%) of anticipated crash reduction based on crash reduction factor (CRF) scaled by planning-level cost of project • Bicyclist and pedestrian crash history • Pedestrian Risk Factor • Bicyclist Risk Factor	• ODOT APM Chapter 4 • ARTS Countermeasures	• 5-year crash history • ARTS countermeasures • Planning-level project cost • Pedestrian Risk Factor • Bicyclist Risk Factor
Equity	• Transportation Disadvantaged Population (TDP) Index • Impacts to American's with Disabilities Act (ADA) compliance	• ODOT Active Transportation Needs Inventory TDP Index • ADA Standards for Accessible Design	• TDP Index includes the following characteristics of a census block: elderly populations (65 and older), youth populations (under 18), non-white and Hispanic populations, low-income populations (households earning less than 200% of the poverty level as determined by the census), limited English proficiency population (aggregate of census populations who speak English "not well" or "not at all"), households without access to a vehicle, crowded households, and people with a disability (severe or non-severe disability) • ODOT ADA Inspection Summary
Livability	• Right-of-way acquisition needs • Neighborhood street modification, business access and parking • Anticipated public support	• Qualitative review of livability and anticipated public support	• Right-of-way maps, parking inventories, locations of residential and commercial properties in the project study area, open house, and public advisory committee comments
Design Feasibility	• Constructability	• Qualitative review of constructability	• Right-of-way availability, existing terrain, utility location, visibility concerns, roadway reorganization feasibility

NEXT STEPS

The analysis methodologies and assumptions presented in this memorandum will be used to conduct the existing conditions and future needs analysis and the alternatives development and analysis for the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan.

REFERENCES

1. Oregon Department of Transportation. *Analysis Procedures Manual*, 2020.
2. Kittelson & Associates, Inc. *Corridor Vision,* 2020.
3. Kittelson & Associates, Inc. *Evaluation Criteria and Performance Measures,* 2020.
4. Oregon Department of Transportation. *All Roads Transportation Safety Crash Reduction Factors*.
5. National Cooperative Highway Research Program. *NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings,* 2006.
6. City of McMinnville. *McMinnville Transportation System Plan,* 2018.
7. City of McMinnville. *The City of McMinnville Downtown Strategic Parking Management Plan*, 2018.

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TECHNICAL MEMORANDUM #4

Date:	December 18, 2020	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Nick Gross, Amy Griffiths, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan	
Subject:	TM #4: Existing Conditions and Future Needs	

PURPOSE

This memorandum summarizes the bicycle and pedestrian network, including existing facilities, network connectivity, and gaps and deficiencies along OR 99W between McDonald Lane and Linfield Avenue in McMinnville, Oregon. This memorandum also summarizes the findings of current safety and active transportation conditions and identifies safety and active transportation needs and deficiencies, based on TM #1: Final Performance-Based Design Decision Framework.

PROJECT STUDY AREA

The McMinnville OR 99W Active Transportation Concept Plan ("Concept Plan") project study area is contained to the 2.1-mile segment of OR 99W between McDonald Lane (mile point [MP] 36.36) and Linfield Avenue (MP 38.46). Just north of 15th Street (MP 37.12), OR 99W splits into a couplet configuration with southbound travel along Adams Street and northbound travel along Baker Street. The couplet merges back at Edmunston Road (MP 38.22).

While the project study area focuses on the OR 99W corridor, parallel route opportunities were explored as potential low-stress alternatives to traveling along the highway. No continuous north-south connections are located on the west side of OR99W due to the natural features and topography associated with Cozine Creek. For that reason, parallel routes were explored east of OR 99W with a focus on Cowls Street, Davis Street, and Evans Street.

The following sections summarize the existing conditions of OR 99W within the project study area and explore the characteristics along the potential parallel routes. Figure 1 illustrates the project study area.

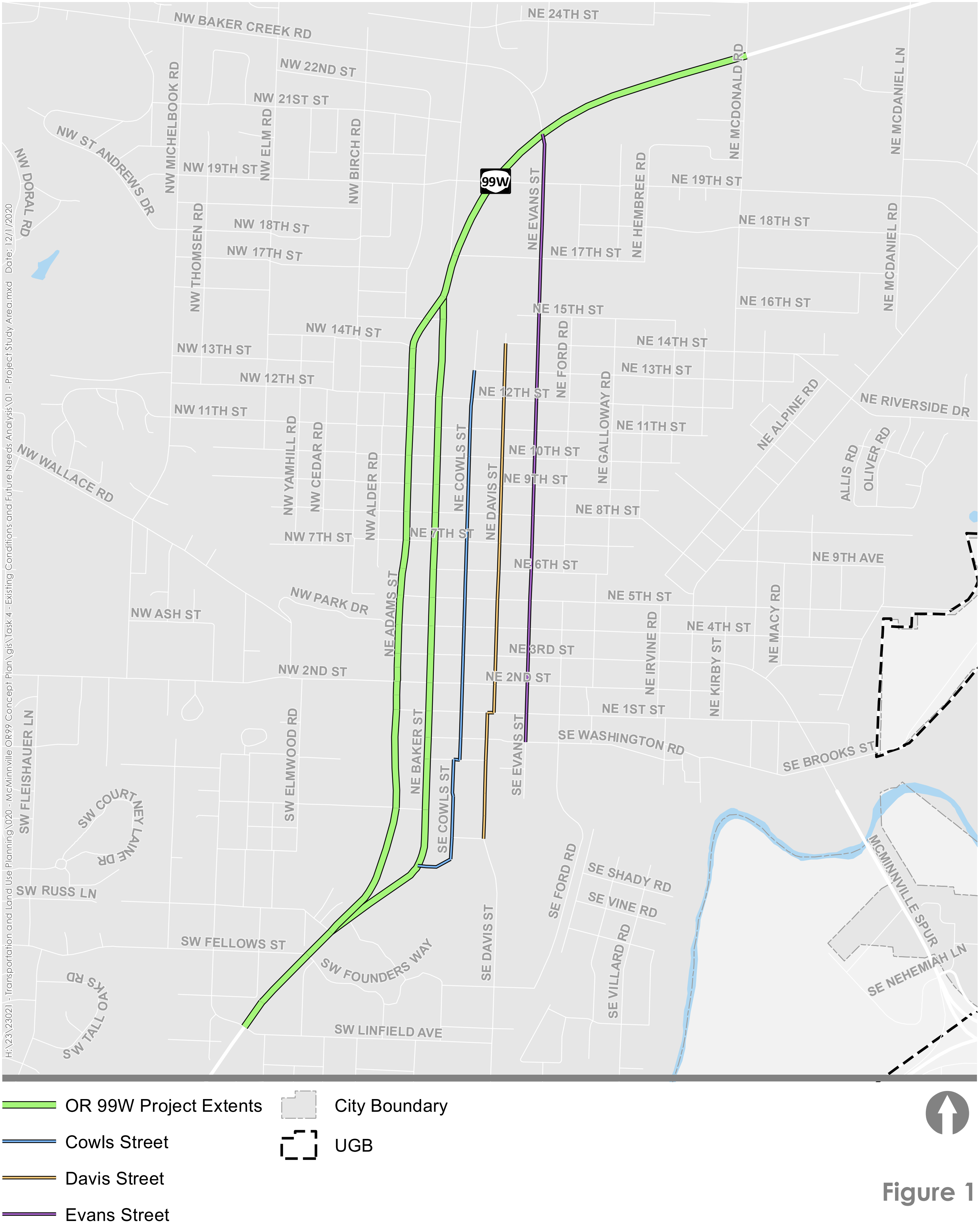

Figure 1

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Project Study Area
McMinnville, OR

Active Transportation Generators

Certain land uses are associated with generating walking and biking trips. Mapping these active transportation generators helps inform the location and priority of investment in walking and biking facilities. Generators of walking and biking activity in the area include transit stops, schools, libraries, gyms, grocery stores, health clinics, municipal buildings, community centers, places of worship, bike shops, and parks. The map of active transportation generators is provided in Figure 2.

As shown in Figure 2, there is a cluster of active transportation generators, including transit stops, places of worship, health clinics, the community center, the court house, and a library, along Evans Street. Baker Street and Adams Street both have a greater number of generators south of Park Drive, including parks, libraries, health clinics, a bike shop, and a grocery store. Throughout the couplet there are also restaurants and coffee shops, which are not included as active transportation generators but could be expected to generate pedestrian and bicyclist activity.

Demographics

The Transportation Disadvantaged Population (TDP) Index is based on census data characteristics, designed to help prioritize improvements that serve areas with high numbers of transportation disadvantaged residents and environmental justice communities that have been traditionally underserved. This index was calculated according to the Oregon Department of Transportation (ODOT) Active Transportation Needs Inventory Assessment. The index converts household statistics from the American Community Survey to a per capita index. It is calculated at the census block group level as the sum of people 65 and older, 17 and younger, non-white or Hispanic, speak English “not well” or “not at all”, low-income, with a disability, living in crowded households, or living in households without vehicle access. That sum is divided by total block population. People fitting into multiple vulnerability categories are counted multiple times. The higher the index number the more disadvantaged the population is with respect to transportation.

The TDP Index is also useful because the characteristics measured by the index correspond to characteristics of transportation system users with a greater propensity to walk or bike (e.g. individuals under 18, over 65, and without access to a vehicle). A map of the Transportation Disadvantaged Population (TDP) index is shown in Figure 3.

Most of the study area has a TDP Index between 1.25 to 1.5. This means that on average individuals are in one to two of the disadvantaged groups. The TDP Index is similar across the study area, however the average number of transportation disadvantaged characteristics (e.g. low-income, elderly) a person has is slightly lower near Linfield University and slightly higher surrounding OR 99W at the northern portion of the corridor.

The full methodology behind the calculation is included in Appendix A.

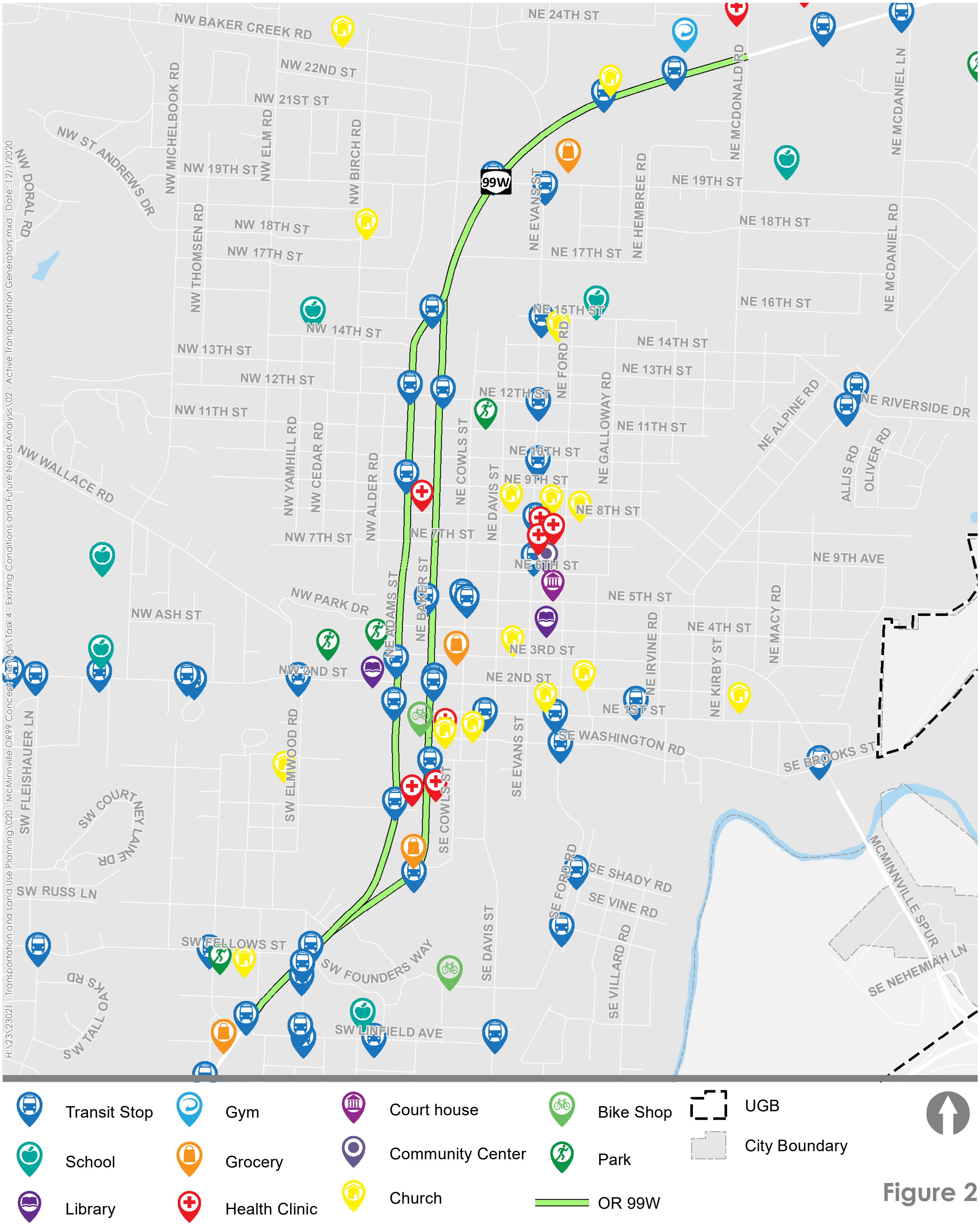

Figure 2

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Active Transportation Generators
McMinnville, OR

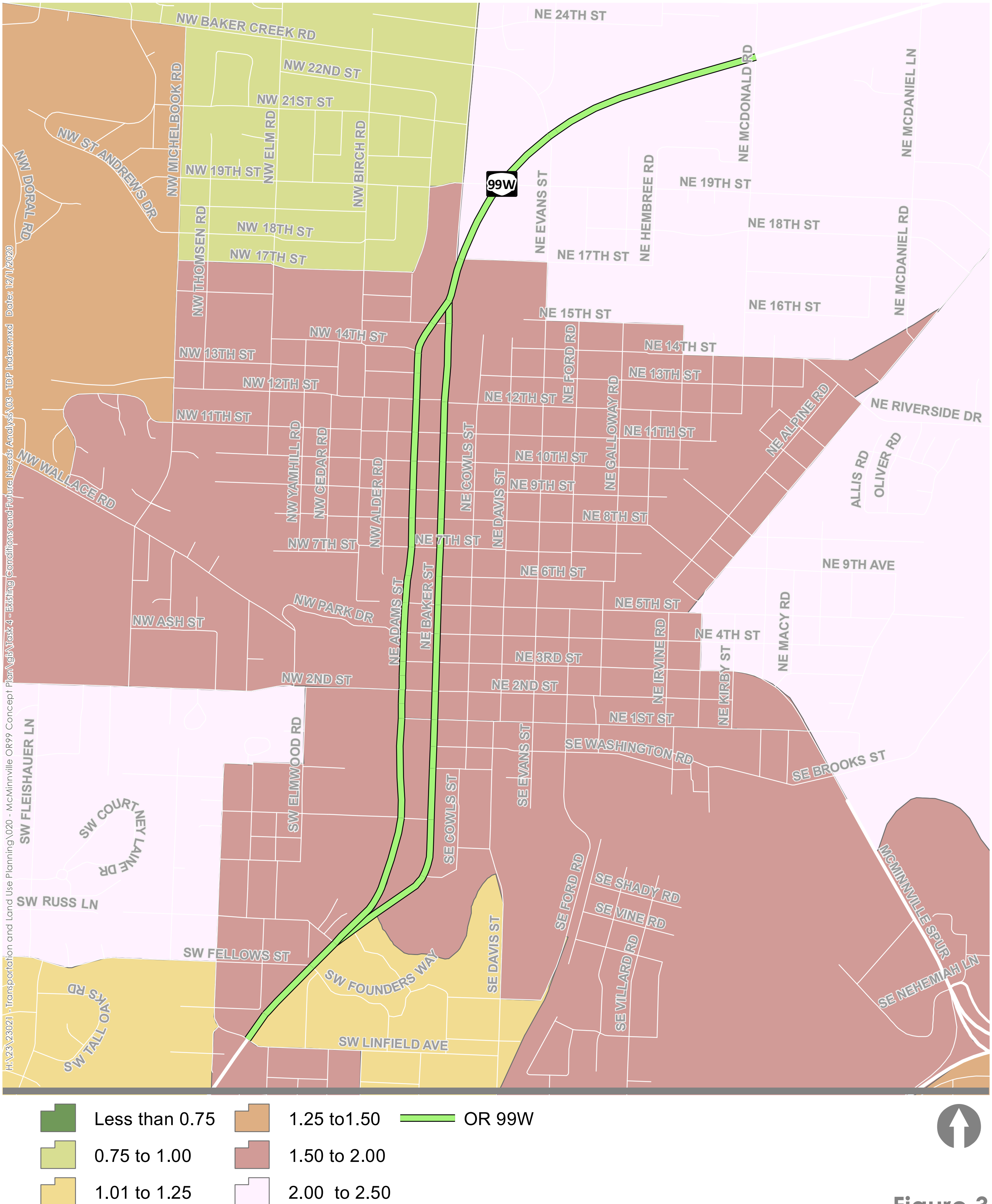

Figure 3

Transportation Disadvantaged Population Index
McMinnville, OR

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EXISTING PEDESTRIAN AND BICYCLE NETWORK

The following section provides an inventory and assessment of the active transportation facilities along OR 99W and potential parallel facility routes. This section includes a review of existing walking and biking activity within the project study area, as well as existing facility types, locations, geometries, and conditions, as they relate to state and local standards.

Pedestrian Facilities

The following section describes the existing walking system. Information on the type and location of sidewalks was obtained from ODOT GIS data. The GIS data was updated to include information based on Google Earth Aerial views. Figure 4 illustrates the existing pedestrian facilities along OR 99W and potential parallel routes in the study area.

Sidewalks

Sidewalks are the most fundamental element of the pedestrian system. Sidewalks are typically constructed of concrete and separated from the roadway by a curb and gutter, landscaping strip, and/or on-street parking. The unobstructed travel way for people walking on a sidewalk should be clear of utilities, signposts, fire hydrants, vegetation, and street furnishings. Typically, a buffering of the pedestrian space and vehicular travel lane increases the comfort of the pedestrian experience.

Sidewalks are provided along both sides of OR 99W within the project study area except for the segment of Adams Street between 1st Street and Edmunston Street. This segment has intermittent sidewalks creating a non-continuous facility for people walking on the east or west side of Adams Street.

Facility Guidance

Based on the guidance identified in the Blueprint for Urban Design (BUD) for Urban Mix and Traditional Downtown/Central Business District (CBD) contexts, sidewalks should provide ample space for sidewalk activity (e.g. sidewalk cafes, transit, shelters). According to the ODOT Highway Design Manual (HDM), the standard width for sidewalks is six feet, and the minimum clear width of a pedestrian access route within a sidewalk is four feet. In constrained areas around obstacles that cannot be moved, a minimum passage of four feet must be maintained for a maximum length of 200 feet.

Sidewalks on Adams Street (facing north)

Sidewalks on Evans Street (facing north)

Crosswalks

Marked crosswalks serve as a designated space for people to cross the roadway. There are two main forms of marked crosswalks: “transverse” crosswalks and “continental” or “zebra” crosswalks. In Oregon, every intersection is a legal crossing, whether it is marked or unmarked.

There are currently marked “transverse” crossings at all signalized intersections along OR 99W within the project study area as well as the Adams Street/3rd Street and Adams Street – Baker Street/15th Street intersections. There are no marked crosswalks along OR 99W between 5th Street and 12th Street, which is a distance of approximately 1,850 feet (0.35 miles). There are also no marked crosswalks along OR 99W between 2nd Street and Fellows Street, which is a distance of approximately 2,640 feet (0.5 miles).

Enhanced Crossings

Enhanced crossings provide additional safety for people walking at mid-block or unsignalized crossings by alerting motorists that a person is crossing the roadway. Common enhanced crossing treatment types include “ACTIVE OR ENHANCED”, “RED” facilities treatments, and bulb-outs. “ACTIVE OR ENHANCED” facilities provide a flashing yellow indication and may include rectangular rapid flashing beacons (RRFBs) or pedestrian hybrid beacons (PHBs). “RED” facilities provide a red indication and are more commonly located on facilities with high speeds and traffic volumes. “RED” facility treatments may include pedestrian half signals or a traditional full signal. Bulb-outs, which are described in the following section extend the sidewalk to narrow the crossing distance for people walking across a roadway.

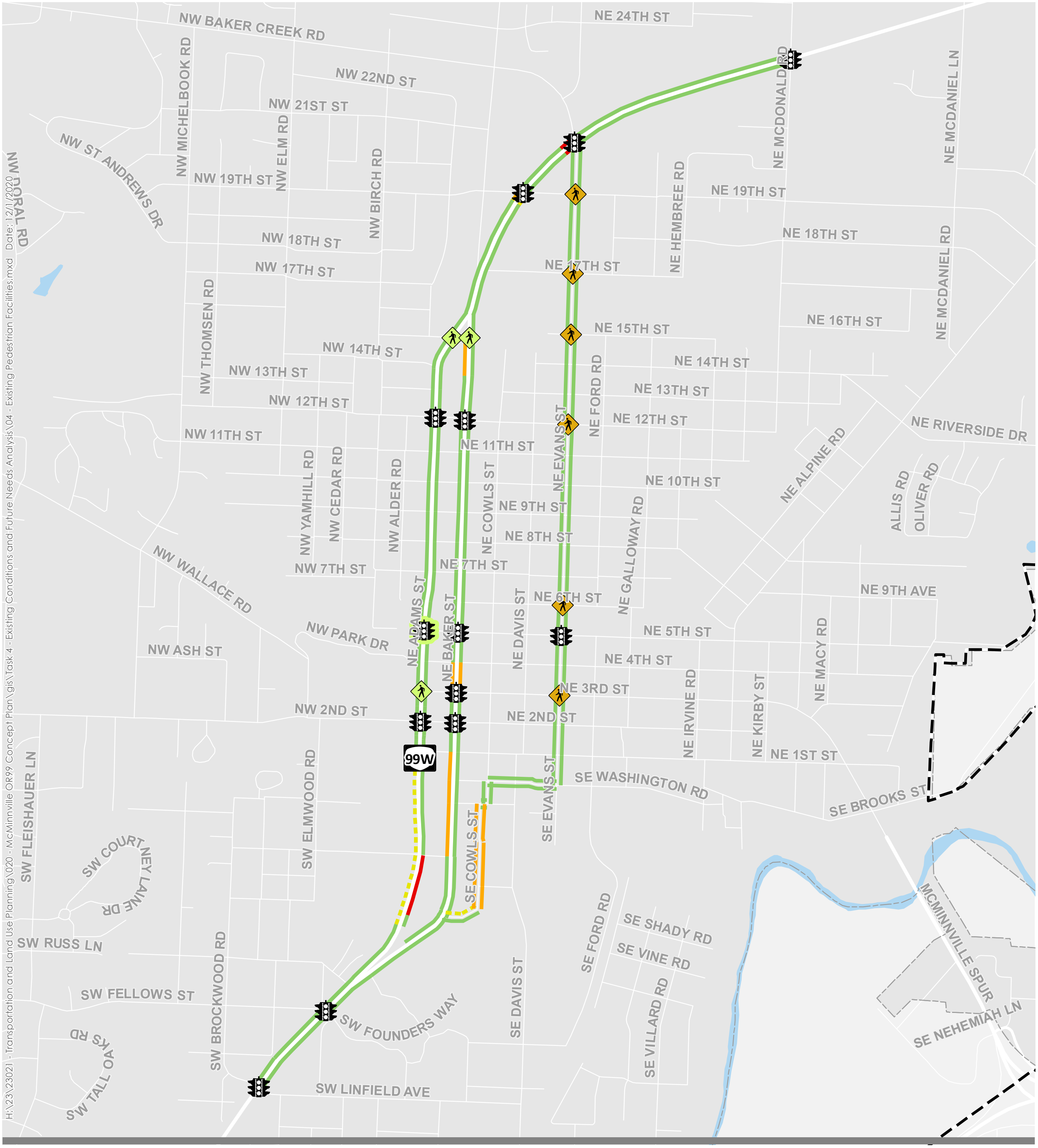
There are currently no enhanced crossing facilities located within the project study area other than the signalized intersections.

Facility Guidance

Based on the guidance identified in the BUD for Urban Mix and Traditional Downtown/CBD contexts, the target pedestrian crossing spacing range is 250 to 550 feet (one-two blocks). According to the HDM, developed, urban state highways should provide a safe and convenient pedestrian crossing no less frequent than every quarter mile. Crossing improvements should also be no closer than 300 feet from the nearest signalized crosswalk. Determining the facility treatment type of potential enhanced crossing facilities will rely on the methodologies outlined in the NCHRP Report 562 and will be performed as part of TM #5: Alternatives Development, Analysis, and Preferred Alternative Concept.

Crosswalk at Adams Street/5th Street (facing north)

Crosswalk at Baker Street/15th Street (facing south)



Sidewalk >=5 feet
Sidewalk <=4 feet
Sidewalk Gap (Partial Segment)
Sidewalk Gap (Full Segment)
Crosswalk
Crosswalk with Bulb-Out(s)
Signalized
Signalized with Bulb-Out(s)
UGB
City Boundary

Figure 4

Existing Pedestrian Facilities
McMinnville, OR

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Bulb-Outs

Bulb-outs or "curb extensions" extend the sidewalk into the parking or landscape strip to narrow the crossing distance for people walking across a roadway. Bulb-outs are most commonly located at corners; however, they can be installed at mid-block crossing locations. Bulb-outs enhance pedestrian safety by increasing pedestrian visibility, creating shorter crossing distances, and slow turning vehicles.

Bulb-outs are currently located at the Adams Street/3rd Street, Adams Street/5th Street, Adams Street/15th Street, Adams Street/11th Street, Baker Street/9th Street, Baker Street/11th Street, and Baker Street/15th Street intersections. Bulb-outs are planned for the northwest and southwest corners of the Baker Street/3rd Street intersection.

Facility Guidance

The BUD recommends the use of bulb-outs or "curb extensions" as a design element consideration within the transition realm (the space between the back of sidewalk and edge of parking). Curb extensions are also recommended treatments for target speed areas up to 30 mph within urban areas.

Within the project study area, the posted speed of OR 99W is 30 mph along most of the OR 99W couplet. Along Cowls Street, Davis Street, and Evans Street the posted speed is 25 mph. The posted speed is 35 mph along OR 99W north and south of the couplet and along Adams Street south of 2nd Street.

According to the HDM, bulb-outs, or curb extensions, are used in conjunction with on-street parking and reduce the pedestrian crossing distance by extending the sidewalk to the edge of the parking lane, thereby improving the visibility of pedestrians for motorists. The HDM states that crossing islands and curb extensions should be used to decrease crossing distances at signalized intersections. On streets with parking, near-side bus stops benefit from curb extensions so passengers can board or dismount the bus directly without stepping on to the street. The HDM notes that curb extensions can trigger freight mobility concerns. OR 99W is a Reduction Review Route subject to ORS 366.215; therefore, a review of potential reductions of vehicle-carrying capacity will be required at the time of project implementation.

Bulb-Outs at 3rd Street/Baker Street (facing east)

Bulb-Outs at 5th Street/Adams Street (facing west)

Pedestrian Ramps

Pedestrian curb ramps and tactile warning pads are necessary for pedestrian crossings to be compliant with American with Disabilities Act (ADA) standards. Pedestrian ramps provide access on and off streets for people walking and rolling.

Facility Guidance

ODOT has created state standards and specifications for the design and construction of ADA Curb ramps that comply with the 2011 Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way, a nationally recognized ADA compliance document. These standards and specifications set by ODOT ensure that the pedestrian curb ramps comply with ADA accessibility requirements. The ramp design must meet specific criteria related to width, length, cross-slope, running slope, warning features, and transitions.

Pedestrian Ramp at Adams Street/11th Street
(Good Condition)

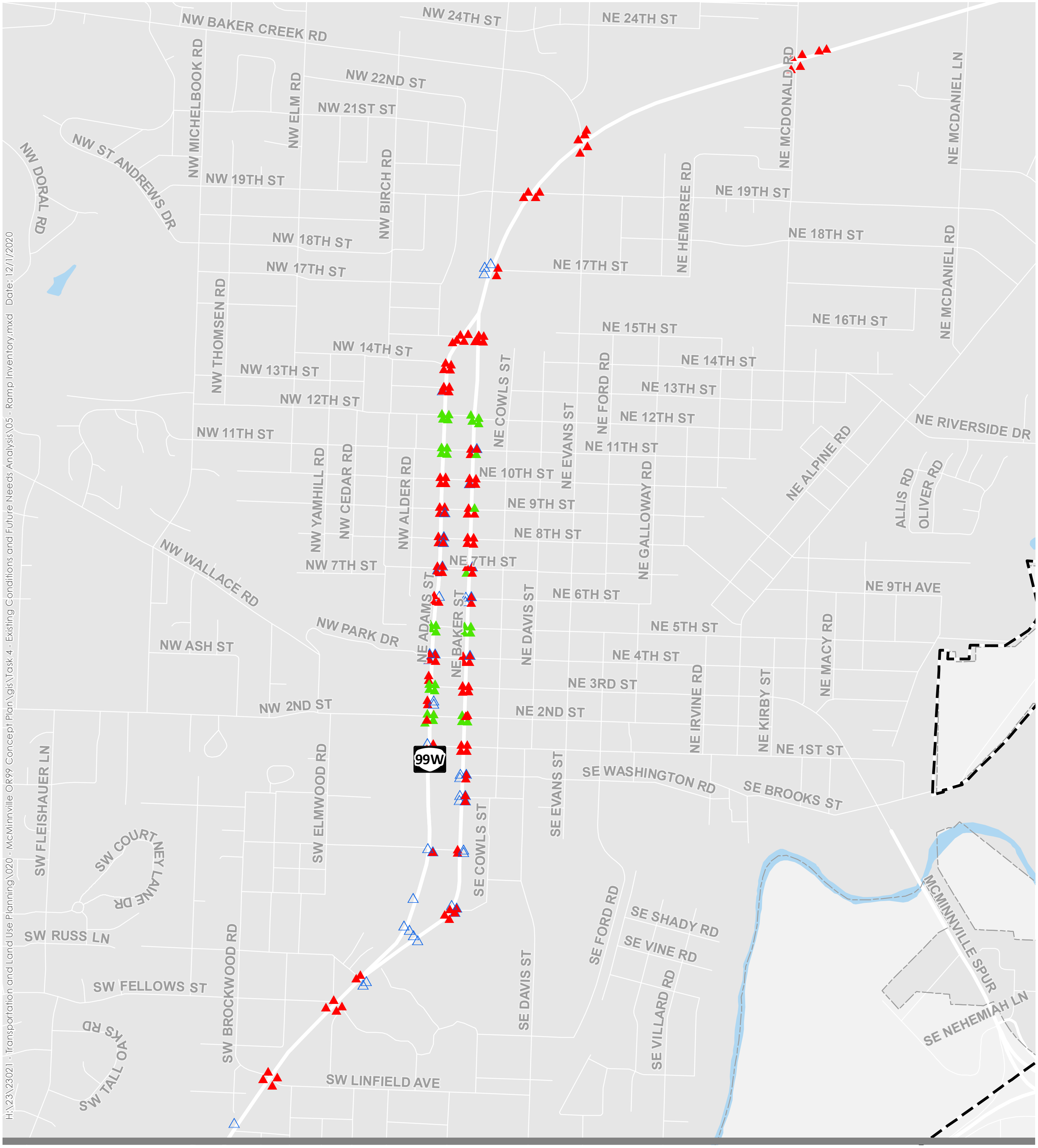
Pedestrian Ramp at Baker Street/1st Street
(Poor Condition)

Pedestrian Ramp Inventory

The ODOT ADA ramp inventory and information the City provided about recent ramp upgrades was reviewed to understand which ramps within the project study area are not compliant with ODOT ADA standards. According to the Ramp Inventory in ODOT TransGIS and the information provided by the City, most pedestrian ramps along OR 99W between McDonald Lane and Linfield Avenue are either in ‘Poor’ condition or are missing. The pedestrian ramps are reported in ‘Good’ condition according to ODOT ADA standards at the following intersections (at all four corners unless otherwise noted):

- Adams Street/12th Street,
- Adams Street/11th Street,
- Adams Street/5th Street,
- Adams Street/3rd Street,
- Adams Street/2nd Street (except Northwest corner);
- Baker Street/12th Street
- Southeast corner of Baker Street/11th Street,
- Northwest corner of Baker Street/9th Street,
- Southwest corner of Baker Street/7th Street
- Baker Street/5th Street, and
- Baker Street/2nd Street (except Northwest corner).

Figure 5 illustrates the ODOT pedestrian ramp inventory.



ADA Ramp Condition

- Good
- Poor
- Missing

UGB

City Boundary

Figure 5

Pedestrian Ramp Inventory
McMinnville, OR

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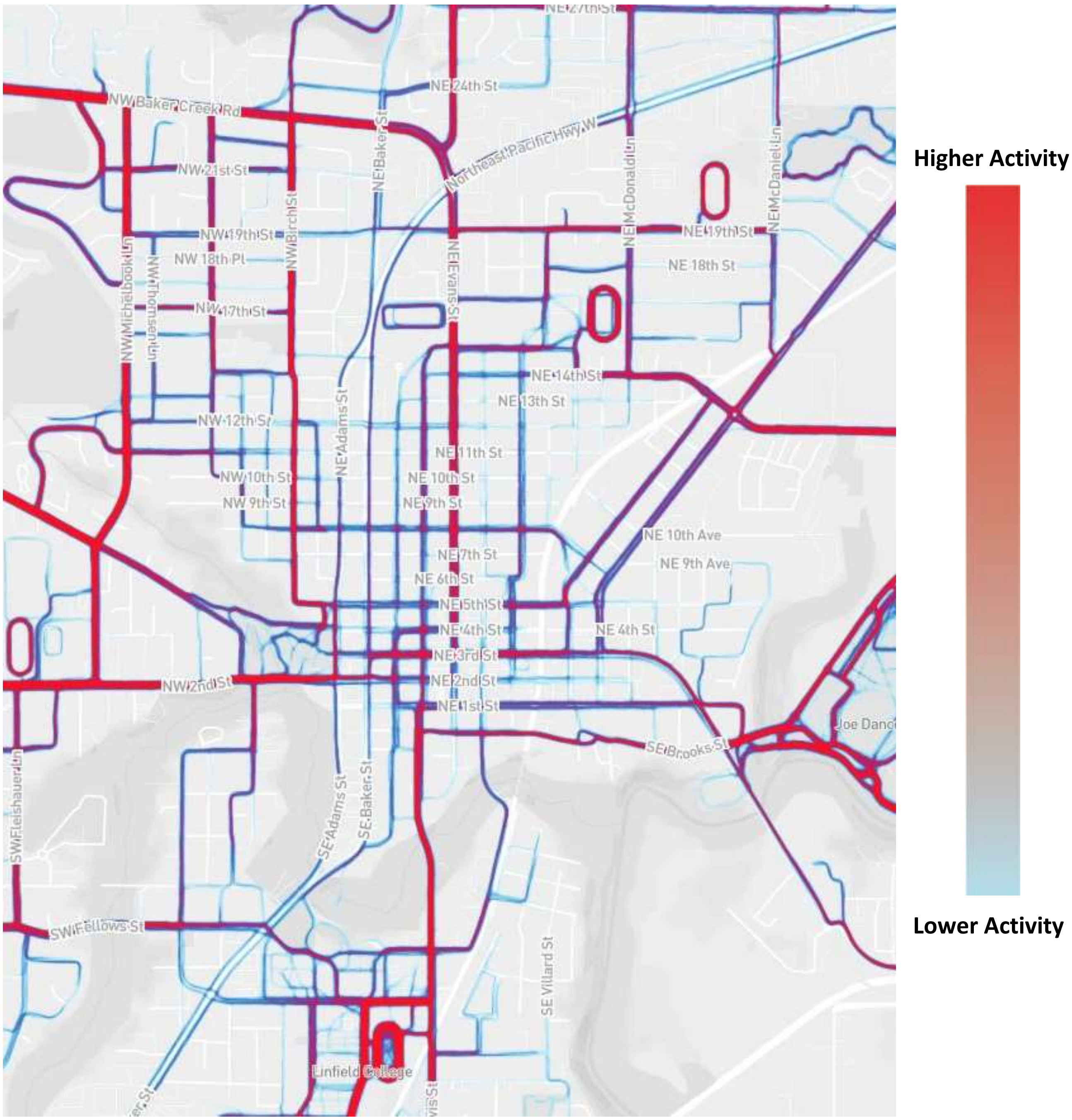
Existing Pedestrian Activity

To understand relative pedestrian activity in the corridor, a Strava Heatmap was developed to show the level (‘heat’) made by aggregated, public activities over the last two years. The data is an aggregate of people tracking their runs and walks with Strava and can be used to understand patterns of routes people are taking today. Strava data only records activity for people using the app and may be biased towards recreational activities. Exhibit 1 shows the Strava Heatmap for pedestrian activity in McMinnville. There is a relatively high amount of pedestrian activity along Birch Street, Evans Street, Davis Street, 2nd Street, and 3rd Street.

Exhibit 1: Strava Heatmap – Pedestrian Activity



Bicycle Facilities

The following section describes the existing biking system. Information on the type and location of bicycle facilities was obtained from ODOT GIS data. The GIS data was updated to include information based on Google Earth Aerial views. Figure 6 illustrates the existing bicycle facilities along OR 99W and potential parallel routes in the study area.

Bike Lanes

Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. They are appropriate on a wide range of roadway types. Typical bike lane design can range in width and whether or not there is an additional buffer space or vertical separation between the bike lane and motor vehicle lane. Bike lanes on local streets are appropriate where bicycle volumes are high, vehicle speeds are higher than 25 miles per hour, and/or poor sight distance exists. Bike lanes must always be well-marked to call attention to their preferential use by bicyclists.

There are no bikes lanes along the Adams Street or Baker Street within the couplet of OR 99W; however, bike lanes are provided north and south of the couplet along OR 99W. Bike lanes are located along Evans Street between 8th Street and 17th Street; however, no bike lanes are provided south of 8th Street or north between 17th Street and OR 99W.

Facility Guidance

Based on the guidance identified in the BUD for Urban Mix and Traditional Downtown/CBD contexts, when planning for new bicycle facilities, it is recommended to start with wide, separated bicycle facilities and consider roadway characteristics to justify the width of the facilities.

The Oregon Bicycle and Pedestrian Design Guide sets the standard for bike lane widths at six feet, with a minimum width of four feet on open shoulders or five feet from the face of curb, guardrail, or parked cars.

Bike Lanes on 2nd Street (facing west)

Bike Lanes on Evans Street (facing north)

Shared Lane Markings ("Sharrows")

Typically located on neighborhood streets with low vehicular volumes and speeds, "sharrows" are pavement markings that alert motorists to expect people biking in the travel lane. Sharrows provide wayfinding for people biking on neighborhood bicycle routes and typically feature a stenciled bicyclist with two chevron symbols, denoting where people biking should share the road with motor vehicles.

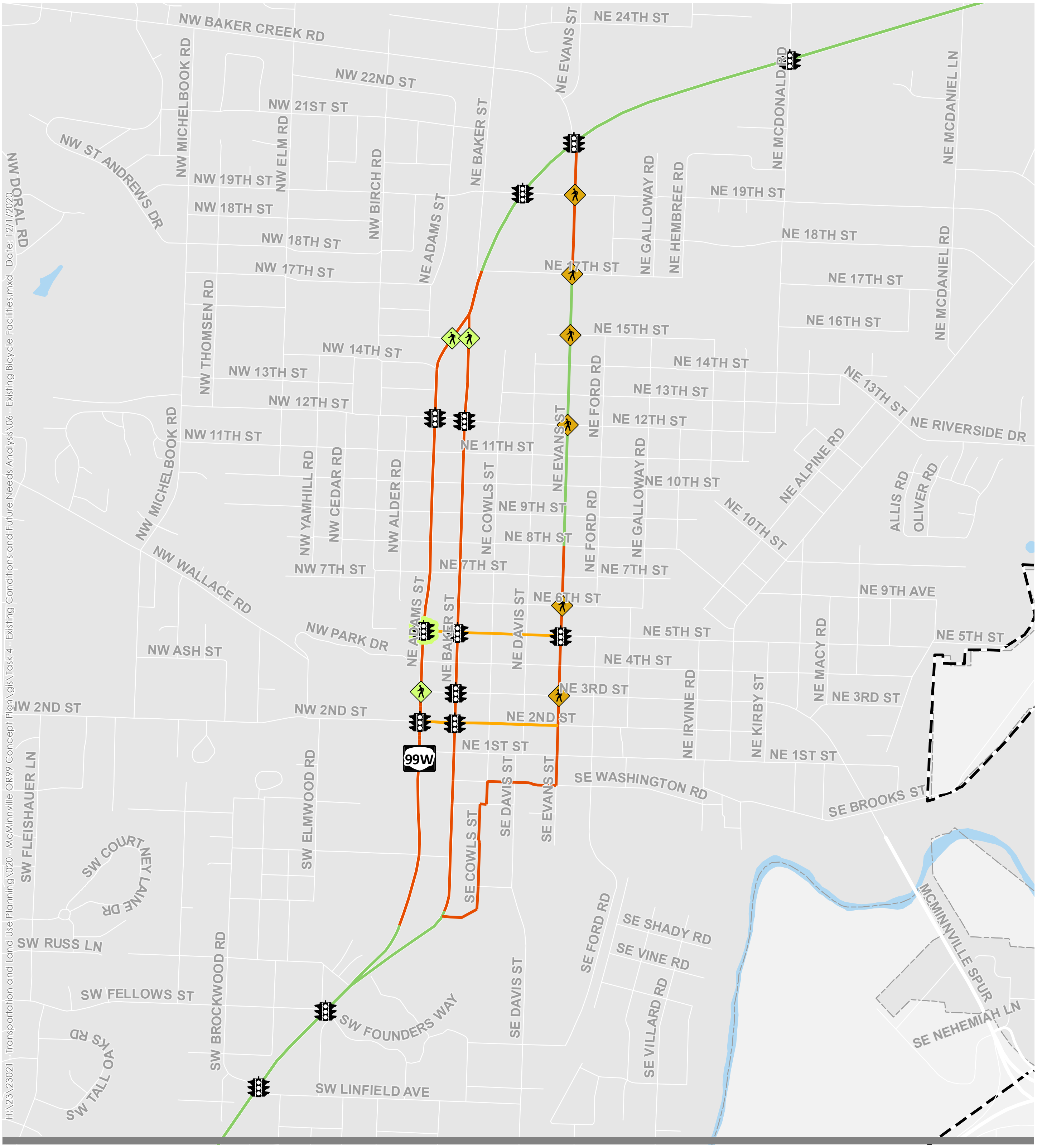
Sharrows are provided along 2nd Street and 5th Street within the project study area.

Facility Guidance

Shared lane markings or "sharrows" should only be installed along roadways with traffic volumes less than 3,000 ADT and roadways with posted speeds less than 30 mph. Shared lane markings may be appropriate on roadways with a posted speed greater than 30 mph if the ADT is less than 750. Existing sharrows in the study area are provided on streets with posted speeds less than 30 mph. The ADT along these street segments is not available on ODOT TransGIS.

Sharrows on 2nd Street (facing east)

Sharrows on 5th Street (facing east)



Bike Lane

Shared Lane Marking "Sharrow"

No Facility (Gap)

Crosswalk

Crosswalk with Bulb-Out(s)

Signalized

Signalized with Bulb-Out(s)

UGB

City Boundary

Figure 6

Existing Bicycle Facilities
McMinnville, OR

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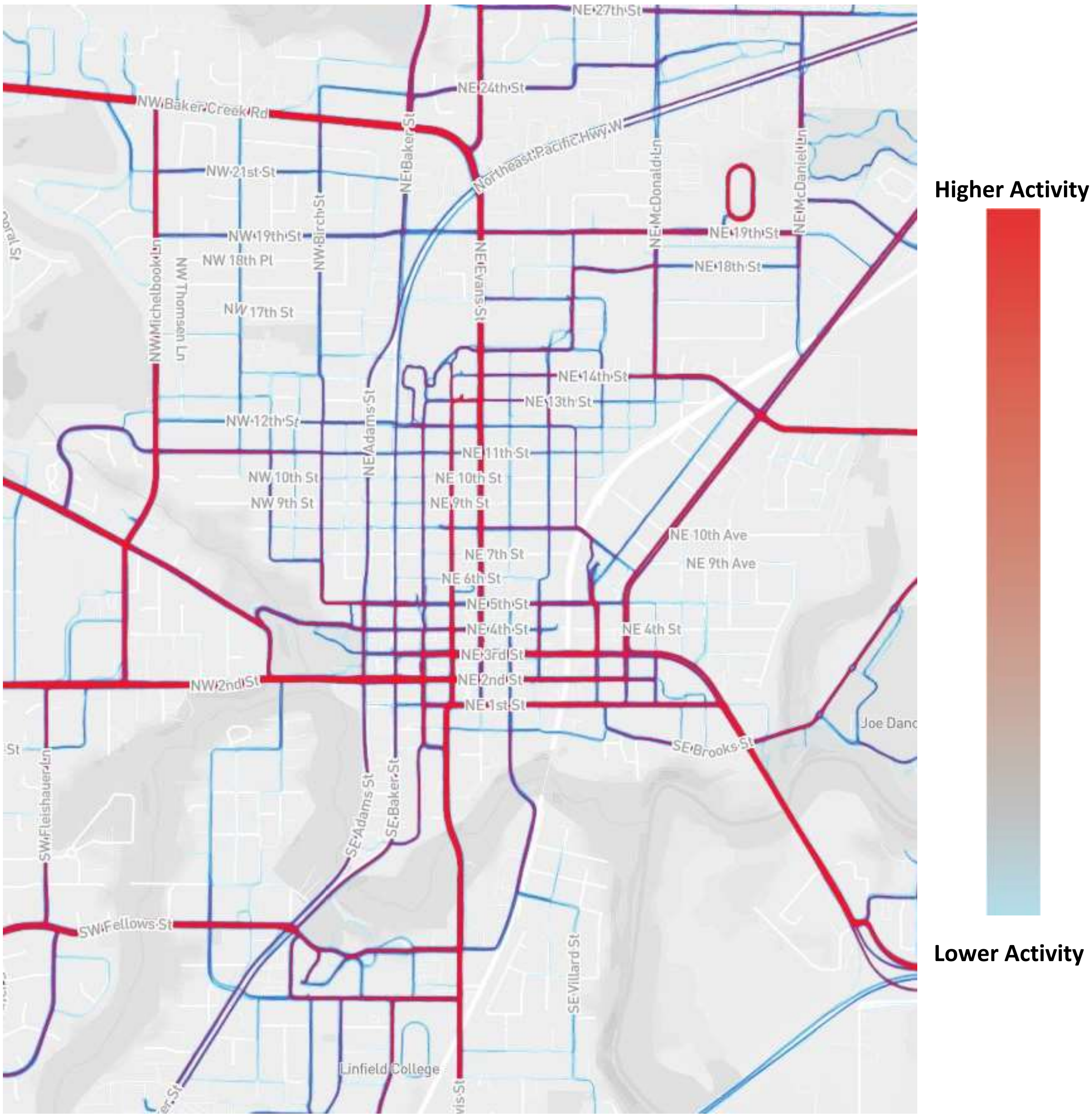
Existing Bicycle Activity

To better under relative bicycle activity within the study area, a Strava Heatmap was developed to show the level ('heat') made by aggregated, public activities over the last two years. The data is an aggregate of people tracking their cycling activity with Strava and can be used to understand patterns of routes people are taking today. Strava data only records activity for people using the app and may be biased towards more recreational activities. Exhibit 2 shows the Strava Heatmap for people biking in McMinnville. There is a relatively high amount of bicyclist activity along Evans Street, Davis Street, 3rd Street, 2nd Street, and Linfield Avenue.

Exhibit 2: Strava Heatmap—Bicyclist Activity



Safe Routes to School

Safe Routes to School aims to create safe, convenient, and fun opportunities for children to walk, bike, and roll to and from school. Oregon's Safe Routes to School program is an effort to improve, educate, or encourage children to safely walk (by foot or mobility device) or bike to school. Routes for walking and biking to school are a key component in developing a Safe Routes to School plan. By establishing designated routes for walking and biking, investment can be prioritized to increase safety along the routes or within proximity to the school(s).

McMinnville Walk-to-School Routes Map

The McMinnville Transportation System Plan (TSP – Reference 1) Appendix J establishes Walk-To-School Route Plans for eight existing schools.

- Sue Buel Elementary
- Grandhaven Elementary
- Memorial Elementary
- Newby Elementary
- Columbus Elementary
- Patton Middle School
- Duniway Middle School
- McMinnville High School

Routes to schools listed above were developed based on recommended practices and procedures outlined in the *School Administrator's Guide to School Walk Routes and Student Pedestrian Safety.* Based on the McMinnville School District policy on walking distance for elementary (one mile) and middle schools (1.5 miles), 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
- Walk route plans do not necessarily need to cover all neighborhood streets

The schools located within proximity of the Concept Plan project study area include Sue Buel Elementary School, Duniway Middle School, Newby Elementary, Patton Middle School, and McMinnville High School. Figure 7 illustrates the location of these schools as well as the designated "Walk-To-School" routes.

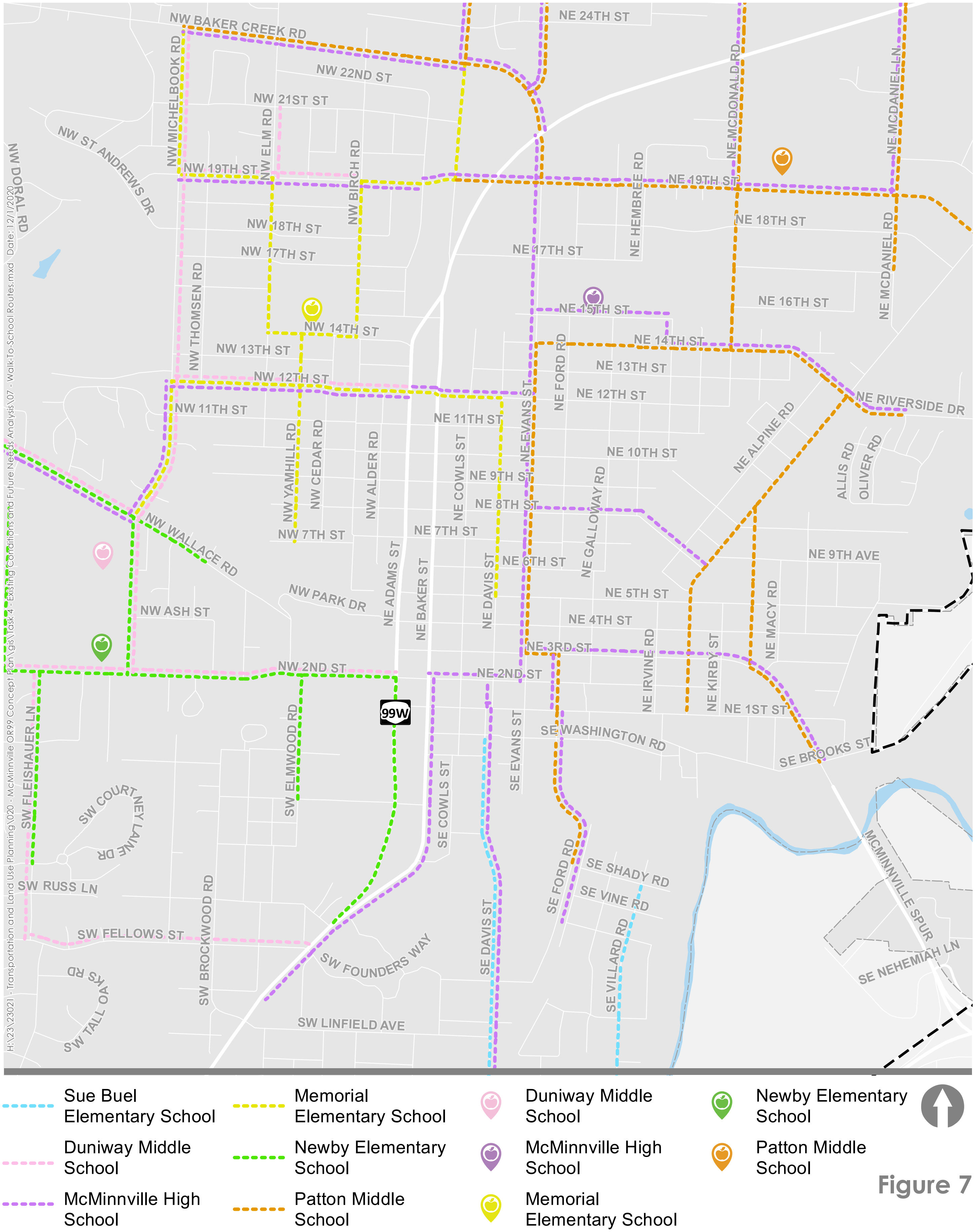


Figure 7

Walk-To-School Routes
McMinnville, OR

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SAFETY ANALYSIS

The safety analysis included a review of historical crash data and of existing roadway crossings, as described in the following sections.

Crash Analysis

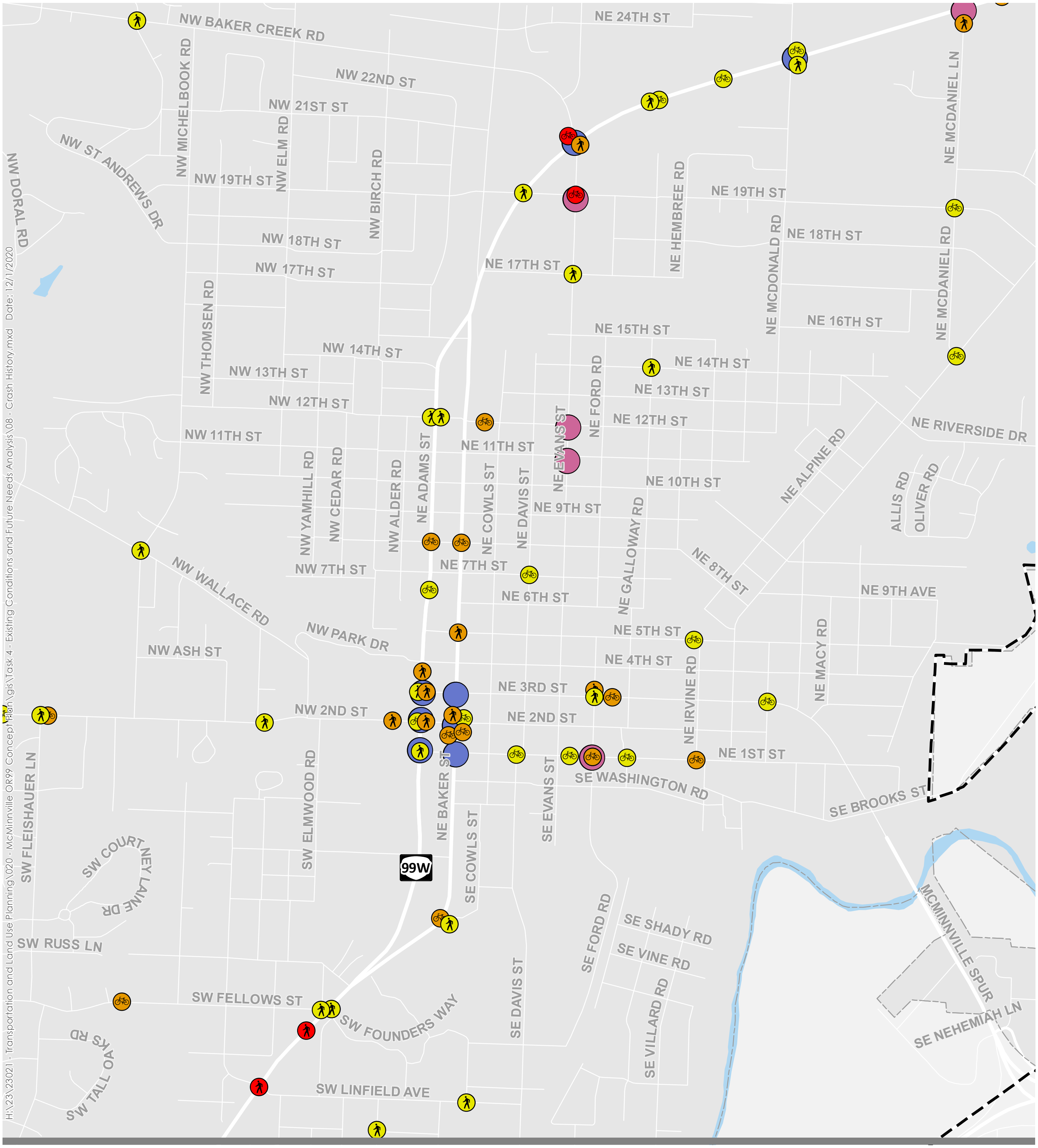
The five most recent years of pedestrian and bicyclist crash data (January 1, 2014 to December 31, 2018) were obtained from ODOT's Crash Analysis and Reporting Unit and reviewed for the study intersections and segments in the project study area, consistent with the methodologies outlined in the Analysis Procedures Manual (ODOT APM – Reference 2). The data was analyzed for a variety of factors including severity, crash type and characteristics, crash rates, and location to identify potential crash patterns or area-wide trends. Additional attention was directed toward locations with multiple pedestrian and bicyclist crashes and locations along the corridor identified as top 5% or 10% locations from the most recent three (3) Safety Priority Index System (SPIS) site listings. The results are described below.

Figure 8 shows the locations of crashes involving a pedestrian or bicyclist between January 1, 2014 to December 31, 2018 within the project study area. No fatal pedestrian or bicycle crashes were reported within the project study area over the course of the five-year period. Table 1 summarizes the reported pedestrian and bicyclist crash history for this period along OR 99W in the project study area.

Table 1: Reported Pedestrian and Bicyclist Crash History (January 1, 2014 to December 31, 2018)

Study Segment	Segment Length (Miles)	Crash Type	Crash Severity			Total Number of Crashes	Crash Rate[2] (Crashes/ Mile)
			Serious Injury (A)	Moderate Injury (B)	Minor Injury (C)		
OR 99W (North of Couplet to McDonald Lane)	0.70	Pedestrian	0	1	3	**4**	**5.71**
		Bicyclist	1	0	3	**4**	**5.71**
OR 99W (Adams Street)	1.16	Pedestrian	0	3	4	**7**	**6.03**
		Bicyclist	0	2	1	**3**	**2.59**
OR 99W (Baker Street)	1.16	Pedestrian	0	2	1	**3**	**2.59**
		Bicyclist	0	4	1	**5**	**4.31**
OR 99W (South of Couplet to Linfield Avenue)	0.24	Pedestrian	2	0	2	**4**	**16.67**
		Bicyclist	0	0	0	**0**	**0**

[1]Project study area include crashes located along OR 99W and the potential parallel routes east of the highway.
[2]Crash Rate includes segment and intersection crashes.



Pedestrian Crashes

- Serious Injury (A)
- Moderate Injury (B)
- Minor Injury (C)

Bicycle Crashes

- Serious Injury (A)
- Moderate Injury (B)
- Minor Injury (C)

SPIS

- 90th Percentile
- 95th Percentile

Figure 8

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Pedestrian and Bicycle Crash History
McMinnville, OR

Bicycle Crashes

A total of 12 crashes involving people biking along OR 99W occurred over the five-year period between January 1, 2014 to December 31, 2018. Of these crashes, one was 'serious injury', six were 'moderate injury', and the remaining five were 'minor injury'.

- Four of these crashes occurred along the 0.4-mile segment of OR 99W between McDonald Lane and Evans Street.
- Three crashes occurred along Adams Street.
- Five crashes occurred along Baker Street.
- No crashes occurred along OR 99W between Fellows Street and Linfield Avenue.
- All 12 crashes involved angle or turning movements where the motorist did not yield right-of-way. Two crashes involved the motorist going straight, six involved the motorist turning right, and four involved the motorist turning left.
- Eleven crashes occurred during daylight; only one crash occurred in darkness with streetlights.
- Five crashes occurred during snow or wet conditions; the remaining seven crashes occurred in dry conditions.
- Eight crashes occurred on a Friday; the remaining four crashes occurred on other weekdays.

Additionally, there were two crashes involving people biking along Evans Street; both crashes were coded as 'serious injury'. There were two crashes along Davis Street; both crashes were coded as 'minor injury'. Additionally, there were six crashes involving people biking along 1st Street between Cowls Street and Irvine Street. These crashes were turning movement crashes, with three involving the vehicle making right turns, two involving the vehicle making left turns, and one involving the vehicle traveling straight.

Pedestrian Crashes

A total of 18 crashes involving people walking along OR 99W occurred over the five-year period between January 1, 2014 to December 31, 2018. Of these crashes, two were 'serious injury', six were 'moderate injury', and the remaining ten were 'minor injury'.

- Four crashes occurred along OR 99W between McDonald Lane and 19th Street.
- Seven crashes occurred along Adams Street.
- Three crashes occurred along Baker Street.
- Four crashes occurred along OR 99W between Fellows Street and Linfield Avenue.
- Eleven crashes involved the motorist turning left, four involved the motorist traveling straight, and the remaining three involved right turns.
- Four crashes involved the person walking illegally in roadway, twelve involved the motorist not yielding the right of way, and two crashes involved a disregard of the traffic signal.
- All crashes occurred under lit conditions: 12 crashes occurred during daylight; six crashes occurred during darkness with streetlights.

- Eight crashes occurred during wet conditions; 10 crashes occurred in dry conditions.
- Four crashes occurred on a Friday, thirteen crashes occurred on other weekdays, and one crash occurred on Saturday.

Additionally, there were two crashes involving people walking along Evans Street: one at the intersection with OR 99W, and the other at the intersection with 17th Street. In both cases the person driving failed to yield right-of-way to the person walking. There were no crashes recorded involving people walking along Cowls Street or Davis Street in the study area.

Safety Priority Index System

The ODOT Statewide Priority Index System (SPIS) identifies sites along state highways where safety issues warrant further investigation. The SPIS is a method developed by ODOT for identifying hazardous locations on state highways through consideration of crash frequency, crash rate, and crash severity. Sites identified within the top 5% are investigated by ODOT staff and reported to the Federal Highway Administration (FHWA).

The three most recent SPIS lists (SPIS 2018, SPIS 2017, and SPIS 2016) contain crash data from January 1, 2013 through December 31, 2017[1]. Per SPIS 2018, SPIS 2017, and SPIS 2016 the following eight intersections were identified by ODOT as within the top 5% of statewide SPIS sites:

- McDonald Lane/OR 99W
- Evans Street/OR 99W
- 1st Street/Adams Street
- 1st Street/Baker Street
- 2nd Street/Adams Street
- 2nd Street/Baker Street
- 3rd Street/Adams Street
- 3rd Street/Baker Street

In addition, the following four intersections were identified by ODOT as within the top 10% of statewide SPIS sites:

- Evans Street/11th Street
- Evans Street/12th Street
- Evans Street/19th Street
- Ford Street/2nd Street

These locations are mapped in Figure 8 above.

[1] These dates align best with the study period. SPIS locations related to crash data collected in 2018 has not yet been released.

Pedestrian and Bicycle Systemic Safety Risk Analysis

ODOT is in the process of completing the *Oregon DOT Statewide Pedestrian and Bicycle Plan*, a systemic safety analysis aimed at identifying high risk locations for pedestrian and bicycle crashes along the state highway system.

The objective of the *Oregon DOT Statewide Pedestrian and Bicycle Plan* is to update the *ODOT Pedestrian and Bicycle Safety Implementation Plan* (ODOT, 2014) and inform future iterations of ODOT's All Roads Transportation Safety (ARTS) program. Systemic safety, opposed to the traditional crash history, allows practitioners to proactively identify high risk sites for potential safety improvements based on specific risk factors. Locations identified as top 20% based on the risk factor screening correspond to the highest risk locations throughout the state whereas locations in the lowest 20% correspond to the lowest risk locations throughout the state. A summary of the risk factors used as part of the *Oregon DOT Statewide Pedestrian and Bicycle Plan* is described below.

Pedestrian Risk Analysis

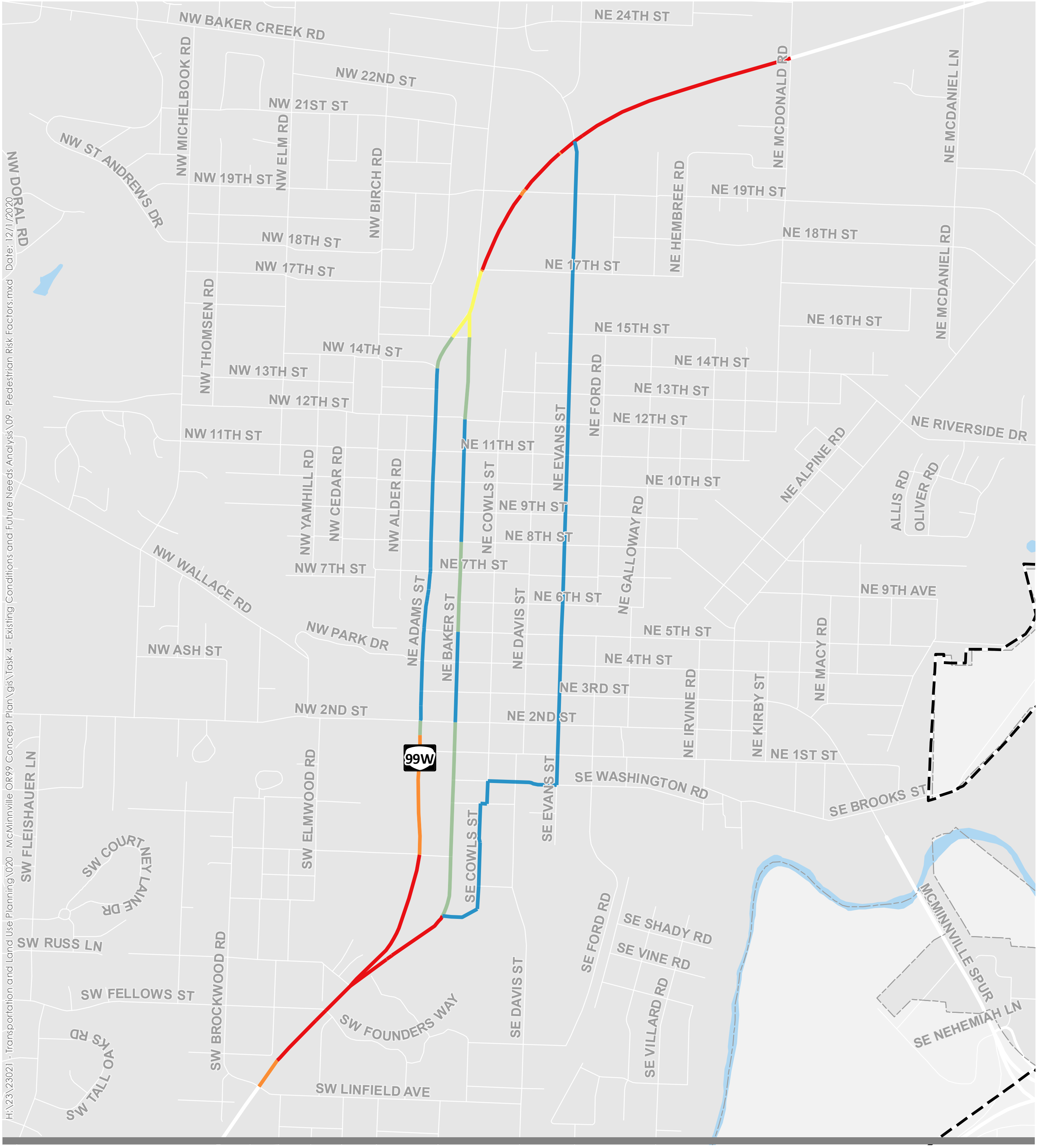
Figure 9 illustrates the results of the pedestrian risk analysis conducted as part of ODOT's statewide systemic safety analysis along the project extents for the Concept Plan. The segments of OR 99W outside of the couplet are in the top 20% for pedestrian risk factors. Evans Street and a majority of the OR 99W couplet are in the bottom 40% for pedestrian risk factors. The pedestrian risk factors used as part of the analysis include:

- Principal Arterial
- Number of Lanes (>=Four Lanes)
- High-Access Density
- No Sidewalks (or Only One Side)
- Posted Speed (>=35mph)
- Mixed Use Zoning
- Proximity to Schools (one mile)
- Proximity to Transit Stops (1/4 mile)
- High Population over the Age of 64

Bicycle Risk Analysis

Figure 10 illustrates the results of the bicycle risk analysis conducted as part of ODOT's statewide systemic safety analysis along the project extents for the Concept Plan. A majority of OR 99W, including the couplet, is identified in the top 40% for bicycle risk factors. The bicycle risk factors used as part of the analysis include:

- Principal Arterial
- Minor Arterials
- Number of Lanes (>=Four Lanes)
- High-access Density
- No Bike Lane
- Posted Speed (>=35mph)
- Mixed Use Zoning
- Proximity to Schools (one mile)
- Proximity to Transit Stops (1/4 mile)
- High Population over the Age of 64



Top 20%
Second 20%
Third 20%
Fourth 20%
Lowest 20%
UGB
City Boundary

Figure 9

Pedestrian Risk Factor Screening
McMinnville, OR

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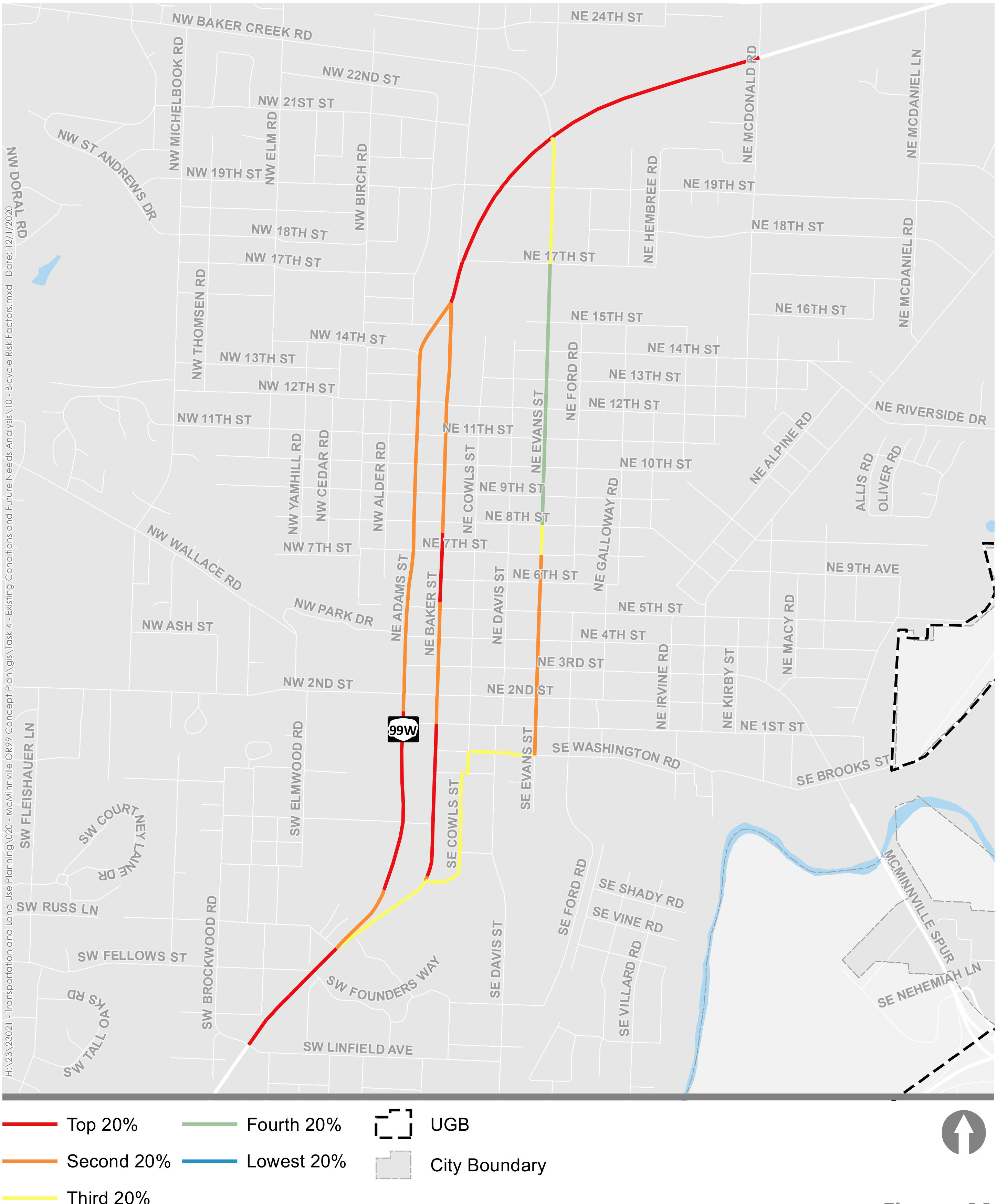

Figure 10

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Bicycle Risk Factor Screening
McMinnville, OR

ACTIVE TRANSPORTATION ANALYSIS

The ODOT APM provides a methodology for evaluating bicycle and pedestrian facilities within urban and rural environments called Level of Traffic Stress (LTS). As applied by ODOT, this methodology classifies four levels of traffic stress that a person walking or biking can experience on the roadway, ranging from LTS 1 (little traffic stress) to LTS 4 (high traffic stress).

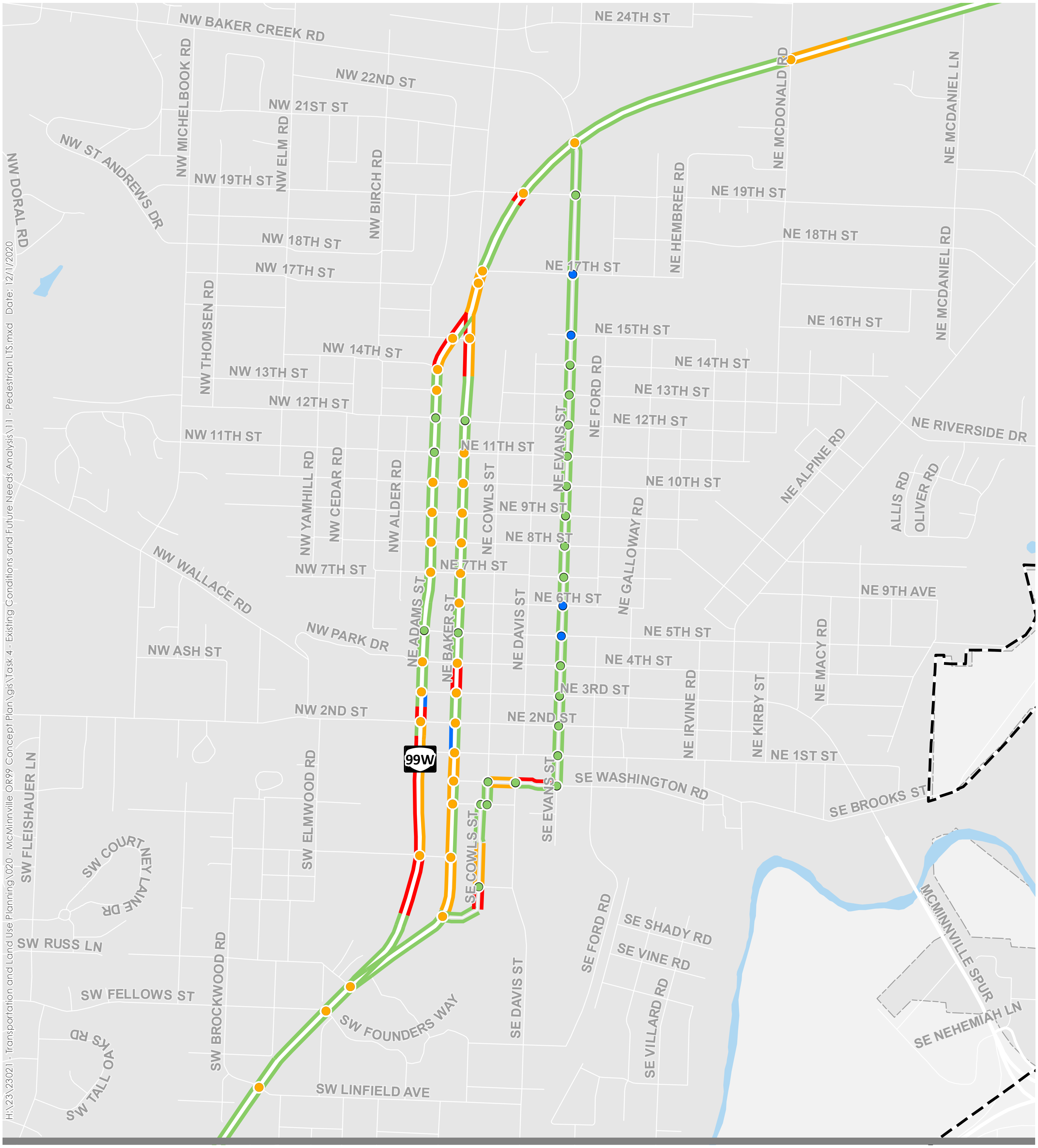
A road segment that is rated LTS 1 generally has low traffic volumes and travel speeds and is suitable for all users, including children. A road segment that is rated LTS 4 generally has high traffic volumes and travel speeds and is perceived as unsafe by most adults. Per the ODOT APM, LTS 2 is considered a reasonable target for pedestrian and bicycle facilities due to its acceptability for most adults; however, within a ¼ mile of schools, a target of LTS 1 is recommended.

Pedestrian Level of Traffic Stress Analysis

A pedestrian level of traffic stress (PLTS) analysis was performed along the segments and intersections of OR 99W and the parallel route opportunity along Evans Street within the project study area. The PLTS segment score is determined based on the speed of the roadway, number of travel lanes per direction, the presence, condition, and width of sidewalks, presence and type of buffer space, and several other factors such as lighting. The PLTS intersection score is determined based on functional class of the roadway, speed of the roadway, and number of vehicle travel lanes per direction, roadway average daily traffic, and the presence of pedestrian infrastructure such as sidewalk ramps, median refuge and illumination, and signalized intersection features. Figure 11 illustrates the results of the PLTS analysis.

Bicycle Level of Traffic Stress Analysis

ODOT provided the results of a BLTS analysis conducted along the segments and intersections of OR 99W and the parallel route opportunity along Evans Street within the project study area. The BLTS segment score is determined based on the speed of the roadway, the number of travel lanes per direction, the presence and width of an on-street bike lane and/or adjacent parking lane, and several other factors such as the presence of a centerline. The BLTS intersection criteria for unsignalized intersection crossings include consideration of the presence of a median of sufficient width to provide for a two-stage crossing, the prevailing speed or posted speed, the functional classification, and the number of through and turn lanes crossed per direction. Signalized intersections are assumed to be BLTS 1 unless people biking may have difficulty triggering the signal detection or are forced to use the crosswalk. Figure 12 illustrates the results of the BLTS analysis.



Segment

- PLTS 1
- PLTS 2
- PLTS 3
- PLTS 4

Intersection

- PLTS 1
- PLTS 2
- PLTS 3
- PLTS 4

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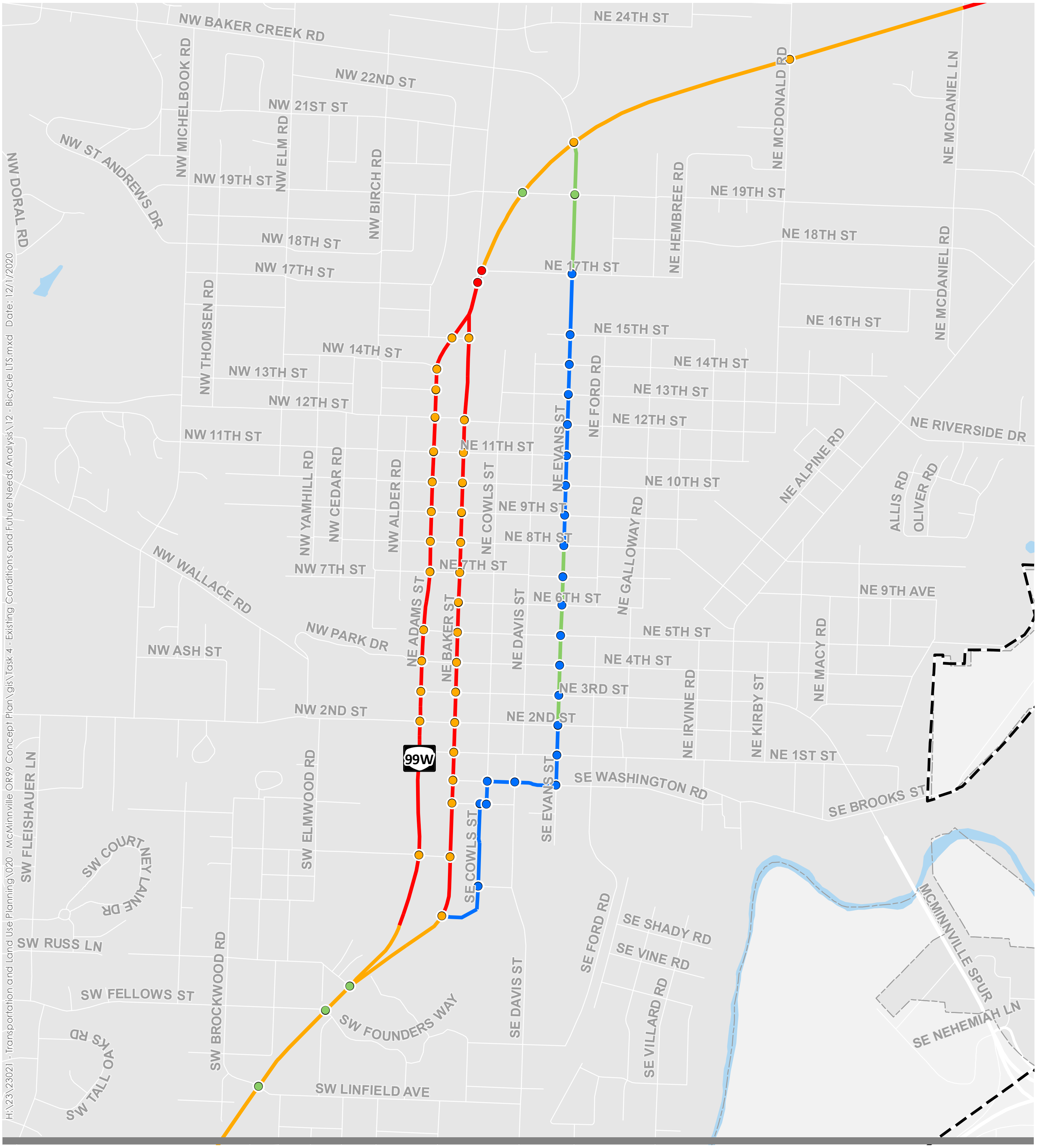
Figure 11

Pedestrian Level of Traffic Stress
McMinnville, OR



Segment	Intersection
BLTS 1	BLTS 1
BLTS 2	BLTS 2
BLTS 3	BLTS 3
BLTS 4	BLTS 4

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Figure 12

Bicycle Level of Traffic Stress
McMinnville, OR

MOTOR VEHICLE CONSIDERATIONS

The Oregon Department of Transportation (ODOT) Blueprint for Urban Design (BUD) establishes a framework for determining the urban context along state roadways. The Urban Context for the corridor was established in the *Corridor Vision* as Traditional Downtown/CBD or Urban Mix (Reference 3). According to this designation, the general modal considerations for people walking and biking are "High" and the modal considerations for motorists and freight is "Low" to "Medium". Motor vehicle traffic volumes and crash data were used to inform the multimodal analysis. A summary of existing motor vehicle conditions—including appropriate freight considerations and parking occupancy along Adams Street—is provided in the following sections.

Motor Vehicle Facilities

Functional Classification

OR 99W is a state facility classified as *Urban Other Principle Arterial*. OR 99W is also classified as a regional highway. Cowls Street, Davis Street, and Evans Street are local facilities.

Freight Classification

OR 99W is not designated as a freight route within the project study area according to the Oregon Highway Plan (OHP). OR 99W is designated as a Reduction Review Route (RRR), subject to ORS 366.215.

Therefore, a review of potential Reduction of Vehicle-carrying Capacity (RVC) is required for all proposed actions on OR 99W. According to ODOT's ORS 366.215 Implementation Guidance, "it is best to wait until project implementation to follow the [Stakeholder Forum] review process. For these situations, the Concept Plan must identify the RRR in the plan area and provide the following statement or equivalent: *Planning concept potentially reduces vehicle-carrying capacity of the highway; further evaluation of the project design will be required at the time of implementation to ensure compliance with ORS 366.215*."

Existing Cross Section

The existing cross section of OR 99W outside of the couplet includes five travel lanes, two in each direction with a two-way turn lane (TWTL). Within the couplet, Adams Street has two southbound travel lanes and Baker Street has two northbound travel lanes. Adams Street and Baker Street have parallel parking located on both sides of the roadway.

Adams Street and Baker Street have a curb-to-curb width of approximately 40-42 feet for most of the corridor. North of the couplet, OR 99W has a curb-to-curb width of approximately 66 feet and south of the couplet, OR 99W has a curb-to-curb width of approximately 70 feet.

The existing cross section of Evans Street includes two travel lanes (one in each direction). On-street parking is located along Evans Street on both sides of the roadway between Washington Street and 8^{th}

Street and between 17th Street and 19th Street. Bike lanes are located along Evans Street between 8th Street and 17th Street.

The existing cross section of Cowls Street and Davis Street each includes two travel lanes (one in each direction) and street parking on both sides of the roadway. No centerline is provided along Cowls Street or Davis Street.

Posted Speed

Posted speed for Baker, Adams, and OR 99W along the corridor ranges from 30 to 35 mph. The posted speed along the surrounding roadways ranges from 20 to 25 mph.

Average Annual Daily Traffic

According to ODOT TransGIS, the Average Annual Daily Traffic (AADT) ranges from 11,700 to 13,000 along Adams Street and Baker Street. Along OR 99W north of the couplet, the AADT was 25,100. South of the couplet the AADT was 22,100. Along Evans Street, the AADT was significantly lower, ranging between 1,300 to 5,700. No AADT data was available for Cowls Street or Davis Street.

Parking

An assessment of on-street parking to improve sight distance and accommodate enhanced crossing facilities was performed along the OR 99W couplet. *The City of McMinnville Downtown Strategic Parking Management Plan* ("Downtown Strategic Parking Plan", Reference 4) and the Parking Demand Data Collection conducted and provided by ODOT were reviewed to determine the feasibility of potential on-street parking removal or relocation along OR 99W within the couplet. The findings are presented below. *Parking data collection sheets prepared by ODOT are provided in Appendix B.*

Parking data was collected by ODOT staff along both sides of Adams Street on Thursday, October 1, Friday, October 2, and Saturday, October 3, 2020 from 10 AM to 8 PM. The data was collected when school was in session and after the smoke cleared from the major fire events, but during the COVID-19 pandemic. Parking data was compared to historical data collected by Rick Williams Consulting in June 2017 for the Downtown Strategic Parking Plan, and conditions recorded in Google Street View.

Based on this comparison, it is expected that the data collected in October 2020 is reflective of typical parking conditions along the corridor. Parking data was not collected along Baker Street. The Downtown Strategic Parking study and local knowledge of the corridor have shown that there is greater demand for parking along Baker Street compared to Adams Street. *The comparison is summarized in Appendix C.* Initial analysis shows that street parking along Adams Street is underutilized: peak parking utilization for the total 208 spaces along Adams Street was 10%. The highest parking demand was observed along Adams Street south of 2nd Avenue and is likely generated by residences. Parking along the corridor could be accommodated at or below 85% occupancy during peak hours along one side of the roadway. Figure 13 illustrates the peak parking occupancy observed along Adams Street.

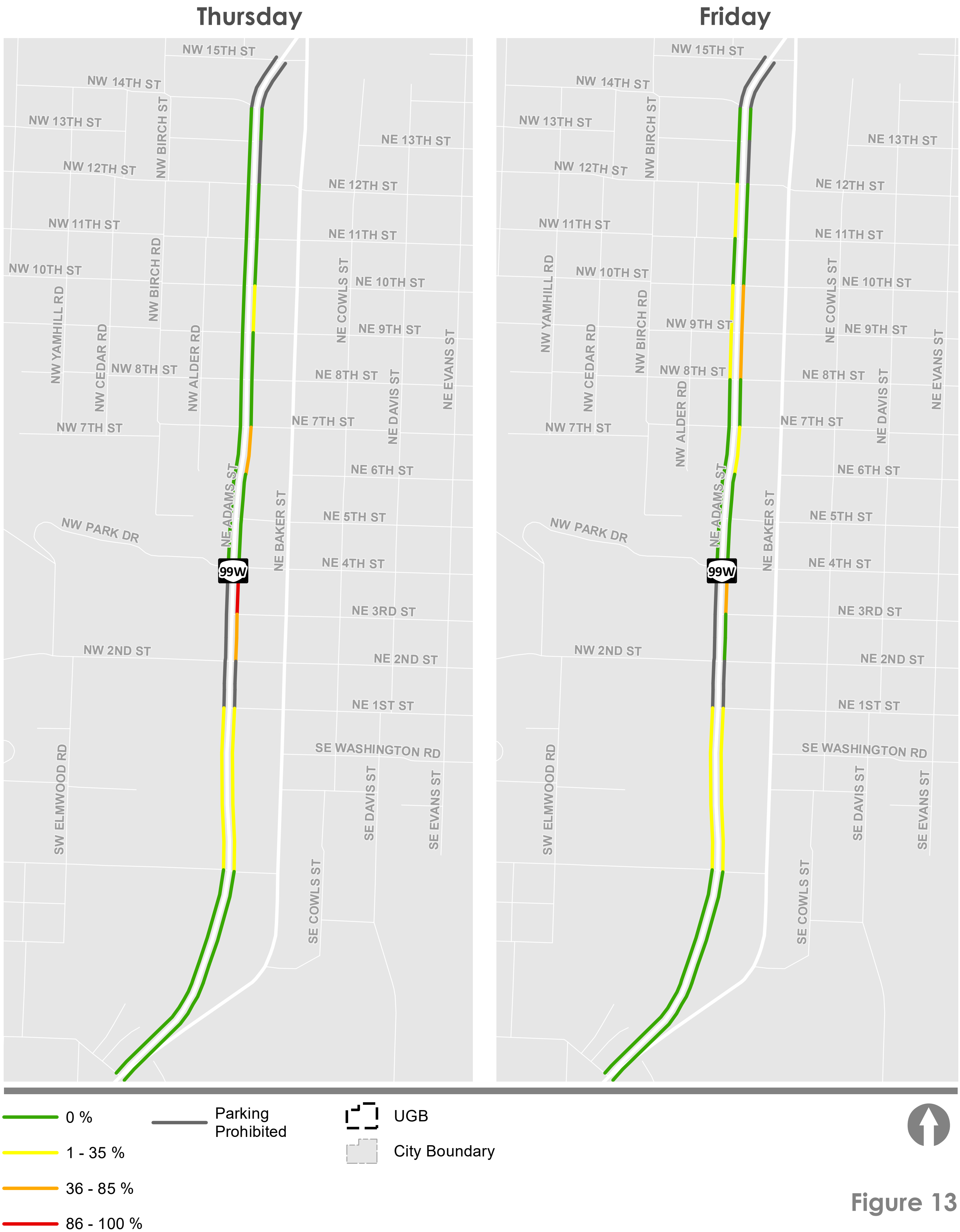

Figure 13

On-Street Parking Occupancy (Peak-Hour) McMinnville, OR

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SUMMARY OF GAPS AND DEFICIENCIES AND OPPORTUNITIES

The project study area characteristics, safety conditions, and existing pedestrian and bicycle facilities, were reviewed to identify gaps and deficiencies. A gap is defined as a missing link in the network, such as a key walking or biking route that is missing sidewalk, crosswalk, pedestrian ramp or bicycle facility.

A deficiency is defined as a pedestrian or bicycle facility that does not meet the standard or is insufficient to meet the users' needs. Examples of deficiencies include:

- On-street connection that has a BLTS rating greater than 2, or on-street connections that has a BLTS rating equal to 2 where the connection is within ¼ mile of a school.
- On-street connection that has a PLTS rating greater than 2, or on-street connections that has a PLTS rating equal to 2 where the connection is within ¼ mile of a school.
- Locations identified in the top 40% of the statewide pedestrian or bicycle systemic safety risk analysis.

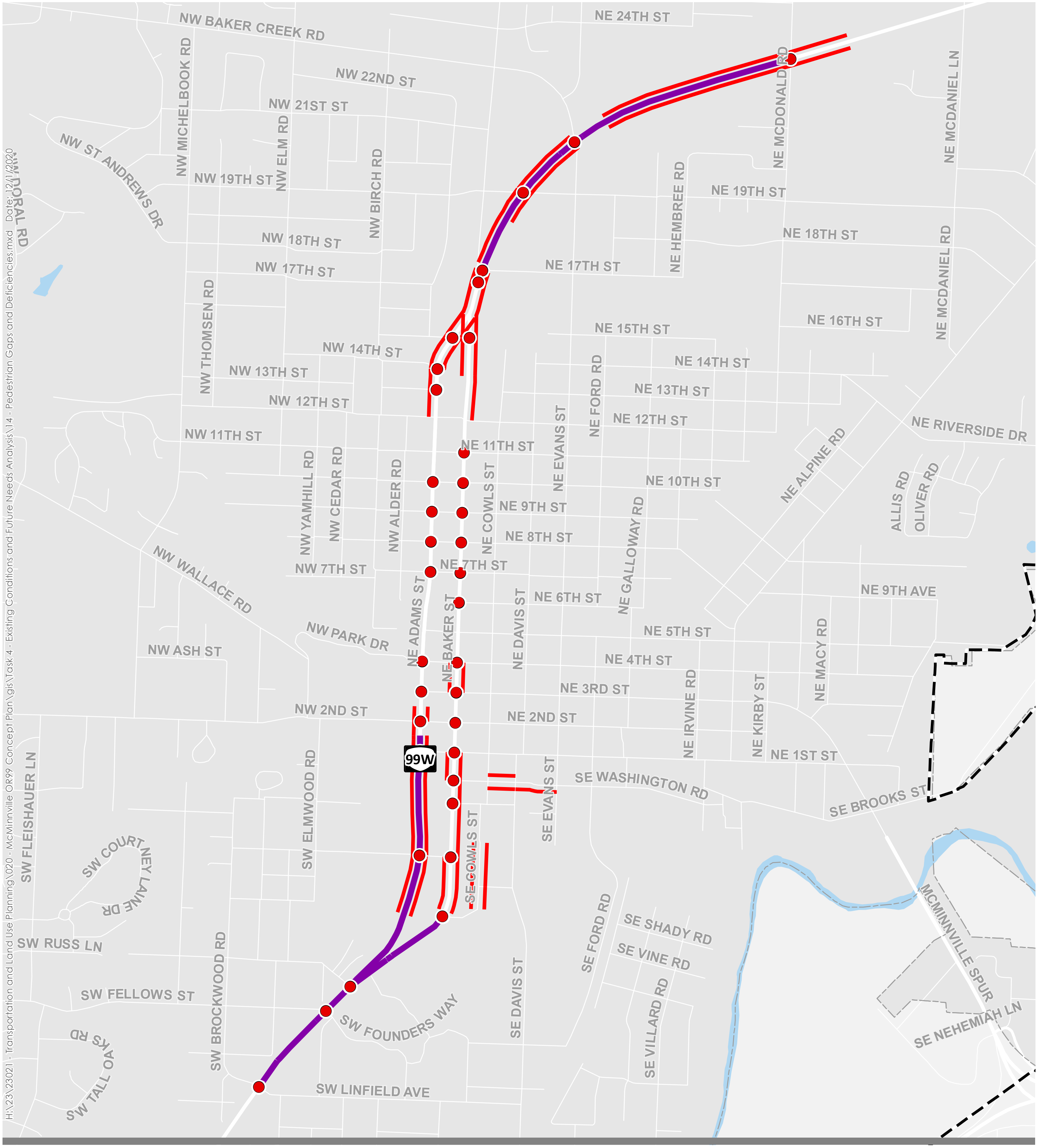
The pedestrian and bicycle gaps and deficiencies located along OR 99W and the parallel route opportunity along Evans Street are illustrated in Figure 14 and Figure 15 respectively.

Pedestrian Facility Needs

As illustrated in Figure 14, most of the OR 99W exceeds the recommended LTS targets for segments and intersections. Segment LTS deficiencies result from absent or partial sidewalks, poor condition of sidewalks, and lack of buffer space between the sidewalk and travel lane. Intersection LTS deficiencies primarily result from absent or poor pedestrian ramp conditions.

The segment of OR 99W north of 17th Street, south of 2nd Street along Adams Street and south of Cowls Street along Baker are identified as top 40% pedestrian risk locations according to the statewide pedestrian risk analysis performed on the state highway system. Safety countermeasures should be prioritized within these segments to minimize risk and increase separation for people walking.

Evans Street meets LTS targets for all segments and intersections in the study area, however potential connections between Evans Street and OR 99W at the southern end of the corridor exceed recommended LTS. No segments of Evans Street were identified as top 40% pedestrian risk locations.



Segment

Exceeds Recommended LTS

Pedestrian Risk Analysis

Top 40% Pedestrian Risk

Intersection

Exceeds Recommended LTS

Figure 14

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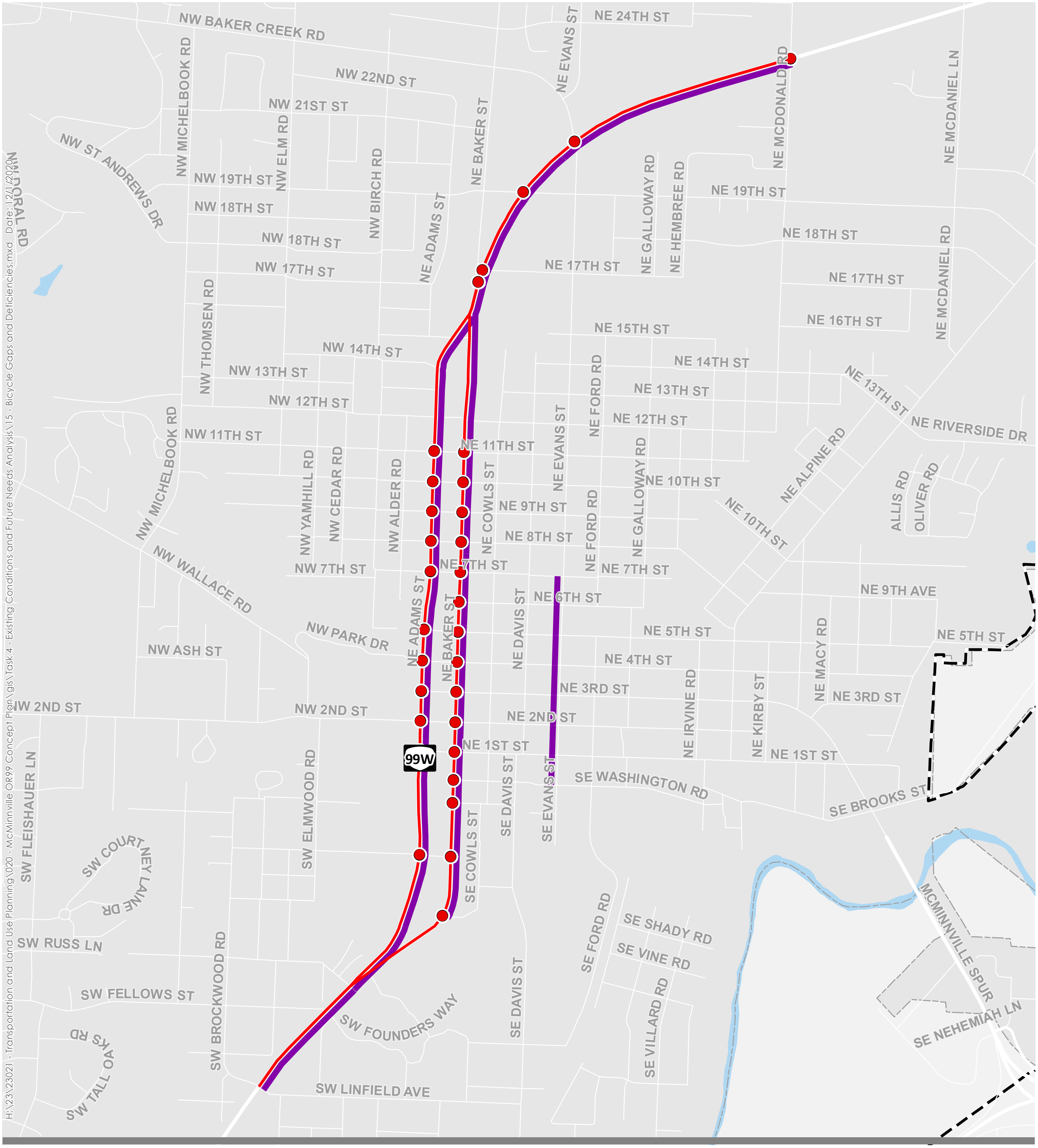
Pedestrian Gaps and Deficiencies
McMinnville, OR

Bicycle Facility Needs

As illustrated in Figure 15, the entire project study area along OR 99W exceeds the recommended LTS targets for segments. Segment LTS deficiencies primarily result from an absence of bicycle facilities throughout the OR 99W couplet. At locations where bicycle facilities are provided north and south of the couplet, the facilities lack separation, resulting in high stress experiences for most users.

Intersections exceeding LTS targets result from geometric configurations (OR 99W/17th Street), traffic volume of roadway being crossed, and lack of facilities approaching and traveling through the intersection. Nearly all of OR 99W is identified as top 40% statewide risk locations for bicycles. Safety countermeasures should be prioritized within these segments to minimize risk and increase separation.

Evans Street meets BLTS targets for all segments and intersections in the project study area except at the intersection with OR 99W. The section of Evans Street between 1st Street and 7th Street is identified as top 40% statewide risk locations for bicycles.



Segment

Exceeds Recommended LTS

Bicycle Risk Analysis

Top 40% Bicycle Risk

Intersection

Exceeds Recommended LTS

Figure 15

Bicycle Gaps and Deficiencies
McMinnville, OR

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NEXT STEPS

The findings from TM #4: Existing Conditions and Future Needs will be reviewed by the PAC and used to develop alternatives and select a preferred alternative concept in TM #5: Alternatives Development, Analysis, and Preferred Alternative Concept.

REFERENCES

1. The City of McMinnville. *Transportation System Plan*, 2010.
2. Oregon Department of Transportation. *Analysis Procedures Manual*, 2020.
3. Kittelson & Associates, Inc. Corridor Vision, 2020.
4. Rick Williams Consulting. *The City of McMinnville Downtown Strategic Parking Management Plan*. 2018.
5. Google Earth. Street View. Various Dates.

Appendix A Transportation Disadvantaged Population Index

TRANSPORTATION DISADVANTAGED POPULATION (TDP) INDEX

The Transportation Disadvantaged Population Index is an index of census data characteristics, designed to help prioritize improvements that serve areas with high numbers of transportation disadvantaged residents and environmental justice communities that have been traditionally underserved. Most recent available American Community Survey data at the block group level for the following attributes includes:

- Elderly populations (65 and older)
- Youth populations (under 18)
- Non-white and Hispanic populations
- Limited English proficiency population (aggregate of census populations who speak English "not well" or "not at all")
- Low-income populations
- Households without access to a vehicle
- People with a disability (severe or non-severe disability)
- Crowded households

This index was calculated according to the ODOT Active Transportation Needs Inventory Assessment. The index converts household statistics from the American Community Survey to a per capita index. It is calculated at the census block group level as the sum of people 65 and older, 17 and younger, non-white or Hispanic, speak English "not well" or "not at all", low-income, with a disability, living in crowded households, or living in households without vehicle access. That sum is divided by total block population. People fitting into multiple vulnerability categories are counted multiple times. The higher the index number the more disadvantaged the population is with respect to transportation. The equation used to develop the segment transportation disadvantaged score is shown below:

$$TDP\ Index = \frac{(Eld + Yth + [NH * 1.5] + LEP + Pov + Veh + Dis + Crwd)}{Pop}$$

where:

Eld = # of residents over 65

Yth = # of residents under 18

NH = # of residents who identify as non-white or Hispanic

LEP[1] *= # of residents that speak English "not well" or "not at all"*

Pov = # of residents with income under 200% of poverty level

Veh[1] *= # of residents with 0 vehicles*

Dis = # of residents with a disability

Crwd = # of households with 1.0 or more occupants per room

Pop = Total block group population

[1]*Number of residents that speak English "not well" or "not at all" and number of residents with zero vehicles is provided in the census at a household level and estimated by multiplying the data at the household level by the average Oregon household size (2.51).*

Appendix B Parking Data (2020)

Key
Left = East Side of SE Adams St (a on route map)
Right = West Side of SE Adams St (b on route map)

THURSDAY, OCTOBER 1st, 2020

Time Slot

	# of Stalls Available (Both sides)		Block	10am - 11am		11am - 12pm		12pm - 1pm		1pm - 2pm		2pm - 3pm		3pm - 4pm		4pm - 5pm		5pm - 6pm		6pm- 7pm		7pm - 8pm	
	Left (EE)	Right (W)		Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
	Parking prohibited	Parking prohibited	15th - 14th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14th is a "T" intersection, parking prohibited directly across from 14th	**5 SPOTS** (@ 20')	**4 SPOTS** (2 @ 20', 2 @ 22')	14th - 13th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13th is a "T" intersection, parking appears to be allowed for one spot directly across from 13th	Parking prohibited	**6 SPOTS** (2 @ 20', 4 @ 24')	13th - 12th	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
	4 SPOTS 2 spots (@ 20') *then two Driveways* 2 spots (1 @ 20', 1 @ 24')	**5 SPOTS** 2 spots (@ 20') *then Driveway* 3 spots (1 @ 20', 2 @ 22')	12th - 11th	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	7 SPOTS 2 spots (@ 20') *then two Driveways* 5 spots (@ 23')	**8 SPOTS** (2 @ 20', 6 @ 21')	11th - 10th	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	3 SPOTS 2 spots (@ 20') *then two Driveways* 1 spot (@ 22')	**6 SPOTS** 2 spot (@20') *then Driveway* 4 spots (@ 20')	10th - 9th	1	0	1	0	1	0	1	1	0	0	1	0	1	0	1	1	0	2	0	0
	5 SPOTS 2 spots (@ 27') *then Driveway* 3 spot (1 @ 20', 2 @ 28')	**4 SPOTS** 3 spots (1 @ 20', 2 @ 21') *then two Driveways* 1 spot (@ 26')	9th - 8th	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	0	0	0
	2 SPOTS Parking prohibited before the first Driveway 2 spots (@ 20')	**7 SPOTS** 4 spots (2 @ 20', 2 @ 22') *then Driveway* 3 spots (1 @ 20', 2 @ 24')	8th - 7th	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
	4 SPOTS 3 spots (1 @ 20', 2 @ 25') *then Driveway* 1 spot (@ 20') *then Driveway*	**3 SPOTS** *Driveway* 1 spot (@ 20') *then Driveway* 2 spots (1 @ 20', 1 @ 24')	7th - 6th	2	0	2	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
6th is a "T" intersection, parking appears to be allowed for one spot directly across from 6th	**8 SPOTS** Driveway 8 spots (@ 22')	**6 SPOTS** 1 spot (@ 37') then driveway 5 spots (@ 21')	6th - 5th	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 SPOTS (1 @ 20', 4 @ 26') *then Driveway*	**7 SPOTS** 2 spots (@ 27') *then Driveway* 5 spots (@ 20')	5th - 4th	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2 SPOTS(@ 27') *then Driveway* then Parking prohibited	Parking prohibited	4th - 3rd	2	0	2	0	2	0	1	0	2	0	2	0	2	0	0	0	0	0	0	0
3rd is a "T" intersection, parking prohibited directly across from 3rd	**4 SPOTS** (@ 20')	Parking prohibited	3rd - 2nd	3	0	1	0	3	0	3	0	2	0	2	0	2	0	1	0	0	0	0	0
	Parking prohibited	Parking prohibited	2nd - 1st	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1st is a "T" intersection with a driveway directly across so parallel parking is not feasible through the intersection	**34 SPOTS** 15 spots (@20') *then Driveway* 16 spots (2 @ 21', 14 @ 22') *then Driveway* 3 spots (@ 20')	**37 SPOTS** 31 spots (1 @ 20', 30 @ 21') *then Driveway* 6 spots (@ 24')	1st - SE Handley St	7	7	5	4	5	3	7	3	5	5	5	5	5	8	6	5	6	7	9	8
SE Handley is a "T" intersection and parking appears to be allowed through the intersection	**16 SPOTS** 4 spots (1 @ 21', 3 @ 25') *then Driveway & Parking prohibited (x 3)* 7 spots (2 @ 20', 5 @ 26') then Driveway 5 spots (5 @ 20')	**26 SPOTS** (1 @ 20', 25 @ 21') *then Bike Lane begins*	SE Handley St - Access Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Sub-Totals	**15**	**7**	**12**	**4**	**13**	**3**	**12**	**5**	**10**	**8**	**14**	**5**	**11**	**8**	**9**	**6**	**7**	**9**	**9**	**8**
			Totals	**22**		**16**		**16**		**17**		**18**		**19**		**19**		**15**		**16**		**17**	

	Parking Lots	10am-11am	11am-12pm	12pm-1pm	1pm-2pm	2pm-3pm	3pm-4pm	4pm-5pm	5pm-6pm	6pm-7pm	7pm-8pm
16 spaces total	4th Street			10	10	11		7	3	3	4
20 spaces total	2nd Street			9	8	11		8	2	3	2

Baker Street Block - between 4th and 3rd (northbound, left side is eastwide, right s 3-4 2-4 2-2

Note: Farmers Market on Oct. 1

Key
Left = East Side of SE Adams St (a on route map)
Right = West Side of SE Adams St (b on route map)

FRIDAY, OCTOBER 2nd, 2020

Time Slot

	# of Stalls Available (Both sides)		**Block**	**10am - 11am**		**11am - 12pm**		**12pm - 1pm**		**1pm - 2pm**		**2pm - 3pm**		**3pm - 4pm**		**4pm - 5pm**		**5pm - 6pm**		**6pm- 7pm**		**7pm - 8pm**	
	Left (EE)	**Right (W)**		**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**	**Left**	**Right**
	Parking prohibited	Parking prohibited	**15th - 14th**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14th is a "T" intersection, parking prohibited directly across from 14th	**5 SPOTS** (@ 20')	**4 SPOTS** (2 @ 20', 2 @ 22')	**14th - 13th**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13th is a "T" intersection, parking appears to be allowed for one spot directly across from 13th	Parking prohibited	**6 SPOTS** (2 @ 20', 4 @ 24')	**13th - 12th**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4 SPOTS 2 spots (@ 20') *then two Driveways* 2 spots (1 @ 20', 1 @ 24')	**5 SPOTS** 2 spots (@ 20') *then Driveway* 3 spots (1 @ 20', 2 @ 22')	**12th - 11th**	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	0	1	0	1
	7 SPOTS 2 spots (@ 20') *then two Driveways* 5 spots (@ 23')	**8 SPOTS** (2 @ 20', 6 @ 21')	**11th - 10th**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
	3 SPOTS 2 spots (@ 20') *then two Driveways* 1 spot (@ 22')	**6 SPOTS** 2 spot (@20') *then Driveway* 4 spots (@ 20')	**10th - 9th**	1	1	1	1	1	0	0	3	2	1	2	0	2	2	1	1	0	2	0	0
	5 SPOTS 2 spots (@ 27') *then Driveway* 3 spot (1 @ 20', 2 @ 28')	**4 SPOTS** 3 spots (1 @ 20', 2 @ 21') *then two Driveways* 1 spot (@ 26')	**9th - 8th**	0	0	0	1	0	0	0	0	0	1	1	1	2	1	1	0	1	0	1	0
	2 SPOTS Parking prohibited before the first Driveway 2 spots (@ 20')	**7 SPOTS** 4 spots (2 @ 20', 2 @ 22') *then Driveway* 3 spots (1 @ 20', 2 @ 24')	**8th - 7th**	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	4 SPOTS 3 spots (1 @ 20', 2 @ 25') *then Driveway* 1 spot (@ 20') *then Driveway*	**3 SPOTS** *Driveway* 1 spot (@ 20') *then Driveway* 2 spots (1 @ 20', 1 @ 24')	**7th - 6th**	1	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
6th is a "T" intersection, parking appears to be allowed for one spot directly across from 6th	**8 SPOTS** Driveway 8 spots (@ 22')	**6 SPOTS** 1 spot (@ 37') then driveway 5 spots (@ 21')	**6th - 5th**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 SPOTS (1 @ 20', 4 @ 26') *then Driveway*	**7 SPOTS** 2 spots (@ 27') *then Driveway* 5 spots (@ 20')	**5th - 4th**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2 SPOTS(@ 27') *then Driveway* then Parking prohibited	Parking prohibited	**4th - 3rd**	2	0	2	0	2	0	2	0	1	0	2	0	1	0	0	0	0	0	0	0
3rd is a "T" intersection, parking prohibited directly across from 3rd	**4 SPOTS** (@ 20')	Parking prohibited	**3rd - 2nd**	1	0	1	0	2	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0
	Parking prohibited	Parking prohibited	**2nd - 1st**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1st is a "T" intersection with a driveway directly across so parallel parking is not feasible through the intersection	**34 SPOTS** 15 spots (@20') *then Driveway* 16 spots (2 @ 21', 14 @ 22') *then Driveway* 3 spots (@ 20')	**37 SPOTS** 31 spots (1 @ 20', 30 @ 21') *then Driveway* 6 spots (@ 24')	**1st - SE Handley St**	5	3	5	3	5	3	5	3	5	5	6	4	7	3	6	3	7	6	6	7
SE Handley is a "T" intersection and parking appears to be allowed through the intersection	**16 SPOTS** 4 spots (1 @ 21', 3 @ 25') *then Driveway & Parking prohibited (x 3)* 7 spots (2 @ 20', 5 @ 26') then Driveway 5 spots (5 @ 20')	**26 SPOTS** (1 @ 20', 25 @ 21') *then Bike Lane begins*	**SE Handley St - Access Leg**	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			Sub-Totals	**10**	**5**	**10**	**5**	**11**	**3**	**10**	**6**	**9**	**8**	**12**	**6**	**13**	**7**	**8**	**7**	**8**	**9**	**7**	**8**
			Totals	**15**		**15**		**14**		**16**		**17**		**18**		**20**		**15**		**17**		**15**	

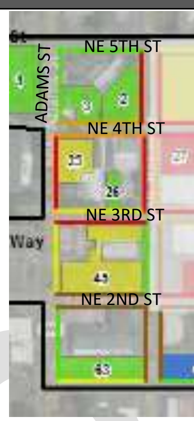
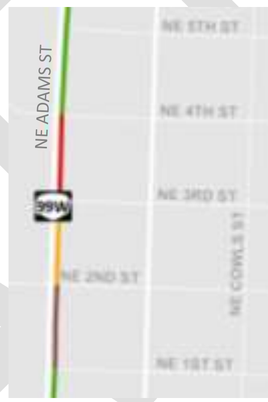
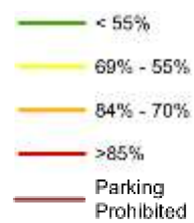
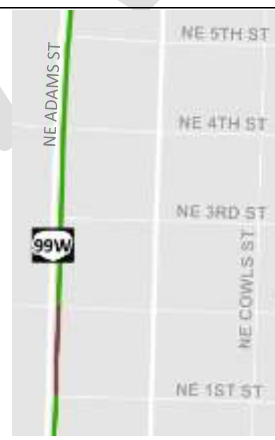
Parking Lots	**10am-11am**	**11am-12pm**	**12pm-1pm**	**1pm-2pm**	**2pm-3pm**	**3pm-4pm**	**4pm-5pm**	**5pm-6pm**	**6pm-7pm**	**7pm-8pm**
4th Street		11	9	10	13	11	8	3	1	1
2nd Street		11	5	10	10	8	9	8	1	1

Appendix C Historical Parking Data Comparison

HISTORICAL PARKING DATA COMPARISON

Although the study extents varied between this study and the Downtown Strategic Parking Plan, both studies collected data along the east side of Adams Street between 1st Street and 5th Street. Table 2 shows a visual comparison of peak parking volumes collected during these time periods. The parking occupancy is observed to be similar between the two periods, and to be consistent with conditions recorded in Google Street View, therefore it is expected that the data is reflective of typical parking conditions along the corridor.

Table 2: Parking Data Comparison

Study (Data Collection Date)	Downtown Strategic Parking Management Plan (2017)	OR 99W McMinnville Active Transportation Concept Plan (2020)	Legend
Weekday (Thursday) Peak Parking			
Weekend (Friday or Saturday) Peak Parking			

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TECHNICAL MEMORANDUM (TM) #5

Date:	March 12, 2021	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Nick Gross, Amy Griffiths, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan	
Subject:	TM #5: Alternatives Development and Preferred Alternative Concept	

PURPOSE

Today, the couplet section of OR 99W (Adams and Baker Street) has traffic volumes ranging between 11,700 and 13,000 vehicles average annual daily traffic (AADT), no dedicated bicycle lanes, no enhanced pedestrian crossings, and is identified in ODOT's statewide systemic safety analysis as high pedestrian and bicycle risk factor locations. As a result, the OR 99W corridor needs context sensitive solution(s) to support a lower-stress, safer connection within the city's multi-modal transportation system.

This memorandum describes, evaluates, and recommends a preferred alternative design concept for the OR 99W corridor in the City of McMinnville *to create a safer, more comfortable, and more attractive place to walk, bike, roll, and take transit*. The project team developed three corridor and six enhanced crossing design concepts to address the OR 99W multi-modal needs identified in the *Existing Conditions and Future Needs Analysis Memorandum* (Reference 1) and based on input from the Project Management Team (PMT) and Project Advisory Committee (PAC).

Additional public input will be solicited as part of the virtual public meeting with the preferred concept refinement to occur as part of the final version of TM #5.

OR 99W CONCEPT DEVELOPMENT

The follow section describes and illustrates the existing condition and proposed concept designs to address the needs and deficiencies along OR 99W. Typical sections along with concept design roll plots were produced to convey the proposed concepts. Upon selection of a preferred alternative, further design detail will identify potential constraints, challenges, and considerations.

The concept designs were developed based on field observations and initial assessments by the consultant team, national and state guidance for bicycle facility selection, and input from the PMT and PAC. *Appendix "A" includes a summary of the project team field visit and observations. Appendix "B" includes a summary of PAC input.*

Concept 1: Two-Way Separated Bike Lane on Adams Street

Existing Condition

The existing curb-to-curb section for the majority of Adams Street consists of two 12-foot southbound travel lanes, and two 8-foot parking lanes. Figure 1 illustrates the typical existing curb-to-curb cross-section for Adams Street. Curb extensions constrain the existing curb-to-curb cross-section at some intersections along the corridor, as described in Table 1.

Proposed Concept

Concept 1 proposes a two-way separated bike lane or "cycle track" along the west side of Adams Street between 15th Street and 2nd Street. The two-way separated bike lane connects to OR 99W with buffered bike lanes at 15th Street and 2nd Street, as illustrated in Figure 3. Parking along the west side of Adams Street would be removed to accommodate the two-way bicycle facility due to the constrained curb-to-curb width. The two-way separated bike lane requires travel lane width reduction from 12 to 11 feet. Parking along the east side of Adams Street will be maintained. Figure 2 illustrates the proposed concept cross-section and Figure 3 illustrates the proposed conceptual layout.

The two-way separated bike lane facility is difficult to implement within the existing 40-foot curb-to-curb cross section. The recommended minimum width for parking and vehicle travel lanes is 7 feet and 11 feet, respectively. The remaining cross section width to accommodate the two-way separated bike lane is 11 feet[1]. Based on national and state guidance for bicycle facility design 13 feet is the preferred minimum width for a two-way separated bike lane:

- The preferred minimum width for a two-way bicycle facility is 10 feet so that people biking in opposite directions can pass each other comfortably.
- A minimum of 3 feet is recommended to provide vertical separation from people driving by installing flex-post delineators.

As illustrated in Figure 2, the two-way separated bike lane is constrained due to the need to accommodate a parking lane and two travel lanes within the existing curb-to-curb cross section.

Appendix "C" includes additional information about design treatments.

[1] Less space is available at pinch points along the corridor.

Figure 1: Adams Street – Existing

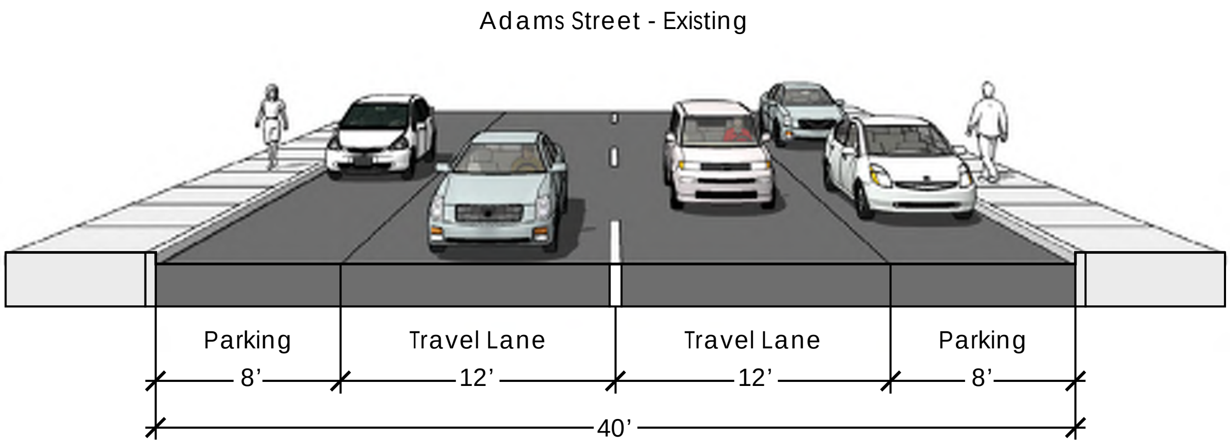


Figure 2: Adams Street – Two-Way Separated Bike Lane

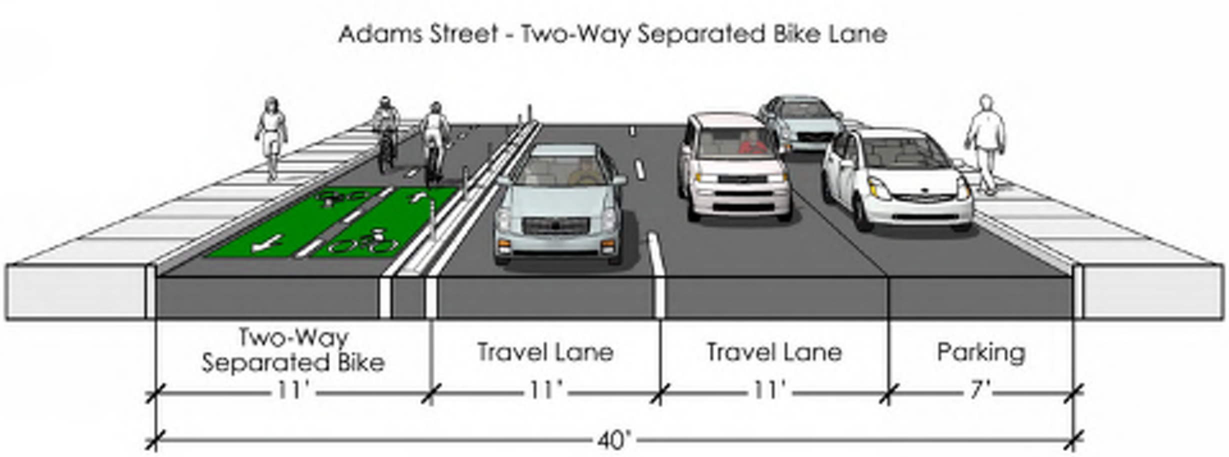


Figure 3: Concept 1: Two-Way Separated Bike Lane on Adams Street

Conceptual Design Subject to Change
Date: March 12, 2021

Table 1 summarizes key considerations in implementing the concept as identified in Figure 3.

Table 1: Concept 1 Considerations

Label	Notes	Significance
A	• The existing intersection of OR 99W/N Baker Street is highly skewed and wide.	• Realigning the intersection could help reduce exposure to people biking and improve safety conditions at the intersection for all users.
B	• No sight distance concerns were observed at the intersection of Baker Street/ 15th Street. • There is a pole at the southwest corner of the intersection that blocks ADA clearance.	• No modification to improve sight distance are anticipated at this location, which is supportive of using this street as a crossing opportunity between the two-way separated bike lane and the buffered bike lanes proposed in this concept. • If modifications are made to the existing curbs at this intersection, the concept would need to relocate this utility pole to ensure ADA compliance at the intersection.
C	• Drivers turning right from 15th Street onto Adams Street may not expect to look right for people biking contraflow.	• Signage and driver education would be necessary to improve driver awareness of people biking contraflow.
D	• Curb extensions at the Adams Street/ 11th Street intersection constrain existing curb-to-curb width of the roadway to 34'-8".	• It may be necessary to remove the curb extension or reduce the width of the two-way separated bike lane and buffer at this location.
E	• Curb extensions at the northeast corner of the Adams Street/ 3rd Street intersection constrain existing curb-to-curb width of the roadway.	• This pinch point is not expected to impact the proposed width of the two-way separated bike lane or travel lanes: parking is not accommodated at this location and the curb extension is located along the opposite side of the street of the two-way separated bike lane
F	• Adams Street/NE 2nd Street is a signalized intersection. • There is a yield controlled eastbound slip lane from 2nd Street onto Adams Street.	• The signalized intersection provides a protected opportunity for crossing between the two-way separated bike lane and buffered bike lanes proposed in this concept. Specific attention should be paid to the bicycle and vehicle interaction at the eastbound slip lane. • A bike box, bike signal, and other enhancements may be needed at this location.

Based on project team field visit and observations, 15th Street and 2nd Street were identified as the most feasible locations to transition people biking to and from the two-way separated bike lane facility along Adams Street. Signal modifications would likely be needed at the intersections of 2nd Street/Adams Street and 2nd Street/Baker Street. Further evaluation and analysis will be conducted to determine appropriate signage, striping, and connectivity to the two-way separated bike lane facility if it is selected as the preferred alternative to be advanced into concept design.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Existing Conditions

The existing curb-to-curb section for the majority of Adams Street consists of two 12-foot southbound travel lanes, and two 8-foot parking lanes. Curb extensions constrain the existing curb-to-curb cross-section at some intersections along the corridor, as described in Table 2.

Baker Street is wider than Adams Street: the existing curb-to-curb cross-section for the majority of Baker Street consists of two 14-foot northbound travel lanes, and two 8-foot parking lanes. The typical existing curb-to-curb cross-section of Adams Street is described previously.

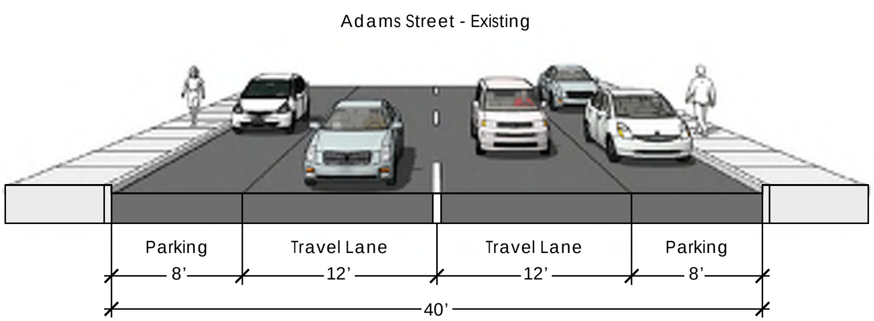
Figure 4 illustrates the existing curb-to-curb cross-sections of Adams Street and Baker Street.

Proposed Concept

Concept 2 proposes buffered bike lanes along both Adams Street and Baker Street through the full extents of the OR 99W couplet. Parking along the west side of Adams Street will be removed to accommodate the buffered bike lane; parking along the east side of Adams will be maintained. Adams Street travel lane widths will be maintained. Travel lanes along Baker Street will be reduced to from 12 to 11 feet. Parking along both sides of Baker Street will be maintained.

Figure 5 illustrates the proposed concept cross-sections for Adams Street and Baker Street. Figure 6 illustrates the proposed conceptual layout.

Figure 4: Adams and Baker Street – Existing Cross-Sections



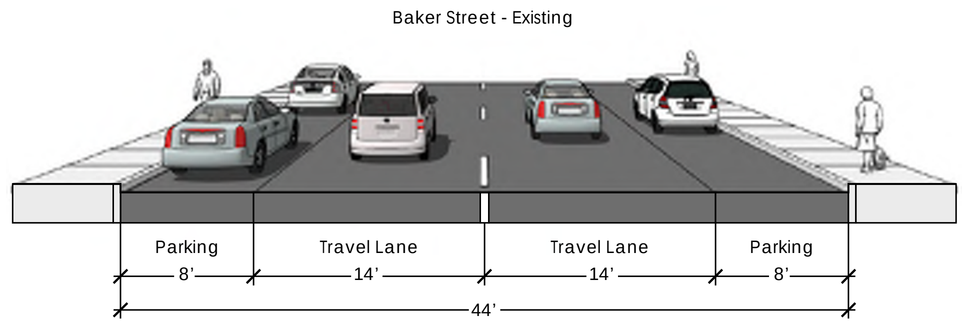
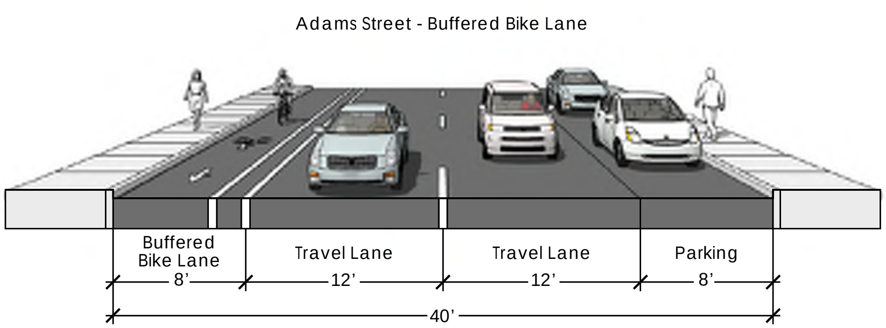


Figure 5: Adams Street and Baker Street – Buffered Bike Lanes



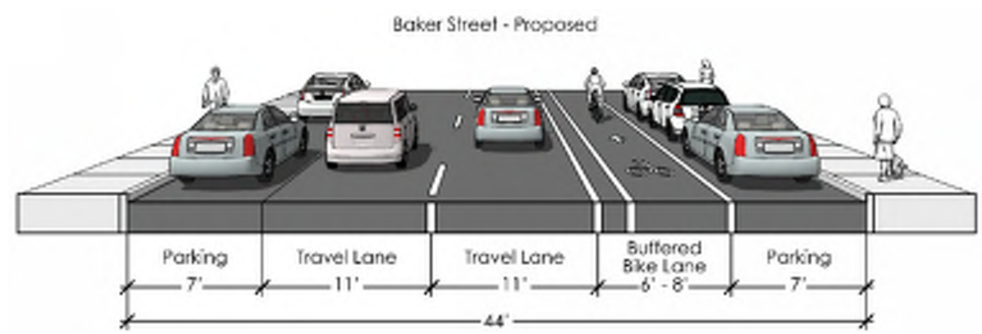


Figure 6: Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

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McMinnville Active Transportation Concept Plan
McMinnville, OR

Table 2 summarizes key considerations in implementing the concept as identified in Figure 6.

Table 2: Concept 2 Considerations

Figure Label	Notes	Significance
A	• The existing intersection of OR 99W/N Baker Street is highly skewed and wide.	• Realigning the intersection could help reduce exposure to people biking and improve safety conditions at the intersection for all users.
B	• No sight distance concerns were observed at the intersection of Baker Street/ 15th Street. • There is a pole at the southwest corner of the intersection that blocks ADA clearance.	• No modification to improve sight distance are anticipated at this location, which is supportive of using this street as a crossing opportunity between the two-way separated bike lane and the buffered bike lanes proposed in this concept. • If modifications are made to the existing curbs at this intersection, the concept would likely need to relocate this utility pole to ensure ADA compliance at the intersection.
C	• The center median and curb extension constrains existing curb-to-curb width of the roadway to 37’-8’.	• Parking is not accommodated at this location and the curb extension is on the opposite side of the roadway as the proposed bike lane. Therefore, this pinch point is not expected to impact the proposed width of the buffered bike lane or travel lanes.
D	• Curb extensions at the Adams Street/ 11th Street intersection constrain existing curb-to-curb width of the roadway to 34’-8”.	• The constrained width by curb extensions on both sides of the street may require a reduction in the width of the proposed buffered bike lane and/or vehicle travel lanes at this location.
E	• Curb extension at the southwest corner of the Baker Street/ 11th Street intersection constrain existing curb-to-curb width of the roadway to 39’-6”.	• Since parking is not accommodated at this curb extension, this pinch point is not expected to impact the proposed width of the buffered bike lane or travel lanes.
F	• Curb extension at the northeast corner of the Baker Street/9th Street intersection constrain existing curb-to-curb width to 40’-5”.	• Since parking is not accommodated at this curb extension, this pinch point is not expected to impact the proposed width of the buffered bike lane or travel lanes.
G	• Curb extension at the northeast corner of the Adams Street/ 3rd Street intersection constrain existing curb-to-curb width of the roadway.	• Since parking is not accommodated at this location, and the curb extension is located along the opposite side of the street as the buffered bike lane, this pinch point is not expected to impact the proposed width of the buffered bike lane or travel lanes.
H	• Baker Street/3rd Street is a signalized intersection.	• A dedicated northbound right turn lane on Baker at 3rd will require that parking be removed on both sides of Baker leading up to the intersection. Parking may also need to be removed north of the intersection for a short distance.
I	• Adams Street/NE 2nd Street is a signalized intersection. There is a yield controlled eastbound slip lane from 2nd Street onto Adams Street.	• Specific attention should be paid to the bicycle and vehicle interaction at this location.

Based on project team field visit and observations, existing curb extensions constrain the available cross-section at “pinch points” along the couplet. Existing curb restrictions prohibit parking at the curb extensions or immediately adjacent to them; therefore, parking is not included in the roadway cross-section at these points. However, shifting the bike lane and vehicle lanes at the intersection may pose a potential safety concern. As such, the bike facilities are not shifted in this concept. Along Baker Street, there is no parking at the curb extension, and the existing curb-to-curb width can accommodate the travel lanes and buffered bike lane without shifting the buffered bike lane. Along Adams Street, the bike lane may have a reduced width or no buffer at these pinch points.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

Existing Condition

Two potential parallel neighborhood greenway routes have been identified as low-stress alternatives, or supplemental routes to walking and biking along OR 99W: Davis Street and Evans Street. The existing curb-to-curb cross-section and street configuration elements (e.g., presence of parking) vary along the potential neighborhood greenway routes. Figure 7 illustrates the typical curb-to-curb cross-sections of the neighborhood street alignments.

Proposed

Concept 3 proposes a neighborhood greenway concept between the intersection of Linfield Avenue/OR 99W and the intersection of McDonald Lane/OR 99W. Based on feedback received from the PAC meeting as well as field visit observations, two primary neighborhood routes were identified as potential neighborhood greenway alignments: Evans Street and Davis Street. Both neighborhood greenways utilize Linfield Avenue from OR 99W to connect to 2nd Avenue via Davis Street. To the north, both neighborhood greenways utilize 17th Street to connect to OR 99W via 18th Street and McDonald Lane. Figure 8 illustrates the proposed concept cross-section and Figure 9 illustrates the proposed conceptual layout. This concept maintains the existing parking and travel lane widths of the greenway route.

If Concept 3 is selected as a preferred concept, either the Davis Street or Evans Street alignment would be constructed.

Appendix "C" includes additional information about design treatments for neighborhood greenways.

Figure 7: Neighborhood Street – Existing

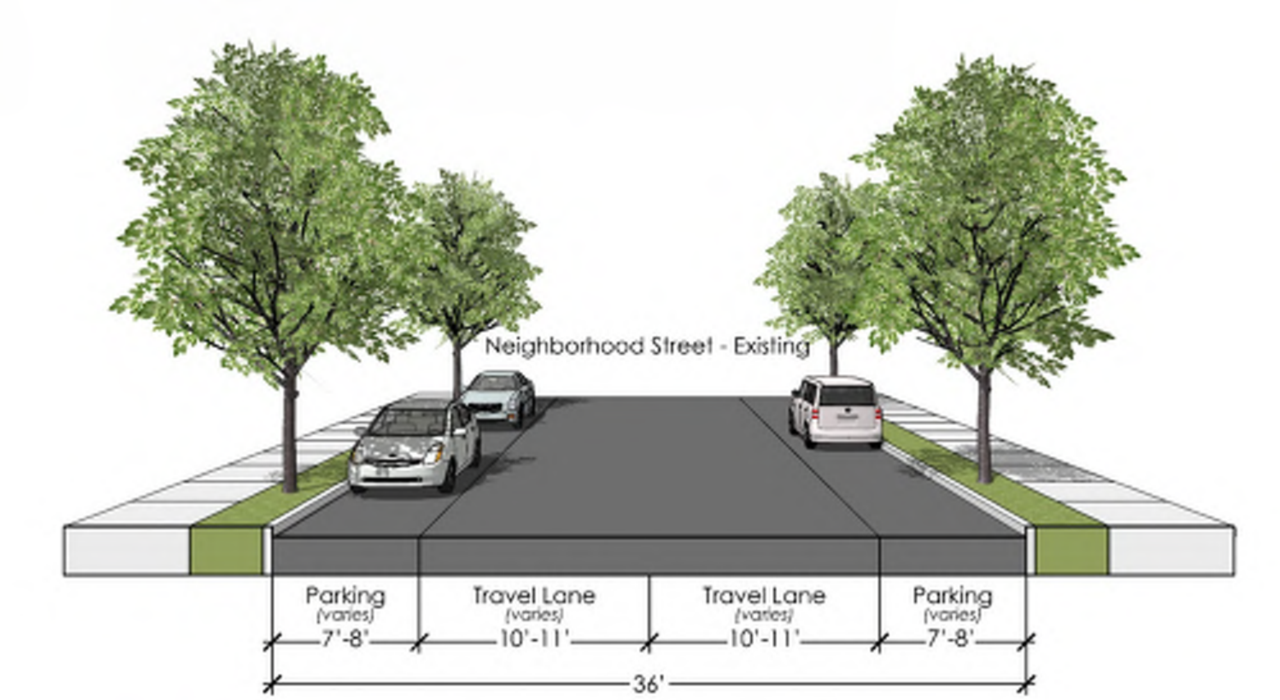

Figure 8: Neighborhood Street – Neighborhood Greenway

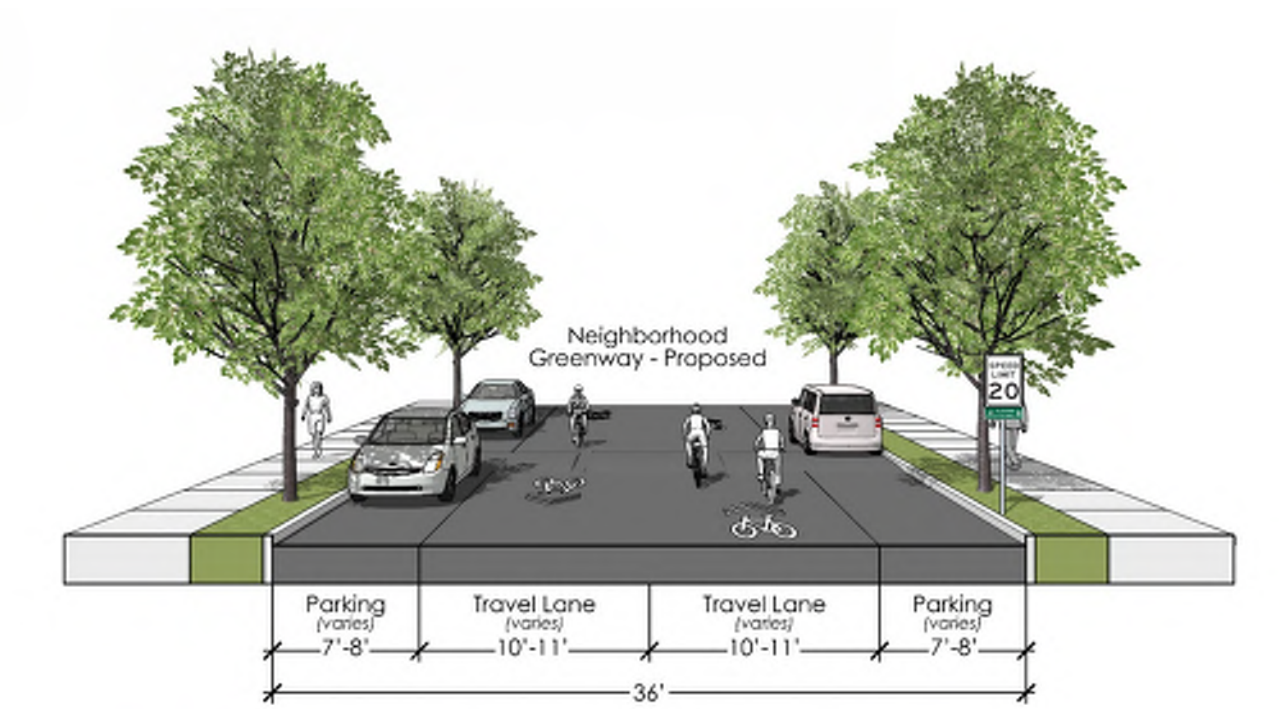

Figure 9: Concept 3: Neighborhood Greenway Conceptual Layout

Conceptual Design Subject to Change
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Table 3 and Table 4 summarize key considerations identified in Figure 9 for the Davis Street and Evans Street Neighborhood Greenway concepts, respectively.

Table 3: Concept 3A Considerations (Davis Street)

Figure Label	Notes	Significance
A	• At the intersection of 17^{th} Street/Evans Street people biking will transition from existing bike lanes on Evans Street to sharrows on 17^{th} Street.	• Wayfinding signage will be used to support this transition.
B C	• Today there is a stop control at these intersections on Davis Street with cross traffic moving freely.	• To facilitate through-movements for people walking and biking, it is recommended that these stop-controls be shifted to the cross-streets. Traffic-calming measures (e.g., speed bumps, chicanes, etc.) should be implemented to maintain lower traffic volumes along Davis Street.
D	• Today there is a stop control on Davis Street at this intersection with cross traffic moving freely along 8^{th} Street. • Parallel to this point on Davis Street, bike lanes begin along Evans Street and run between 17^{th} Street and 8^{th} Street.	• To facilitate through-movements for people walking and biking, it is recommended that the stop signs be shifted from Davis Street to 8^{th} Street. Traffic-calming measures (e.g., speed bumps, chicanes, etc.) should be implemented to maintain lower traffic volumes along Davis Street. • Maintaining the bike lanes along Evans Street would require signage distinguishing the low-stress neighborhood greenway facility from the bike lanes along a busier street. Based on PMT, PAC, and public comment, it will be determined whether the bike lanes along Evans Street should be maintained or removed.
E	• Today there is a stop control at 5^{th} Street/Davis Street with cross traffic along 5^{th} Street moving freely.	• To facilitate through-movements for people walking and biking, it is recommended that the stop control be shifted to 5^{th} Street. Traffic-calming measures should be implemented to maintain lower traffic volumes along Davis Street. • 5^{th} Street/Evans Street is signalized at this location.
F	• Today there is a stop control at 4^{th} Street/Davis Street with cross traffic moving freely along 4^{th} Street.	• To facilitate through-movements for people walking and biking, it is recommended that the stop control be shifted to 4^{th} Street. Traffic-calming measures should be implemented to maintain lower traffic volumes along Davis Street.
G	• The intersection of 3^{rd} Street/Davis Street is signalized.	• This intersection provides a lower-stress crossing than the intersection of 3^{rd} Street/Evans Street, which is two-way stop-controlled.
H	• There is a hill for riders on Davis (uphill for northbound riders)	• This hill is located along both neighborhood greenway alignments. It is not anticipated to serve as a deterrent to usage.

Table 4: Concept 3B Considerations (Evans Street)

Figure Label	Notes	Significance
A	• At the intersection of 17th Street/Evans Street bikes will need to be transitioned from existing bike lanes on Evans Street to sharrows on 17th Street.	• Wayfinding signage will be used to support this transition.
E	• The intersection of 5th Street/Evans Street is signalized.	• This intersection may provide a lower-stress crossing than the intersection of 5th Street/Davis Street, which is two-way stop controlled.
G	• The intersection of 3rd Street/Evans Street is not signalized, but rather two-way stop-controlled.	• This intersection provides a higher-stress crossing than the intersection of 3rd Street/Davis Street, which is signalized.
H	• There is a hill for riders on Davis (uphill for northbound riders).	• This hill is located along both neighborhood greenway alignments. It is not anticipated to be a deterrent to usage.

Based on project team field visit and observations, Davis Street resembles more of a neighborhood route with calmer traffic conditions, lower traffic volumes, a narrower cross section, and no center line striping. Furthermore, Davis Street crosses 3rd Street at a signalized intersection whereas Evans Street crosses 3rd Street at a two-way stop-controlled intersection. Both neighborhood greenway alignments have stop controls at many intersections, which may need to be adjusted to prioritize through movement for people walking and biking.

Concept Cost Estimates

Planning-level cost estimates for each concept are provided in Table 5. The estimates include costs for mobilization, signage, striping, and a 30% contingency to cover costs for administrative or engineering services related to the potential projects. The concepts maintain existing curb-to-curb cross-sections; therefore, no right-of-way costs are anticipated.

Table 5: Planning-level Cost Estimates

Concept	Planning-Level Cost Estimate	Notes
Concept 1: Two-Way Separated Bike Lane on Adams Street	\$857,000	• Assumes project is completed with a paving project and estimate excludes costs associated with said paving project. • Includes potential signal modifications to transition from the buffered bike lanes to the two-way separated bike lane at 2nd Street. • Excludes specific intersection treatments. These will be added once a preferred alternative is selected.
Concept 2: OR 99W Buffered Bike Lanes	\$400,000	• Assumes project is completed with a paving project and estimate excludes costs associated with said paving project. • Excludes specific intersection treatments. These will be added once a preferred alternative is selected.
Concept 3A: Neighborhood Greenway on Davis Street	\$140,000	• Includes the cost of switching the stop sign to the other street. • Excludes traffic calming structures.
Concept 3B: Neighborhood Greenway on Evans Street	\$89,000	• Excludes traffic calming structures. • Costs associated with traffic calming are anticipated to be higher for the Evans Street Greenway than the Davis Street Greenway.

As summarized in Table 5, the two-way separated bike lane is the most expensive concept, followed by the buffered bike lanes, and the neighborhood greenway concepts. Additionally, maintenance costs are anticipated to be substantially higher for Concept 1 than for the other concepts because of the flex-post delineators and special maintenance equipment needed to sweep the two-way separated bike lane.

The cost estimate for the preferred concept will be refined in the draft Concept Plan.

Appendix "D" contains the full planning level cost-estimates for each concept.

OR 99W CONCEPT EVALUATION

Evaluation criteria and performance measures identified in the Evaluation Criteria and Performance Measures Memorandum were used to assess the trade-offs of each concept and determine which concept most closely aligns with the project goals based on the corridor context and needs of intended users. The evaluation criteria below support the Corridor Vision Statement and the City of McMinnville Transportation System Plan (TSP) policies:

1. *Complete Streets*: The alternative provides comfortable facilities for people walking and biking, regardless of age and ability.

2. *Multi-Modal Transportation System*: The alternative provides integrated network of facilities and services for a variety of motorized and non-motorized travel modes based on the appropriate relative priority given the corridor context.

3. *Connectivity*: The alternative provides comprehensive connectivity and circulation to existing active transportation facilities in the City of McMinnville. The alternative encourages walking and biking to essential destinations within the City of McMinnville.

4. *Safety*: The alternative provides safety countermeasures that reduce the number of fatal and severe injury crashes.

5. *Equity*: The project meets the requirements set forth in the Americans with Disabilities Act (ADA) and provides transportation options to transportation disadvantaged populations.

6. *Livability*: The alternative minimizes impacts to adjacent property owners and encourages the use of public transit, bikeways, sidewalks, and walkways. The project provides equity and receives public support.

7. *Design Feasibility:* The alternative has no major design feasibility concerns.

The scoring scale for each criterion ranges from -1 to +2, reflecting the extent to which a project achieves the evaluation criteria per the associated performance measures. An evaluation of the concept designs according to this scale is provided below. *Appendix "F" contains the Evaluation Criteria and Performance Measures Memorandum.*

Complete Streets

The *Complete Streets* criterion considers the level of comfort each concept provides for people walking and biking, regardless of age and ability. This is measured with respect to bicycle and pedestrian level of traffic stress (LTS)[2].

Today, the BLTS scores ranges between BLTS 3 and BLTS 4 within the project study area. Each concept is expected to improve the experience for people biking according to LTS analysis. Table 6 summarizes the complete streets score based on implementation of the various concepts.

Table 6: Complete Streets Evaluation

Concept	Complete Streets Score	Existing LTS	Concept LTS
Concept 1: Two-Way Separated Bike Lane on Adams Street	**+1.5**	• BLTS 3 (north and south of couplet) • BLTS 4 (within couplet)	• BLTS 1 with segments of BLTS 2
Concept 2: Buffered Bike Lanes on Adams Street and Baker Street	**+1**	• BLTS 3 (north and south of couplet) • BLTS 4 (within couplet)	• BLTS 2
Concept 3A: Davis Street Greenway	**+2**	• BLTS 1 with segments of BLTS 2	• BLTS 1 with segments of BLTS 2
Concept 3B: Neighborhood Greenway on Evans Street	**+2**	• BLTS 1 with segments of BLTS 2	• BLTS 1 with segments of BLTS 2

Concept 1: Two-Way Separated Bike Lane on Adams Street

Concept 1 achieves a score of BLTS 1 along segments of Adams Street where the separated bike lane is proposed and a score of BLTS 2 where buffered bike lanes are proposed (north and south of the proposed separated bike lane). Compared to existing conditions, this improves the LTS score between 1 and 3 points.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Concept 2 achieves a score of BLTS 2 throughout the project extents. Compared to existing conditions, this improves the LTS score between 1 and 2 points.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

Concept 3A and 3B achieves a score of BLTS 1 with some short segments of BLTS 2 along the parallel route. Compared to existing conditions, there is little-to-no change in LTS score; however, Concept 3A or

[2]The concepts developed for OR 99W are confined to the curb-to-curb width of the roadway. As a result, the pedestrian level of traffic stress (PLTS) was minimally impacted.

3B direct people walking and biking to the lowest stress, most comfortable experience for people biking compared to the concepts developed.

Multi-Modal Transportation System

The *Multi-Modal Transportation System* criterion evaluates if the concept alternative meets the needs of the modal priority set by the identified urban context in the ODOT Blueprint for Urban Design (BUD)[3]. According to the BUD, walking, biking, transit are the high priority modes for the study area, but these modes must still be balanced with the needs of vehicle and freight traffic. Table 7 summarizes the recommended design guidance for priority modes based on the BUD context.

Table 7: Recommended Modal Facility Selection for ODOT Highways in Urban Areas Based on Urban Contexts

OR 99W Segment	Recommended Context	Bicyclist Facility Recommendation	Pedestrian Facility Recommendation
NE McDonald Road to NW 15th Street	Urban Mix	Wide, comfortable, buffered facilities	Wide, comfortable, buffered facilities
NW 15th Street to SE 1st Street	Traditional Downtown/CBD	Wide, comfortable facilities	Wide, comfortable, buffered facilities
SE 1st Street to SW Linfield Avenue	Urban Mix	Wide, comfortable, buffered facilities	Wide, comfortable, buffered facilities

Concept 1: Two-Way Separated Bike Lane on Adams Street

Concept 1 provides wide, comfortable, and buffered facilities along segments of Adams Street where the separated bike lane is proposed. The separated bike lane increases the buffer distance between people walking and the travel lane. Concept 1 also provides buffered facilities along the buffered bike lanes segments (north and south of the proposed separated bike lane); however, the width and level of comfort of these facilities is less than the separated bike lane.

Concept 1 may impact freight mobility in the corridor. Although the BUD does not designate freight as a priority mode, OR 99W is a designated Reduction Review Route for freight; this Concept Plan should not limit the ability of freight to travel along OR 99W. The physical separation and lane reductions may not fully support the multi-modal transportation needs of OR 99W.

[3] The ODOT BUD provides enhanced design guidance; for more information visit: https://www.oregon.gov/odot/Engineering/Pages/Manuals.aspx

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Concept 2 provides buffered facilities throughout the project extents; however, the width and level of comfort of these facilities is less than the separated bike lane.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

The modal considerations identified as part of the ODOT BUD are specific to the OR 99W corridor. Providing wide, comfortable, and buffered facilities on the parallel neighborhood greenway are not necessary to achieve a comfortable user experience due to the lower volume, lower vehicle speeds, and residential context of the roadway. Neighborhood greenway facilities prioritize the needs of people walking and biking, which are the priority users based on urban context.

Table 8 summarizes the results of the multi-modal transportation system evaluation scores.

Table 8: Multi-Modal Transportation System Evaluation

Concept	Multi-Modal Transportation System Score
Concept 1: Two-Way Separated Bike Lane on Adams Street	**+1**
Concept 2: Buffered Bike Lanes on Adams Street and Baker Street	**+1**
Concept 3A: Neighborhood Greenway on Davis Street	**+1**
Concept 3B: Neighborhood Greenway on Evans Street	**+1**

Connectivity

The *Connectivity* criterion evaluates how well the concept supports the development of the McMinnville active transportation network by assessing whether the concept is identified in existing planning documents, removes gaps or barriers in the existing walking and biking network, and is located near active transportation generators and essential destinations. Transit stops are included in this list of destinations, with Yamhill County Transit operating four routes with weekday hourly service in McMinnville[4]:

- Route 1: McMinnville – South Loop;
- Route 2: McMinnville – East Loop;
- Route 3: McMinnville – North Loop; and,
- Route 4: McMinnville – West Loop.

[4]For additional information about transit routes in McMinnville, see https://ycbus.org/.

Table 9: Connectivity Evaluation

Concept	Number of Essential Destinations	Portion of Walk-to-School Routes Overlap	Connectivity Score
Concept 1: Two-Way Separated Bike Lane on Adams Street	Many (19)	Minor	**+2**
Concept 2: OR 99W Buffered Bike Lanes	Many (24)	Minor	**+2**
Concept 3A: Neighborhood Greenway on Davis Street	Some (11)	Moderate	**+1.7**
Concept 3B: Neighborhood Greenway on Evans Street	Many (20)	Substantial	**+2**

Concept 1: Two-Way Separated Bike Lane on Adams Street

Concept 1 minimizes barriers and fills gaps within the existing active transportation network by providing a two-way separated bike lane and buffered bike lanes along OR 99W. The need for improved multi-modal accommodations within the OR 99W couplet was identified in the City's TSP. Most of the OR 99W corridor is not identified as a walk-to-school route; however, Adams Street and Baker Street south of 2nd Street are both identified as walk-to-school routes for Newby Elementary School and McMinnville High School, respectively. Nineteen (19) essential destinations were identified immediately adjacent to the alignment of Concept 1; the majority of which are transit stops and health related clinics.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Concept 2 minimizes barriers and fills gaps within the existing active transportation network by providing buffered bike lanes along OR 99W. The need for improved multi-modal accommodations within the OR 99W couplet was identified in the City's TSP. Most of the OR 99W corridor is not identified as a walk-to-school route; however, Adams Street and Baker Street south of 2nd Street are both identified as walk-to-school routes for Newby Elementary School and McMinnville High School, respectively. Twenty-four (24) essential destinations were identified immediate adjacent to the alignment of Concept 2; the majority of which are transit stops and health related clinics.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

While the neighborhood greenway concepts are not identified in the City's TSP, the need for improving the multi-modal accommodations along OR 99W is addressed by providing a parallel route. Walk-to-school routes for Sue Buel Elementary School, McMinnville High School, and Patton Middle School, and Memorial Elementary school are located along the neighborhood greenway route(s). Eleven essential destinations were identified immediate adjacent to the alignment of Concept 3A; the majority of which are transit stops and churches. Twenty essential destinations were identified immediate adjacent to the alignment of Concept 3B; the majority of which are transit stops and churches. Concepts 3A and 3B pass three school frontages.

Safety

The *Safety* criterion considers the concept impact to safety along the corridor through crash reduction factors, crash history, bicycle risk factor scoring, and pedestrian risk factor scoring. The proposed concepts include crash reduction factors (CRFs) for roadway segments. CRFs are used to estimate the potential reduction in crashes that could occur with the implementation of the proposed concepts. Table 10 summarizes the CRFs identified for each concept and respective crash reduction percentages with respect to cost.

Table 10: Crash Reduction Factors

Concept	Concept CRFs	Crash Reduction Factor (CRF)	Crash Reduction Value with Respect to Cost[2]
Concept 1: Two-Way Separated Bike Lane on Adams Street	BP23: Install Cycle Tracks	**59%** Reduction in **Bicycle** Crashes at **All Injury Severities**	Moderate Value
	BP24: Install Buffered Bike Lanes	**47%** Reduction in **Bicycle** Crashes at **All Injury Severities**	
Concept 2: Buffered Bike Lanes on Adams Street and Baker Street	BP24: Install Buffered Bike Lanes	**47%** Reduction in **Bicycle** Crashes at **All Injury Severities**	Moderate Value
Concept 3A: Neighborhood Greenway on Davis Street	BP27: Install Bicycle Boulevard	**63%** Reduction in **Pedestrian and Bicycle Crashes** at **All Severities**	Highest Value[3]
Concept 3B: Neighborhood Greenway on Evans Street			High Value

[1]CRF Source: ODOT ARTS Program Crash Reduction Factor Appendix

[1]Crash reduction value with respect to cost is based on the estimated planning-level costs provided above; this considers the order-of-magnitude cost with respect to safety benefits.

[2]Although planning-level cost estimates shown are higher for Davis Street Greenway, traffic calming efforts are anticipated to make the Evans Street Greenway option more expensive.

Table 11 summarizes the safety evaluation with respect to crash reduction factor, crash history, pedestrian risk factor scoring, and bicycle risk factor scoring.

Table 11: Safety Evaluation

Concept	Safety Score
Concept 1: Two-Way Separated Bike Lane on Adams Street	**+1.9**
Concept 2: Buffered Bike Lanes on Adams Street and Baker Street	**+1.8**
Concept 3A: Neighborhood Greenway on Davis Street	**+2.0**
Concept 3B: Neighborhood Greenway on Evans Street	**+1.9**

Concept 1: Two-Way Separated Bike Lane on Adams Street

Concept 1 provides the second highest CRF for people biking at 59%. There were 22 reported crashes of people walking or biking along the alignment between January 1, 2014 and December 31, 2018[5]. Segments of the concept alignment score in the top 20% of risk factor locations for people walking and for people biking.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Concept 2 provides the lowest CRF for people biking at 47%. There were 30 reported crashes of people walking or biking along the alignment between January 1, 2014 and December 31, 2018. Segments of the concept alignment score in the top 20% of risk factor locations for people walking and for people biking.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

The neighborhood greenway concepts provide the highest CRF for people walking and biking at 63%. There were eight reported crashes of people walking or biking along the Davis Street Greenway alignment and seven reported crashes of people walking or biking along the Evans Street Greenway alignment between January 1, 2014 and December 31, 2018. Additionally, these concepts provide parallel facilities that reduce expected crashes involving people walking and biking along the couplet. Segments of the concept alignment score in the top 40% of risk factor locations for people biking. The route also provides an alternative to locations in the top 20% risk factor locations for people walking and for people biking.

The existing signal at 3rd Street/Davis Street and anticipated costs associated with traffic calming needs along Evans Street makes the Davis Street Greenway score slightly higher with respect to safety than the Evans Street Greenway option.

Appendix "C" includes additional information about ARTS countermeasures.

Equity

The *Equity* criterion considers how the concept supports access for transportation disadvantaged populations (TDP). A TDP index was calculated according to the Oregon Department of Transportation (ODOT) Active Transportation Needs Inventory Assessment[6]. The higher the index number the more

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[5] The five most recent years of pedestrian and bicyclist crash data (January 1, 2014 to December 31, 2018) were obtained from ODOT's Crash Analysis and Reporting Unit. This alignment extends from Linfield Avenue to McDonald Lane.

[6] The index converts household statistics from the American Community Survey to a per capita index. It is calculated at the census block group level as the sum of people 65 and older, 17 and younger, non-white or Hispanic, speak English "not well" or "not at all", low-income, with a disability, living in crowded households, or living in households without vehicle access. That sum is divided by total block population. People fitting into multiple vulnerability categories are counted multiple times.

historically disadvantaged the population is with respect to transportation. Each of the three concepts are along the same block groups, which have a TDP Index ranging from 1.6 to 1.9. None of the concepts are anticipated to directly impact ADA compliance.

As a result, historically disadvantaged populations with respect to transportation would be served equally when compared to the TDP index. However, the different concepts provide distinct advantages with respect to supporting access for transportation disadvantaged groups. Concept 1 and Concept 2 may provide more direct access for economically disadvantaged populations; Concept 2 and Concept 3 may provide more comfortable facilities for people using a mobility device, as described below.

Table 12 summarizes the results of the equity evaluation scores.

Table 12: Equity Evaluation

Concept	Equity Score
Concept 1: Two-Way Separated Bike Lane on Adams Street	**+1**
Concept 2: OR 99W Buffered Bike Lanes	**+0.8**
Concept 3A: Neighborhood Greenway on Davis Street	**+1**
Concept 3B: Neighborhood Greenway on Evans Street	**+1**

Concept 1: Two-Way Separated Bike Lane on Adams Street

Concept 1 directly improves transportation options and facilities for transportation disadvantaged populations of all ages and abilities. The concept provides physical separation from vehicle traffic, providing low-stress facilities for elderly, youth, and people using mobility devices along the corridor. This concept also provides direct access to facilities along the couplet, supporting access to jobs for individuals without access to motor vehicles.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Concept 2 also directly improves transportation options and facilities for some transportation disadvantaged populations by providing direct access to facilities along the couplet. This concept, however, does not provide the same level of comfort as the other concepts because there is no physical separation from the high traffic volumes along the couplet.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

The lower traffic volumes along the neighborhood greenway routes support elderly, youth, and people who use mobility devices. The concept directly improves transportation options and facilities for transportation disadvantaged populations of all ages and abilities, supporting comfortable access to destinations in the project area.

Livability

The *Livability* criterion considers impacts the concept has to residential and commercial access along the corridor and the public response. The public response is pending, as it will be determined in a virtual open house.

Table 13 provides the *Livability* score for each concept. All concepts considered are expected to directly improve access to residential and commercial areas and are not expected to require right-of-way acquisition. Information collected in the virtual open house will be used to distinguish between each concept's impact to livability in the study area.

Table 13: Livability Evaluation

Concept	Livability Score
Concept 1: Two-Way Separated Bike Lane on Adams Street	**+1.5**
Concept 2: OR 99W Buffered Bike Lanes	**+1.5**
Concept 3A: Neighborhood Greenway on Davis Street	**+1.5**
Concept 3B: Neighborhood Greenway on Evans Street	**+1.5**

Concept 1: Two-Way Separated Bike Lane on Adams Street

Parking removal along one side of Adams Street is not anticipated to impact commercial access. Concept 1 directly improves access for people walking and biking to residential and commercial areas surrounding the couplet.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Parking removal along one side of Adams Street is not anticipated to impact commercial access. Concept 2 directly improves access for people walking and biking to residential and commercial areas surrounding the couplet.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

Concepts 3A and 3B directly improve access for people walking and biking to residential and commercial areas, particularly those east of the couplet.

Design Feasibility

The *Design Feasibility* criterion assesses potential design feasibility considerations for each concept to determine whether there are any potential "fatal flaws" that would preclude implementation.

As described in Table 14, Concept 1 is expected to have the most substantial design challenges of the concepts considered based on potential to impede heavy vehicle movements and special considerations for designing contraflow facilities and transitioning users from buffered bike lanes to the two-way separated bike lane within the OR 99W couplet. Additional information about design challenges associated with each concept is provided below.

Table 14: Design Feasibility Evaluation

Concept	Design Feasibility Score
Concept 1: Two-Way Separated Bike Lane on Adams Street	**-1**
Concept 2: Buffered Bike Lanes on Adams Street and Baker Street	**0**
Concept 3A: Neighborhood Greenway on Davis Street	**+1**
Concept 3B: Neighborhood Greenway on Evans Street	**0**

Concept 1: Two-Way Separated Bike Lane on Adams Street

Concept 1 poses the most substantial design challenges due to the removal of parking along the west side of Adams Street, the reduction in travel lane widths to accommodate the two-way separated bike lane, and transition zones to bring people biking to and from the two-way separated bike lane facility. The physical buffers also have potential to impede heavy vehicle movements and may also provide maintenance challenges.

Concept 2: Buffered Bike Lanes on Adams Street and Baker Street

Concept 2 poses design challenges due to parking removal along the west side of Adams Street, reduction in travel lane widths along Adams Street and Baker Street, and ability to fit buffered bike lanes along Baker Street at the constrained pinch points created by existing curb extensions.

Concept 3: Neighborhood Greenway on Davis Street or Evans Street

Concepts 3A and 3B pose minor design challenges due to the nature and lack of infrastructure required with the neighborhood greenway concept. Traffic calming in the form of signage, traffic diverters, and speed humps will be explored to reduce the potential of cut-through traffic, vehicle volumes, and vehicle speeds on the neighborhood routes.

Traffic calming measures along Concept 3B: Neighborhood Greenway on Evans Street Greenway are anticipated to have more design challenges and implications than Concept 3A: Neighborhood Greenway on Davis Street due to differences in the roadway classifications of Davis Street and Evans Street. According to the McMinnville TSP, Davis Street is classified as a minor collector from Booth Bend Road to 3rd Street and as a local street from 3rd Street to 14th Street. Evans Street is classified as a minor collector from 3rd Street north to OR 99W.

Evaluation Criteria Scoring

Table 15: Evaluation Criteria Scoring

Evaluation Criteria	Performance Measure	Concept 1: Two-Way Separated Bike Lane on Adams Street		Concept 2: Buffered Bike Lanes on Adams Street and Baker Street		Concept 3A: Neighborhood Greenway on Davis Street		Concept 3B: Neighborhood Greenway on Evans Street	
		Criteria Score	*Performance Measure Score*	*Criteria Score*	*Performance Measure Score*	*Criteria Score*	*Performance Measure Score*	*Criteria Score*	*Performance Measure Score*
Complete Streets	Bicycle Level of Traffic Stress (BLTS)	+1.5	+2	+1	+2	+2	+2	+2	+2
	Pedestrian Level of Traffic Stress (PLTS)		+1		0		+2		+2
Multi-Modal Transportation System	Type and presence of pedestrian, bicycle, transit, motor vehicle, and freight facilities align with the recommendations from the Blueprint for Urban Design	+1	+1	+1	+1	+1	+1	+1	+1
Connectivity	Project is identified by the City of McMinnville TSP or is located on the Safe Routes to School (SRTS) Network.	+2	+2	+2	+2	+1.7	+2	+2	+2
	Project removes barrier to walking and biking or fills gap in the walking and biking transportation network		+2		+2		+2		+2
	Proximity to activity generators and essential destinations		+2		+2		+1		+2
Safety	Crash Reduction Factor/Planning Level Project Cost	+1.9	+1.5	+1.8	+1	+2	+2	+1.9	+1.5
	Crash History		+2		+2		+2		+2
	Pedestrian Risk Factor Scoring		+2		+2		+2		+2
	Bicyclist Risk Factor Scoring		+2		+2		+2		+2
Equity	Project impact to transportation disadvantaged populations based on the ODOT Transportation Disadvantaged Population (TDP) Index	+1	+2	+0.8	+1.5	+1	+2	+1	+2
	Project impact to ADA compliance		0		0		0		0
Livability	Right-of-way acquisition needs	+1.5	+1	+1.5	+1	+1.5	+1	+1.5	+1
	Neighborhood street modification, business access and parking		+2		+2		+2		+2
	Public response based on Open House and Public Advisory Committee Comments		*pending*		*pending*		*pending*		*pending*
Design Feasibility	High-level feasibility of constructing the intended project at the location.	-1	-1	0	0	+1	+1	0	0
Total Score		**7.9**		**8.1**		**10.2**		**9.4**	

OR 99W CONCEPT CONSULTANT TEAM PRELIMINARY RECOMMENDATIONS

As shown in Table 15, *Concept 3A: Neighborhood Greenway on Davis Street* scores highest, followed by *Concept 3B: Neighborhood Greenway on Evans Street*. *Concept 2: Buffered Bike Lanes on Adams Street and Baker Street* scores higher than *Concept 1: Two-Way Separated Bike Lane on Adams Street*. Based on the scoring, and the distinct benefits each concept provides, the consultant team's preliminary recommendation is to construct Concept 3A: Neighborhood Greenway on Davis Street ("Davis Street Greenway") and Concept 2: Buffered Bike Lanes on Adams Street and Baker Street ("OR 99W Buffered Bike Lanes"). A list of primary benefits of these concepts is as follows:

- The Davis Street Greenway provides low-stress facilities for users of all ages and abilities.
- The Davis Street Greenway is a low-cost option.
- The existing character of Davis Street is more conducive to neighborhood greenway facilities; Evans Street would likely require more substantial traffic calming efforts to serve as a low-stress facility.
- The intersection of Davis Street/3rd Street is signalized, providing a more comfortable intersection crossing than the two-way stop controlled intersection of Evans Street/3rd Street.
- The OR 99W Buffered Bike Lanes provide direct access for people biking through the couplet and to destinations west of the couplet.
- The OR 99W Buffered Bike Lanes are a moderate-cost option that can be easily added to pavement projects along the couplet.

Public input will be key to confirming or modifying the alignment recommendation for the neighborhood greenway.

Access to the preferred concept design will be supported with enhanced crossings along OR 99W. Development of enhanced crossing recommendations is described in the following sections.

ENHANCED CROSSING DEVELOPMENT

Potential locations for enhanced crossing treatments were identified based on field observations and initial assessments by the consultant team, input from the PMT and PAC, and a review of the City's TSP and walk-to-school routes. This section analyzes and recommends enhanced crossing treatments for the following six intersections:

- Adams Street/15th Street;
- Baker Street/15th Street;
- Adams Street/8th Street;
- Baker Street/8th Street;
- Adams Street/3rd Street; and,
- Baker Street/Cowls Street

The intent of the enhanced crossing development is to identify and recommend crossing treatments that will provide safe, comfortable crossing opportunities for people walking and biking in the study area.[7] Once the preferred alternative is established, the enhanced crossings recommendations will be updated to tie into the preferred crossing facilities and support access to essential destinations and activity generators around McMinnville.

ENHANCED CROSSING EVALUATION

The six enhanced crossing study locations listed above were evaluated using the FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* (Reference 3) and NCHRP *Report 562 Improving Pedestrian Safety at Unsignalized Crossings* (Reference 4). This evaluation was conducted to identify appropriate crossing treatments based on existing roadway and traffic conditions.

Federal Highway Administration (FHWA) Guide for Improving Pedestrian Safety at Uncontrolled Locations

The FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* (Reference 3) was produced as part of the Safe Transportation for Every Pedestrian (STEP) program and provides guidance on selecting appropriate countermeasures to help improve pedestrian safety at uncontrolled crossing locations. Table 1 of the *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations* provides a matrix of countermeasure options for evaluating appropriate levels of crossing protection based on roadway configurations, posted speed limit, and average annual daily traffic (AADT). Figure 10 illustrates the countermeasure matrix and highlights the applicable matrix cell based on the roadway configuration, posted speed limit, and AADT within the study area.

Figure 10: Application of Pedestrian Crash Countermeasures by Roadway Feature

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
4+ lanes with raised median (2 or more lanes in each direction)	❶ ❸ 5 7 8 9	❶ ❸ 5 7 8 9	① ❸ 5 8 ❾	① ❸ 5 7 8 9	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 8 ❾
4+ lanes w/o raised median (2 or more lanes in each direction)	❶ ❸ 5 6 7 8 9	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 8 ❾

Traffic data available in ODOT's TransGIS shows that the average annual daily traffic (AADT) through the OR 99W couplet ranges between 11,700 and 13,000 vehicles. Adams Street and Baker Street have one-

[7] Enhanced crossing treatments require approval from ODOT Region 2 Traffic.

way, two-lane cross-sections with a posted speed of 30 mph (except for the segment of Adams Street south of 2nd Street which has a posted speed limit is 35 mph).

Based on the guidance provided in the countermeasure matrix, the following countermeasures should be considered at the identified crossing locations based on roadway context[8]:

Table 16: Appropriate FHWA Countermeasures Given Roadway Context

Countermeasure	FHWA Level of Recommendation
Countermeasure 1: High visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs	Crosswalk visibility enhancements should always occur in conjunction with other identified countermeasure.
Countermeasure 2: Raised Crosswalk	Countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgement
Countermeasure 3: Advance Stop Here For Pedestrians sign and stop line	Countermeasure should always be considered, but not mandated or required, based upon engineering judgement.
Countermeasure 4: In-Street Pedestrian Crossing sign	Countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgement
Countermeasure 5: Curb extensions	Countermeasure is a candidate treatment
Countermeasure 6: Pedestrian refuge island	Countermeasure should always be considered, but not mandated or required, based upon engineering judgement.
Countermeasure 7: Rectangular Rapid Flashing Beacon (RRFB)	Countermeasure is a candidate treatment
Countermeasure 8: Road diet	Countermeasure is a candidate treatment
Countermeasure 9: Pedestrian Hybrid Beacon (PHB)	Countermeasure is a candidate treatment

Source: FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations

The complete matrix of countermeasure options can be found in Reference 3.

NCHRP Report 562 *Improving Pedestrian Safety at Unsignalized Crossings*

The NCHRP Report 562 *Improving Pedestrian Safety at Unsignalized Crossings* (Reference 4) provides a methodology for evaluating appropriate levels of crosswalk protection that considers traffic, travel

[8] *Note: Roadway Configuration "(2 or more lanes in each direction)" was selected due to the roadway context and configuration of the OR 99W couplet.*

speed, pedestrian crossing volumes as well as a number of other factors. NCHRP Report 562 methodology was applied to the potential enhanced crossing locations.

Pedestrian Volumes

Pedestrian crossing volumes at the potential enhanced crossing locations were unavailable. To conduct the NCHRP Report 562 analysis, the minimum pedestrian volume for a peak-hour evaluation recommended by NCHRP 562 was used (20 pedestrians per hour for both direction where the major road speed does not exceed 35 mph). Table 17 summarizes the results of the NCHRP Report 562 application.

Note: The FHWA Countermeasure Selection Matrix does not rely on existing or forecasted pedestrian crossing volumes to determine the appropriate level of enhanced crossing facility type.

Table 17: NCHRP Report 562 Analysis Study Intersections

ID	Major Street	Minor Street	PM Peak Hour Traffic Volume[1]	Posted Speed	Crossing Distance[2]	NCHRP 562 Recommended Treatment[3]
1	Adams Street	15th Street	1300	30	44	Active or Enhanced
2	Baker Street	15th Street	1280	30	34	Active or Enhanced
3	Adams Street	8th Street	1300	30	42	Active or Enhanced
4	Baker Street	8th Street	1260	30	46	Active or Enhanced
5	Adams Street	3rd Street	1300	30	34	Active or Enhanced
6	Baker Street	Cowls Street	1170	30	46	Active or Enhanced

[1]Peak hour volume estimate was taken as 10% of the AADT provided in TransGIS. This estimate was consistent with tube counts collected along a segment of Adams Street in 2017.
[2]Crossing distances were measured during the project team field visit.
[3]The “Active or Enhanced” treatment recommendation assumes a peak pedestrian volume of 20 pedestrians/hour.

Under the scenario where a minimum of 20 pedestrians would need to cross the major street in the peak hour, the NCHRP Report 562 analysis results in a “**ACTIVE OR ENHANCED**” indication for the six crossing locations. This category includes devices that enhance the visibility of the crossing location and devices designed to display a warning only when pedestrians are present or crossing the street.

Based on the existing walking and biking activity along the couplet, it is anticipated that the minimum pedestrian activity thresholds are currently met with increasing activity anticipated based on upcoming development and the other improvements included in the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan. *Appendix “E” includes the NCHRP 562 worksheets used in this analysis.*

ENHANCED CROSSING RECOMMENDATIONS

Based on the recommend guidance in the *FHWA Guide for Improving Pedestrian Safety at Uncontrolled Locations* and the results of the *NCHRP Report 562* analysis the following enhanced crossing treatments are recommended at the identified crossing locations:

- High visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
- Advance Stop Here For Pedestrians sign and stop line
- Rectangular Rapid Flashing Beacon (RRFB)

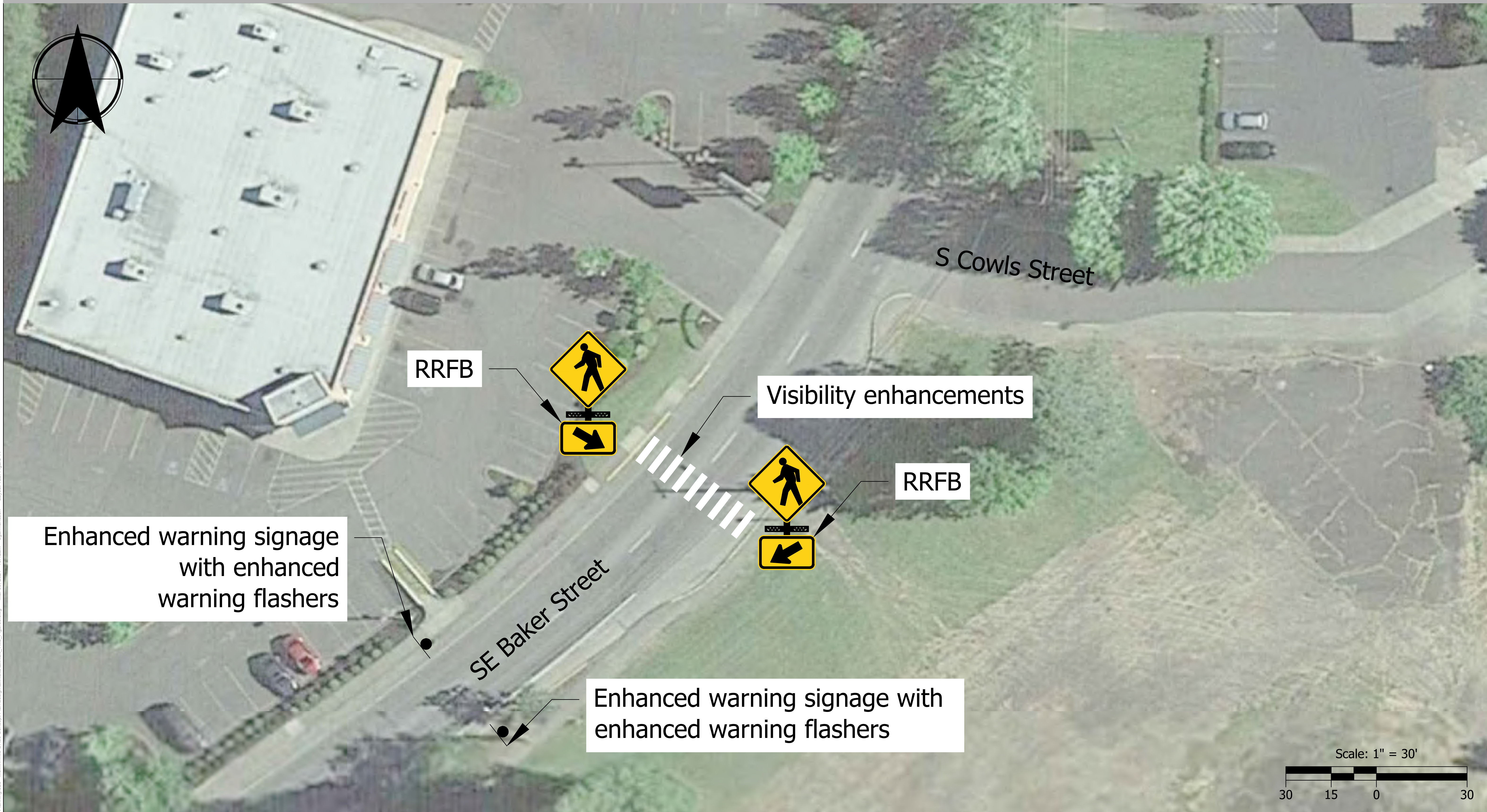
Figure 11 through Figure 14 illustrate conceptual layouts for the recommended enhance crossing treatments. The planning-level cost associated with high visibility crosswalk markings with RRFB is $125,000 per location. This estimate includes construction and professional fees for ADA ramp reconstruction on both sides of the roadway, striping, signage, and the RRFB. The estimate does not include right-of-way, utility relocations, or bicycle detection on approaches. The planning-level cost estimate for each intersection will be refined in the draft Concept Plan once the preferred OR 99W facility concept the enhancements would tie into is established.

Additionally, coordination with Yamhill County Transit is recommended to consider relocating existing transit stops to enhanced crossing locations to facilitate transit use in the area.

Appendix "C" provides additional information about design treatments for improving safety at intersections.

Figure 11: Enhanced Crossing Conceptual Layout at Baker Street/Cowls Street

Conceptual Design Subject to Change
Date: March 12, 2021



KITTELSON & ASSOCIATES
PHONE: (503) 228-5230 CONTACT: Marc Butorac

McMinnville Active Transportation Concept Plan
McMinnville, OR

Figure 12: Enhanced Crossing Conceptual Layout at Adams Street/3rd Street

Conceptual Design Subject to Change
Date: March 12, 2021

KITTELSON & ASSOCIATES
PHONE: (503) 228-5230 CONTACT: Marc Butorac

McMinnville Active Transportation Concept Plan
McMinnville, OR

Figure 13: Enhanced Crossing Conceptual Layout at Adams Street/8th Street and Baker Street/8th Street

Conceptual Design Subject to Change
Date: March 12, 2021

KITTELSON & ASSOCIATES
PHONE: (503) 228-5230 CONTACT: Marc Butorac

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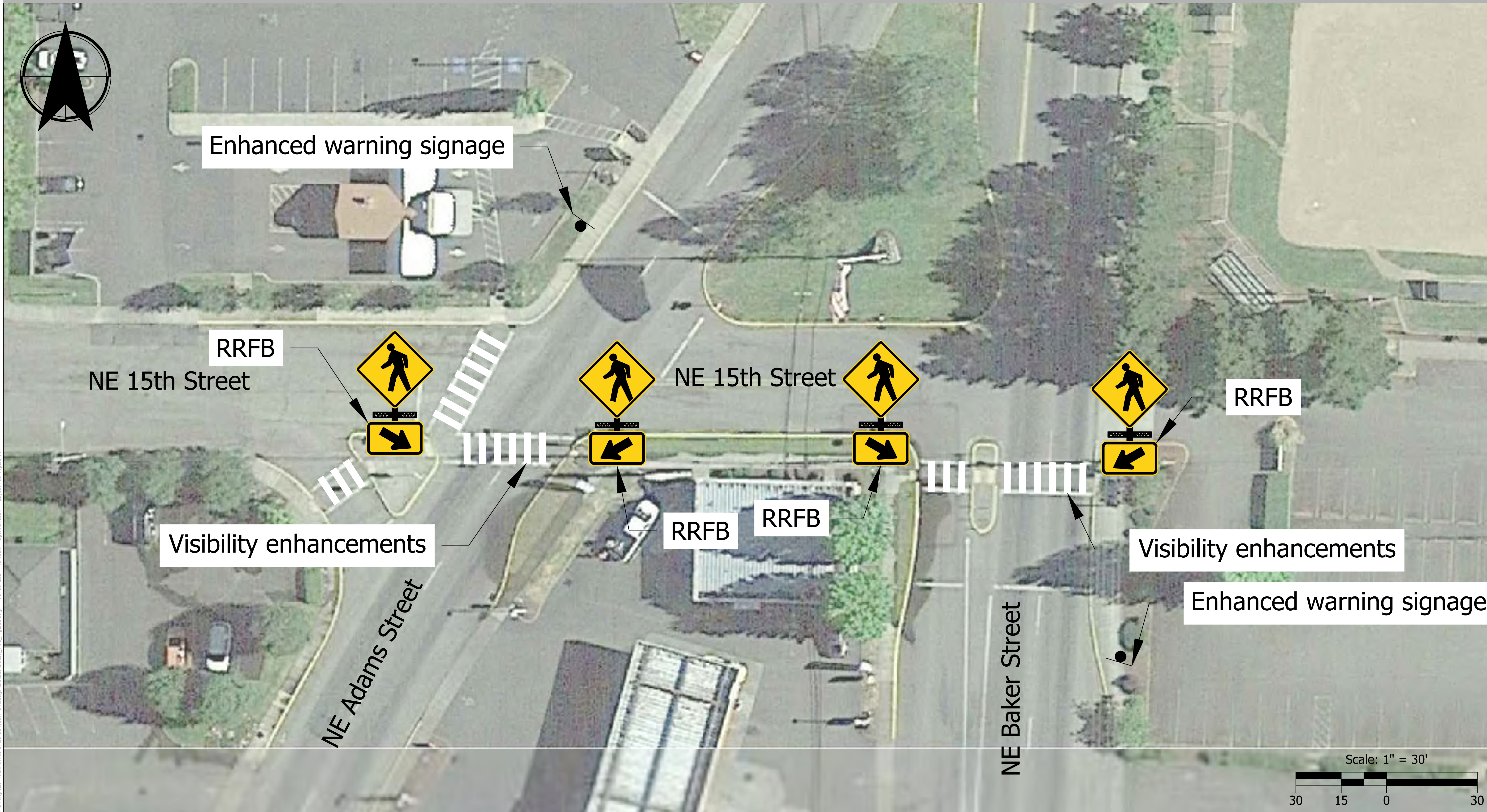
McMinnville, OR

Figure 14: Enhanced Crossing Conceptual Layout at Adams Street/15th Street and Baker Street/15th Street

Conceptual Design Subject to Change
Date: March 12, 2021



Phasing and Implementation

The McMinnville OR 99W Active Transportation Concept Plan concept recommendations can be separated into distinct projects to support incremental implementation as funding sources are identified. Securing funding for construction of the Davis Street Neighborhood Greenway should be prioritized, however, if funding sources are identified for any other project that project may be implemented first. Timing and potential funding sources for each project is outlined in Table 18.

Table 18: Phasing and Funding Recommendations

Project	Priority Order[1]	Timing	Potential Funding Sources
Davis Street Neighborhood Greenway	1	As soon as funding can be made available	• Safe Routes to School
OR 99W Buffered Bike Lanes	2	Improvements should occur as part of the next resurfacing preservation project	• Safe Routes to School • STIP Preservation funding
Adams Street/15th Street Enhanced Crossing	3	Construct these crossings at the same time[2], or with development	• Private development • Transportation Safety Division Grants • STIP Preservation funding
Adams Street/15th Street Enhanced Crossing			• Private development • Transportation Safety Division Grants • STIP Preservation funding
Baker Street/Cowls Street Enhanced Crossing	4	Time with upcoming development	• Upcoming private development • Transportation Safety Division Grants • STIP Preservation funding
Adams Street/8th Street Enhanced Crossing	5	Construct these crossings at the same time[2], or with development	• Private development • Transportation Safety Division Grants • STIP Preservation funding
Baker Street/8th Street Enhanced Crossing			• Private development • Transportation Safety Division Grants • STIP Preservation funding
Adams Street/3rd Street Enhanced Crossing	6	Time with upcoming development	• Private development • Transportation Safety Division Grants • STIP Preservation funding

[1] The priority order of enhanced crossing projects was established based on PAC input.

[2] Constructing enhanced crossings in pairs may reduce costs and help make the full connection across the couplet, however enhanced crossings can be designed and constructed separately if there is only available funding for one crossing.

Senate Bill 408 Requirements

Oregon Senate Bill (SB) 408 requires balancing competing interests on facility plans developed by ODOT. An example of competing interest is described in ODOT's Oregon Greenhouse Gas Reduction Toolkit: Strategy Report (Reference 2): "Preserving the economic interests of property owners (who place a high value on convenient access to their property) will require finding a balance between private property interests and the safety and operations of public roadways."

The concepts developed to address the multi-modal needs along OR 99W are not anticipated to impact the access or reduce capacity of the OR 99W corridor. Concepts developed are limited to signing and striping with the exception of the potential two-way separated bike lane which proposes vertical flex-post separation.

NEXT STEPS

The preferred alternative concept outlined in this memo will be incorporated into a draft Concept Plan.

OR 99W is a designated Reduction Review Route for freight, the Oregon Mobility Advisory Committee will have the opportunity to provide input on these concepts before finalizing the draft Concept Plan.

REFERENCES

1. TM #4: Existing Conditions and Future Needs. Kittelson & Associates, Inc. 2020.
2. ODOT Greenhouse Reduction Toolkit. <https://www.oregon.gov/odot/Planning/Pages/GHG-Toolkit.aspx>
3. *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.* Federal Highway Administration. 2017.
4. NCHRP Report 562 *Improving Pedestrian Safety at Unsignalized Crossings.* National Cooperative Highway Research Program. 2006.

Appendix A Field Visit Notes

Field Visit Summary

This appendix summarizes the field observations and key findings based on the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan project development field visit. The project team, including Amy Griffiths, Nick Gross, and Eric Germundson, conducted the site visit on Wednesday January 13, 2020 from approximately 1:00 to 4:00 PM. The weather was sunny and in the mid-40s.

The purpose of the field visit was to document existing physical and operational conditions of the alternative concept alignments to develop a further understanding of cross-sectional elements, pinch points, and traffic flows. Field measurements were recorded by the project team at pinch points and at the enhanced crossing study locations. The field notes are documented in this appendix.

Field Observations

Field observations were documented along the different alternative concept alignments to better understand the varying character of the different alignments, right-of-way constraints, and potential challenges for construction. Figure 15 provides detailed notes from the field visit.

OR 99W (Outside the Couplet)

The following bullets summarize the key observations along OR 99W outside the couplet:

- High traffic volumes were observed, including heavy vehicles.
- The center median south of the couplet creates pinch points that may make constructing a two-way separated bike lane challenging.
- The skewed intersection of N Baker Street / OR 99W north of the couplet is complex. People biking in the southbound direction through the intersection are exposed to traffic for approximately 265 feet, and the skew associated with the intersection creates visibility challenges.

Adams Street-Baker Street Couplet

The following bullets summarize the key observations along Adams and Baker Street:

- Low parking utilization was observed.
- Adams Street is approximately 40’-5” to 40’-11” wide, except at pinch points created by curb extensions.
- Baker Street is approximately 44’-6” to 44’-9” wide, except at pinch points created by curb extensions.
- Traffic volumes are substantially higher than they are along parallel routes. Signals help create traffic gaps for crossing the street.

Neighborhood Greenway Alignments

The following bullets summarize the key observations along Evans Street in the study area:

- Evans Street had lower traffic volumes than OR 99W but was busier than Davis Street. Evans Street would likely require greater traffic calming efforts to provide comfortable facilities as a neighborhood greenway.
- Constructing bike lanes along the remainder of Evans Street would require removal of a parking lane.
- Parking was highly utilized.

The following bullets summarize the key observations along Davis Street in the study area:

- Davis Street was less busy than Evans Street or the couplet.
- There is a moderate hill along Davis Street at the southern end of the corridor.

Project Roll Plot

Conceptual Design Subject to Change
Date: January 11, 2021

KITTELSON & ASSOCIATES
PHONE: (503) 228-5230 CONTACT: Marc Butorac

McMinnville Active Transportation Concept Plan
McMinnville, OR

Appendix B PAC Input

PAC Meeting #1 Homework Summary

A homework assignment was developed and distributed to the Project Advisory Committee (PAC)[9] in advance of the first PAC Meeting, which was held on Thursday, December 10th from 3:00 PM to 5:00 PM. The homework assignment was developed to solicit input on preferred route alignments and facility types to be evaluated in TM #5: Alternatives Development and Preferred Alternative Concept. This appendix summarizes the PAC homework responses. Twelve homework responses were received.

Preferred Facility Type

Respondents were provided a toolbox of bicycle facility types. The three main options described were a two-way separated bike lane, buffered bike lanes, and a neighborhood greenway along a parallel route.

- Six respondents prefer the neighborhood greenway option to the options along OR 99W; some respondents mention that even facilities with vertical separation along OR 99W may not feel comfortable.
- Four respondents prefer the two-way separated bike lane option, several respondents cite a need for physical separation for any facilities along OR 99W.
- One respondent prefers the buffered bike lane because he is concerned about maintenance difficulties for physically separated bike facilities.
- One respondent suggested a one-way separated bike lane because he is concerned about people biking in opposite directions in a limited space.

Preferred Neighborhood Greenway Alignment

Respondents also provided a recommendation for their preferred alignment, particularly with respect to the neighborhood greenway.

- Six respondents recommend that the neighborhood greenway travel primarily along Evans Street.
- Five respondents recommend that the neighborhood greenway travel along Davis Street and connect back to Evans Street at some point north of 11th Street.
- One respondent mentioned Davis Street or Evans Street, with no preference towards either.
- Respondents primarily recommended connecting to OR 99W to the parallel route via Linfield Avenue from the south and via Evans or McDonald on the north.

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[9] Information about the PAC is available on the project website: https://www.walkbike99wmcminnville.com/websites/69/pages/398

Appendix C Design Toolbox

NEIGHBORHOOD GREENWAY AND ENHANCED CROSSING TREATMENTS

Neighborhood Greenways are low-volume, low-speed streets where people biking and driving share road space. Motorized vehicle restrictions created by traffic calming elements and intersection crossing treatments are used to prioritize access for people biking. The treatments would include shared lane markings and wayfinding signage for people biking. Additional treatments to consider include speed humps, chicanes, and traffic diverters. Examples of chicanes, traffic diverters, and intersection crossing treatments are shown below.

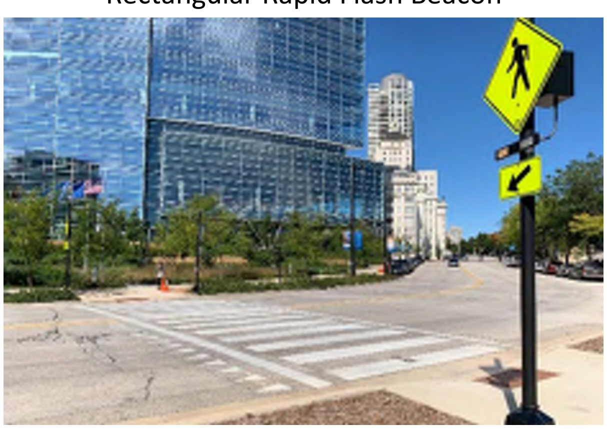
Chicanes

Traffic Diverters/Medians with Bicycle Access

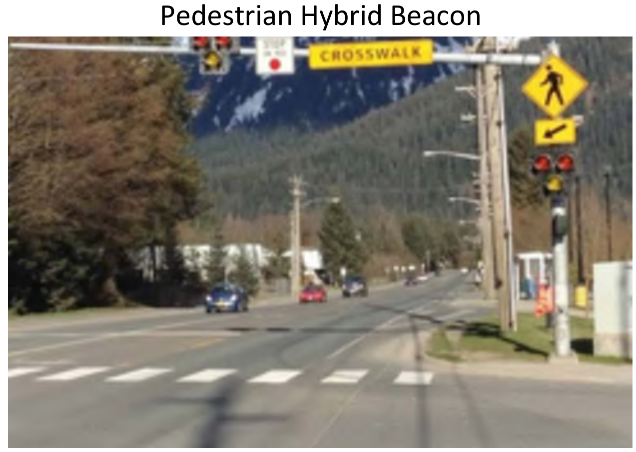
Bulb-out/Curb Extension

Crossing Island (Pedestrian Refuge)

Rectangular Rapid Flash Beacon



Pedestrian Hybrid Beacon



Source: NACTO

SAFETY COUNTERMEASURES

Table 19: ODOT All Roads Transportation Safety Program (ARTS) Countermeasures

Countermeasures	Crash Reduction Factor (CRF)
BP1: Install Pedestrian Countdown Timer(s)	70% Reduction in Pedestrian Crashes at All Severities
BP2: Provide Intersection Illumination (Bike & Ped)	42% Reduction in Nighttime Pedestrian and Bicycle Crashes at All Injury Severities
BP3: Install Urban Leading Pedestrian or Bicycle Interval at Signalized Intersections	37% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP4: Install No Pedestrian Phase Feature with Flashing Yellow Arrow	43% Reduction in Pedestrian Crashes at All Severities
BP5: Reduce Right Turn Permissive Conflicts (Right Turn Arrow)	20% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP6: Install Urban Green Bike Lanes at Conflict Points	39% Reduction in Bicycle Crashes at All Severities
BP7: Install Bike Box at Conflict Points	35% Reduction in Bicycle Crashes at All Severities
BP8: Install Pedestrian Refuge Island	31% Reduction in Pedestrian Crashes at All Severities
BP9: Install Rectangular Rapid Flashing Beacon (2-Lane Road)	10% Reduction in Pedestrian Crashes at All Severities
BP10: Install Rectangular Rapid Flashing Beacon without Median (3-Lane or More Roadway)	10% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP11: Install Rectangular Rapid Flashing Beacon with Median (3-Lane or More Roadway)	56% Reduction in Pedestrian Crashes at All Severities
BP12: Install Pedestrian Activated Beacon at Intersection	10% Reduction in Pedestrian Crashes at All Severities
BP13: Install Pedestrian Activated Beacon Midblock	10% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP14: Install Pedestrian Activated Beacon (Flashing Beacon in Conjunction with Median and Stop Bar)	56% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP15: Install continental Crosswalk Markings and Advanced Pedestrian Warning Signs at Uncontrolled Locations	15% Reduction in Pedestrian Crashes at All Severities
BP16: Install Curb Ramps and Extensions with a Marked Crosswalk and Pedestrian Warning Signs	37% Reduction in Pedestrian Crashes at All Severities
BP17: Install Advance Pedestrian or Bicycle Warning Signs	5% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP18: Install Pedestrian Signal	55% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP19: Pedestrian Hybrid Beacon	55% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP20: Convert 4-Lane Roadway to 3-Lane Roadway with Center Turn Lane (Road Diet)	29% Reduction in All Crashes at All Severities
BP21: Install Bike Signal	45% Reduction in Bicycle Crashes at All Severities

Countermeasures	Crash Reduction Factor (CRF)
BP23: Install Cycle Tracks	59% Reduction in Bicycle Crashes at All Injury Severities
BP24: Install Buffered Bike Lanes	47% Reduction in Bicycle Crashes at All Injury Severities
BP25: Prohibit Right-Turn-On-Red	41% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP26: Advanced Yield and Stop Markings & Signs	25% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP27: Install Bicycle Boulevard	63% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP28: Install Raised Crosswalk	30% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP29: Add Sidewalk	20% Reduction in Pedestrian – walking along Crashes at All Severities
BP30: Install Speed Humps/Table (Not on State Highways)	15% Reduction in Pedestrian and Bicycle Crashes at All Severities
BP31: Add Street Tree's (supports blueprint for Urban Design)	10% Reduction in All Crashes at All Severities

Source: ODOT ARTS Program Crash Reduction Factor Appendix

Appendix D Cost Estimates

McMinnville OR 99W Active Transportation Concept Plan

Concept 1: Two-Way Separated Bike Lane (Cycle Track)

ODOT

KITTELSON & ASSOCIATES

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE		*Date: March 12, 2021*		
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
MOBILIZATION	LS	ALL	$37,000.00	$37,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$8,000.00	$8,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$24,000.00	$24,000.00
STRIPE REMOVAL	FOOT	500	$0.50	$250.00
LEGEND REMOVAL	SQFT	250	$3.00	$750.00
BAR REMOVAL	SQFT	500	$3.00	$1,500.00
PERMANENT SURFACE MOUNTED TUBULAR MARKERS	EACH	350	$200.00	$70,000.00
METHYL METHACRYLATE, EXTRUDED	FOOT	16,500	$4.00	$66,000.00
PAVEMENT LEGEND, TYPE B-HS: ARROWS	EACH	10	$20.00	$200.00
PAVEMENT BAR, TYPE B-HS	SQFT	2,000	$10.00	$20,000.00
PAVEMENT LEGEND, TYPE B-HS: ON-STREET PARKING	EACH	10	$250.00	$2,500.00
GREEN BICYCLE LANE, METHYL METHACRYLATE	SQFT	33,500	$5.00	$167,500.00
REMOVE EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
REMOVE AND REINSTALL EXISTING SIGNS	LS	ALL	$10,000.00	$10,000.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$10,000.00	$10,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	500	$25.00	$12,500.00
SIGNAL MODIFICATIONS	LS	ALL	$100,000.00	$100,000.00
			TOTAL CONSTRUCTION COST $	**535,200**
			TOTAL PROJECT SUBTOTAL $	**535,200**
			30% Engineering & Administrative Services $	**160,560**
			30% Contingency $	**160,560**
			TOTAL ESTIMATED PROJECT COST $	**857,000**

Assumptions:

- Cycle track assumed to be painted green
-
-
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

McMinnville OR 99W Active Transportation Concept Plan

Concept 2: OR99W Buffered Bike Lanes

ODOT

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE		*Date: March 12, 2021*		
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
MOBILIZATION	LS	ALL	$22,000.00	$22,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$5,000.00	$5,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$11,000.00	$11,000.00
STRIPE REMOVAL	FOOT	1,000	$0.50	$500.00
LEGEND REMOVAL	SQFT	500	$3.00	$1,500.00
BAR REMOVAL	SQFT	1,000	$3.00	$3,000.00
METHYL METHACRYLATE, EXTRUDED	FOOT	33,500	$4.00	$134,000.00
PAVEMENT LEGEND, TYPE B-HS: ARROWS	EACH	20	$20.00	$400.00
PAVEMENT BAR, TYPE B-HS	SQFT	4,000	$10.00	$40,000.00
PAVEMENT LEGEND, TYPE B-HS: ON-STREET PARKING	EACH	20	$250.00	$5,000.00
REMOVE EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
REMOVE AND REINSTALL EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$5,000.00	$5,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	500	$25.00	$12,500.00
			TOTAL CONSTRUCTION COST $	**249,900**
			TOTAL PROJECT SUBTOTAL $	**249,900**
			30% Engineering & Administrative Services $	**74,970**
			30% Contingency $	**74,970**
			TOTAL ESTIMATED PROJECT COST $	**400,000**

Assumptions:

-
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Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

McMinnville OR 99W Active Transportation Concept Plan
Concept 3: Neighborhood Greenway on Davis Street
ODOT

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE		*Date: March 12, 2021*		
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
MOBILIZATION	LS	ALL	$8,000.00	$8,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$2,000.00	$2,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$4,000.00	$4,000.00
LEGEND REMOVAL	SQFT	500	$3.00	$1,500.00
BAR REMOVAL	SQFT	500	$3.00	$1,500.00
PAVEMENT BAR, TYPE B-HS	SQFT	1,800	$10.00	$18,000.00
REMOVE EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
REMOVE AND REINSTALL EXISTING SIGNS	LS	ALL	$25,000.00	$25,000.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$10,000.00	$10,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	500	$25.00	$12,500.00
			TOTAL CONSTRUCTION COST	**$ 87,500**
			TOTAL PROJECT SUBTOTAL	**$ 87,500**
			30% Engineering & Administrative Services	**$ 26,250**
			30% Contingency	**$ 26,250**
			TOTAL ESTIMATED PROJECT COST	**$ 140,000**

Assumptions:

-
-
-
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-
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-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

McMinnville OR 99W Active Transportation Concept Plan
Concept 3: Neighborhood Greenway on Evans Street
ODOT

KITTELSON & ASSOCIATES

Engineer's Conceptual Estimate

Prepared By: Eric Germundson, PE		*Date: March 12, 2021*		
Reviewed By: Nick Gross, Amy Griffiths, and Marc Butorac				
This Estimate has a Rating of:		**3C**	*(See rating scale guide below.)*	
ITEM	**UNIT**	**TOTAL QUANTITY**	**UNIT PRICE**	**TOTAL COST**
MOBILIZATION	LS	ALL	$5,000.00	$5,000.00
TEMPORARY PROTECTION AND DIRECTION OF TRAFFIC	LS	ALL	$1,000.00	$1,000.00
TEMPORARY WORK ZONE TRAFFIC CONTROL, COMPLETE	LS	ALL	$3,000.00	$3,000.00
PAVEMENT BAR, TYPE B-HS	SQFT	1,900	$10.00	$19,000.00
REMOVE EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
REMOVE AND REINSTALL EXISTING SIGNS	LS	ALL	$5,000.00	$5,000.00
PERFORATED STEEL SQUARE TUBE ANCHOR SIGN SUPPORTS	LS	ALL	$5,000.00	$5,000.00
SIGNS, STANDARD SHEETING, EXTRUDED ALUMINUM	SQFT	500	$25.00	$12,500.00
			TOTAL CONSTRUCTION COST	**$ 55,500**
			TOTAL PROJECT SUBTOTAL	**$ 55,500**
			30% Engineering & Administrative Services	**$ 16,650**
			30% Contingency	**$ 16,650**
			TOTAL ESTIMATED PROJECT COST	**$ 89,000**

Assumptions:

-
-
-
-
-
-
-

Scope Accuracy:

Level 1: Project scope well understood and well defined.

Level 2: Project scope conceptual. Scope lacks detail due to potential permit requirements; Unknown project conditions; limited knowledge of external impacts.

Level 3: Project scope is a "vision" with limited detail.

Engineering Effort:

Level A: Preliminary engineering performed. Technical information is available, engineering calculations have been performed; clear understanding of the materials size and quantities needed to execute job. Schedule understood; staff and permitting is fairly clear, (however this element may still need refining). Project Development & Construction Contingencies ranges between 10%-20%.

Level B: Conceptual engineering performed. Technical information is available, rough engineering calculations may have been performed, or similar information from previous similar work is compared and used. Project Development Contingencies ranges between 15% to 25% and Construction Contingencies ranges between 20% to 30%.

Level C: No engineering performed. Educated guesstimating. Limited technical information available and/or analysis performed. Project Development and Construction Contingencies should be selected appropriately by Project Manager. Contingency may range up to 50%.

Appendix E Enhanced Crossing Analysis

Enhanced Crossing Key Findings

This memorandum summarizes the results of an enhanced crossing facility assessment for people walking and biking along the OR 99W couplet. The crossing assessment was performed at six intersections, as illustrated in Figure 16.

The purpose of this assessment is to identify and recommend crossing treatments that will provide safe, comfortable crossing opportunities for people walking and biking in the study area based on the existing traffic volumes, posted speeds, and proposed crossing location characteristics.[10] The analysis relies on the guidance provided by National Cooperative of Highway Research Program (NCHRP) *Report 562: Improving Pedestrian Safety at Unsignalized Crossings* and Federal Highway Administration (FHWA) *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations.*

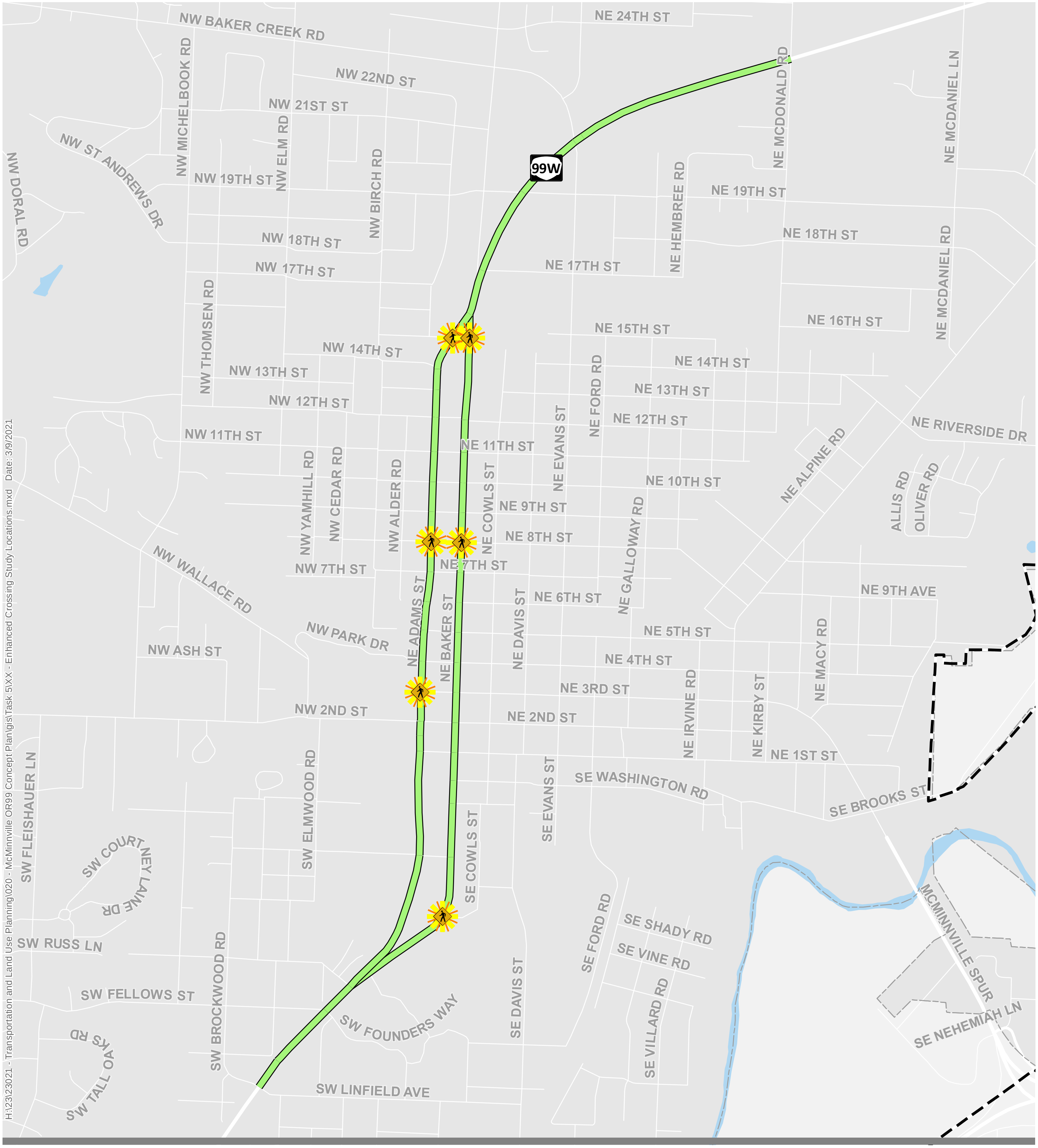
Enhanced Crossing Worksheets based on NCHRP and FHWA guidance are attached in this appendix.

Enhanced Crossing Recommendations

Based on the traffic volume data, roadway context, anticipated levels of walking and biking activity upon completion of the McMinnville OR 99W Active Transportation Concept Plan, and crossing analysis, the following enhanced crossing facility and treatments are recommended at the proposed crossing location along the Adams Street-Baker Street Couplet:

- Evaluate lighting conditions at the proposed crossing location to ensure proposed lighting conditions.
- Install high-visibility pavement markings and signs per the Manual on Uniform Traffic Control Devices (MUTCD).
- Install a rectangular rapid flashing beacon (RRFB) at the six enhanced crossing study locations.
- Explore opportunities to integrate bicycle detection at proposed crossing approaches to reduce or eliminate dismounting for people biking to activate beacon push buttons.

[10] Enhanced crossing treatments require approval from ODOT Region 2 Traffic.



Enhanced Crossing Study Locations

Crosswalk

Crosswalk with Bulb-Out(s)

Signalized

Signalized with Bulb-Out(s)

OR99W Project Extents

Figure 16

KITTELSON & ASSOCIATES

Enhanced Crossing Study Locations
McMinnville, OR

GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

This spreadsheet combines Worksheet 1 and Worksheet 2 (Appendix A, pages 69-70) of TCRP Report 112/NCHRP Report 562 (*Improving Pedestrian Safety at Unsignalized Intersections*) into an electronic format. This spreadsheet should be used in conjunction with, and not independent of, Appendix A documentation.

This spreadsheet is still under development, please inform TTI if errors are identified.

Key
- Blue fields contain descriptive information.
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Analyst and Site Information

Analyst	Kittelson & Associates, Inc.	Major Street	Adams Street
Analysis Date	January 20, 2021	Minor Street or Location	3rd Street (Northern Leg)
Data Collection Date	TransGIS ADT, PH Tube Counts June 8, 2017	Peak Hour	5:00-6:00 PM

Step 1: Select worksheet:

Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	30
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO

Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?

Peak-hour pedestrian volume (ped/h), V_p	*2a*	20

Result: Go to step 3.

Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?

Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	1300
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	168
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	168
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	0%
Reduced value or *3c*	*3f*	168

Result: The signal warrant is not met. Go to step 4.

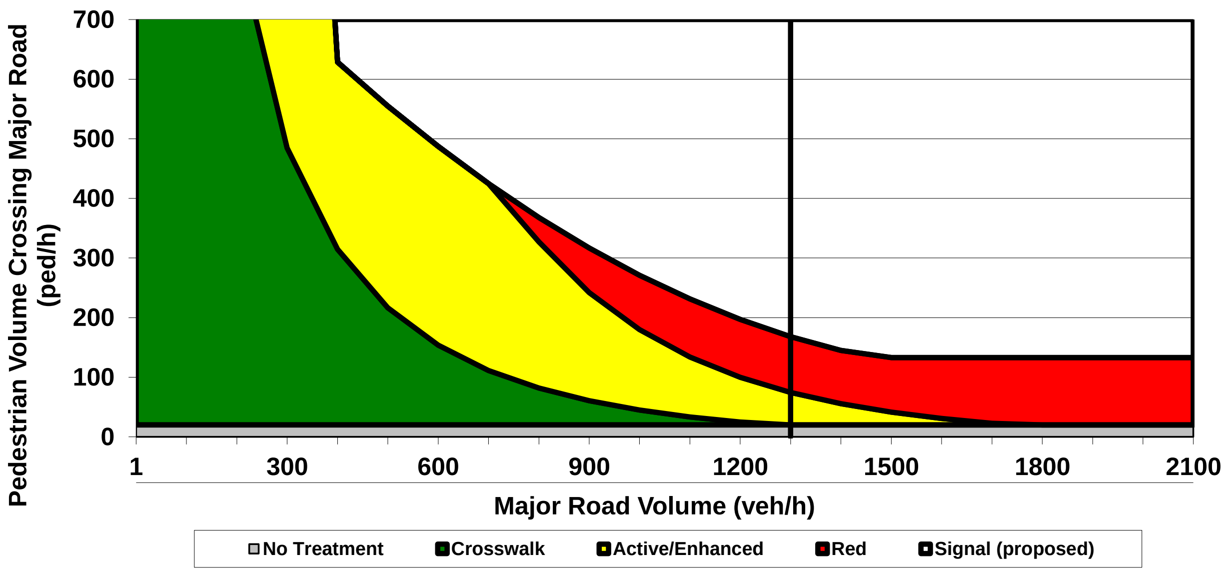
Step 4: Estimate pedestrian delay.

Pedestrian crossing distance, curb to curb (ft), L	*4a*	34
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	13
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	1300
Major road flow rate (veh/s), v	*4f*	0.36
Average pedestrian delay (s/person), d_p	*4g*	255
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	1.4
	4i	

Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.

Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	LOW

Treatment Category: ACTIVE OR ENHANCED



This worksheet provides general recommendations on pedestrian crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment for installation. This worksheet does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a pedestrian treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

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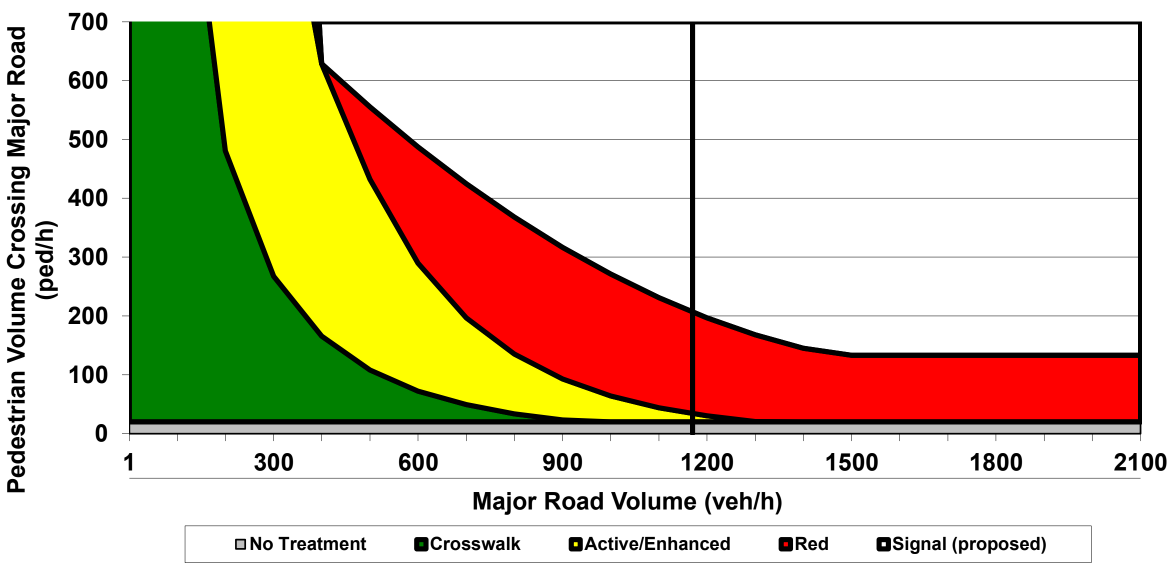
Analyst and Site Information

Analyst	Kittelson & Associates, Inc.	Major Street	Baker Street
Analysis Date	January 20, 2021	Minor Street or Location	Cowls Street (Bus Stop)
Data Collection Date	TransGIS ADT, PH Tube Counts June 8, 2017	Peak Hour	5:00-6:00 PM (Vehicular Peak)

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	30
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	20
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	1170
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	207
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	207
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	0%
Reduced value or *3c*	*3f*	207
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	46
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	16
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	1170
Major road flow rate (veh/s), v	*4f*	0.33
Average pedestrian delay (s/person), d_p	*4g*	605
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay	*4h*	3.4
has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4i*	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	LOW
Treatment Category:	**ACTIVE OR ENHANCED**	



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GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

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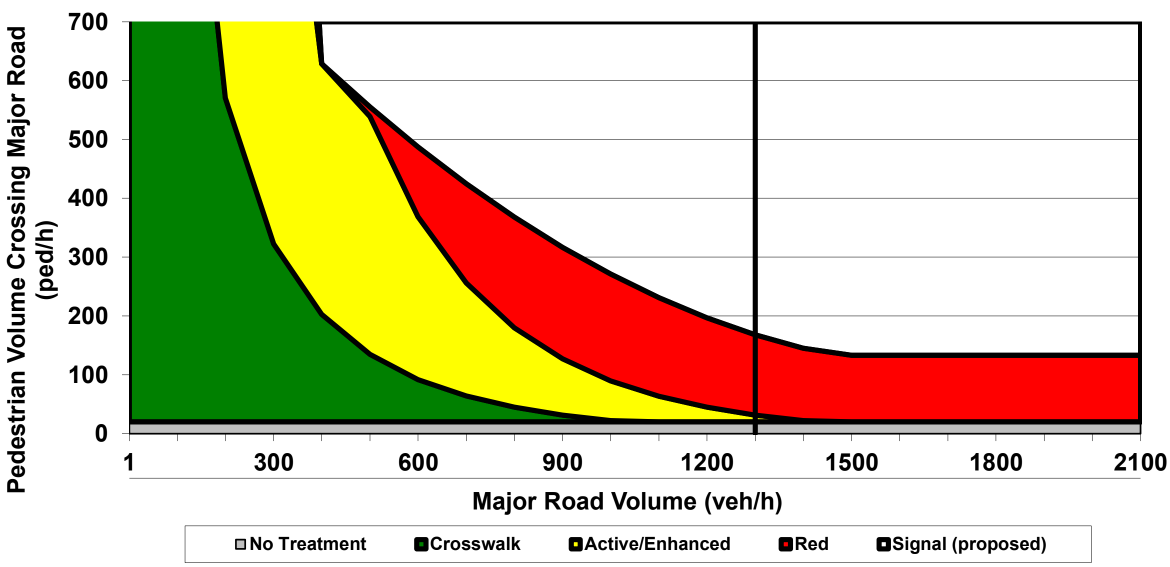
Analyst and Site Information			
Analyst	Kittelson & Associates, Inc.	Major Street	Adams Street
Analysis Date	January 20, 2021	Minor Street or Location	8th Street (Southern Leg)
Data Collection Date	TransGIS ADT, PH Tube Counts June 8, 2017	Peak Hour	5:00-6:00 PM

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	30
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	20
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	1300
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	168
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	168
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	0%
Reduced value or *3c*	*3f*	168
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	42
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	15
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	1300
Major road flow rate (veh/s), v	*4f*	0.36
Average pedestrian delay (s/person), d_p	*4g*	597
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	3.3
	4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	LOW
Treatment Category:	**ACTIVE OR ENHANCED**	



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GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

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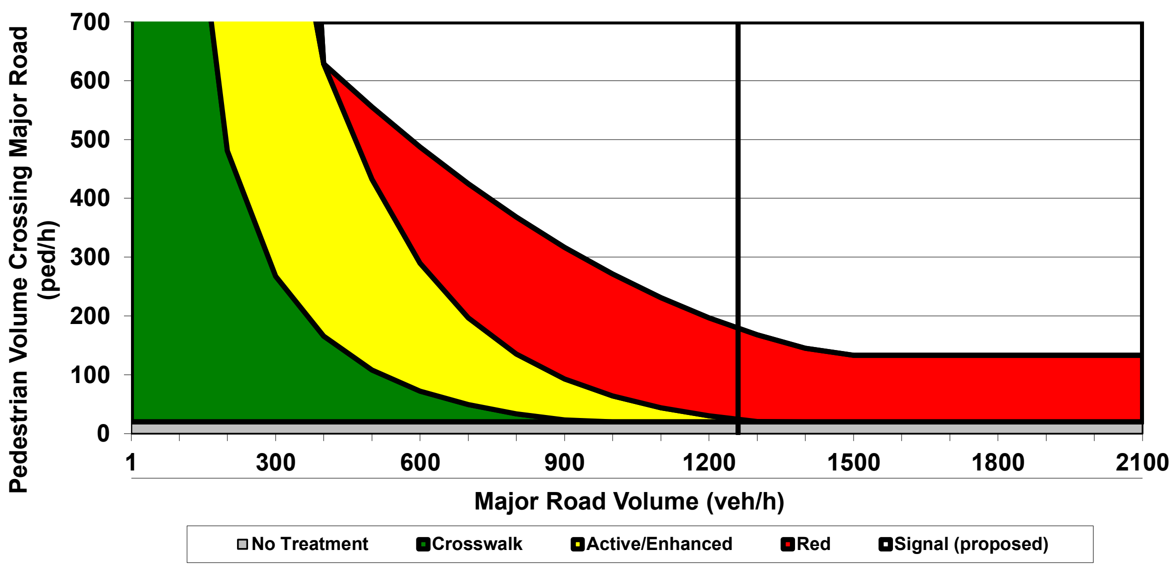
Analyst and Site Information			
Analyst	Kittelson & Associates, Inc.	Major Street	Baker Street
Analysis Date	January 20, 2021	Minor Street or Location	8th Street (Southern Leg)
Data Collection Date	TransGIS ADT, PH Tube Counts June 8, 2017	Peak Hour	5:00-6:00 PM

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	30
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	20
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	1260
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	179
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	179
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	0%
Reduced value or *3c*	*3f*	179
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	46
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	16
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	1260
Major road flow rate (veh/s), v	*4f*	0.35
Average pedestrian delay (s/person), d_p	*4g*	793
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the	*4h*	4.4
major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4i*	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	LOW
Treatment Category:		**ACTIVE OR ENHANCED**



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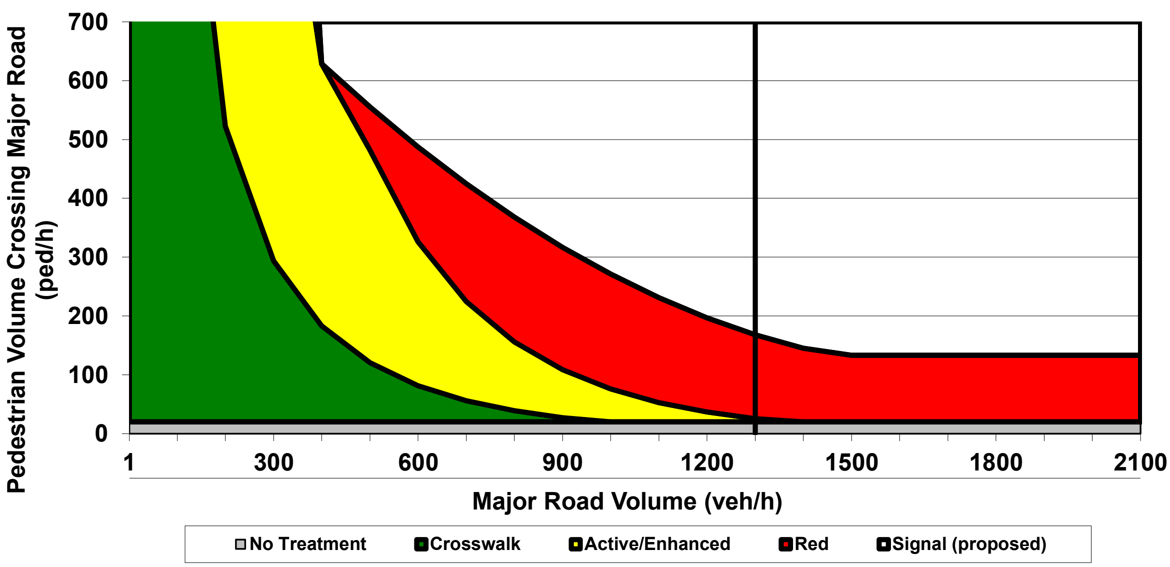
Analyst and Site Information

Analyst	Kittelson & Associates, Inc.	Major Street	Adams Street
Analysis Date	January 20, 2021	Minor Street or Location	15th Street (Southern Leg)
Data Collection Date	TransGIS ADT, PH Tube Counts June 8, 2017	Peak Hour	5:00-6:00 PM

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	30
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	20
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	1300
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	168
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	168
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	0%
Reduced value or *3c*	*3f*	168
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	44
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	16
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	1300
Major road flow rate (veh/s), v	*4f*	0.36
Average pedestrian delay (s/person), d_p	*4g*	737
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay	*4h*	4.1
has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4i*	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	LOW
Treatment Category:		**ACTIVE OR ENHANCED**



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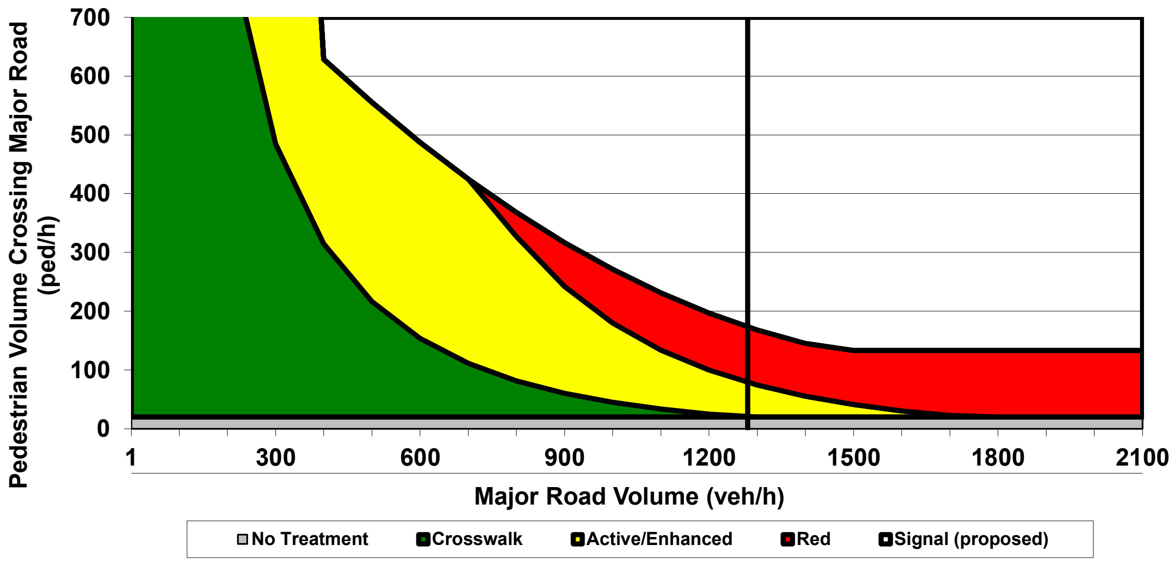
Analyst and Site Information

Analyst	Kittelson & Associates, Inc.	Major Street	Baker Street
Analysis Date	January 20, 2021	Minor Street or Location	15th Street (southern Leg)
Data Collection Date	TransGIS ADT, PH Tube Counts June 8, 2017	Peak Hour	5:00-6:00 PM

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	30
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	20
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	1280
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	173
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	173
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	0%
Reduced value or *3c*	*3f*	173
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	34
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	13
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	1280
Major road flow rate (veh/s), v	*4f*	0.36
Average pedestrian delay (s/person), d_p	*4g*	255
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	1.4
	4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	LOW
Treatment Category:	**ACTIVE OR ENHANCED**	



This worksheet provides general recommendations on pedestrian crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment for installation. This worksheet does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a pedestrian treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

Locations:
Adams Street/15th Street, Baker Street/15th Street, Adams Street/8th Street, Baker Street/8th Street, Adams Street/3rd Street, and, Baker Street/Cowls Street

Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	❶ 2 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6 7 9	① 5 6 7 9	① 5 6 ❾
3 lanes with raised median (1 lane in each direction)	❶ 2 3 4 5	❶ ❸ 5 7 9	① ❸ 5 ❼ ❾	① 3 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❼ ❾	① ❸ 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❾
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	❶ 2 3 4 5 6 7 9	❶ ❸ 5 6 7 9	① ❸ 5 6 ❾	① 3 4 5 6 7 9	① ❸ 5 6 ❼ ❾	① ❸ 5 6 ❾	① ❸ 4 5 6 7 9	① ❸ 5 6 ❾	① ❸ 5 6 ❾
4+ lanes with raised median (2 or more lanes in each direction)	❶ ❸ 5 7 8 9	❶ ❸ 5 7 8 9	① ❸ 5 8 ❾	① ❸ 5 7 8 9	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 8 ❾
4+ lanes w/o raised median (2 or more lanes in each direction)	❶ ❸ 5 6 7 8 9	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 8 ❾

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1. High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2. Raised crosswalk
3. Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4. In-Street Pedestrian Crossing sign
5. Curb extension
6. Pedestrian refuge island
7. Rectangular Rapid-Flashing Beacon (RRFB)**
8. Road Diet
9. Pedestrian Hybrid Beacon (PHB)**

Refer to Chapter 4, 'Using Table 1 and Table 2 to Select Countermeasures,' for more information about using multiple countermeasures.

***It should be noted that the PHB and RRFB are not both installed at the same crossing location.*

This table was developed using information from: Zegeer, C.V., J.R. Stewart, H.H. Huang, P.A. Lagerwey, J. Feaganes, and B.J. Campbell. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines. FHWA, No. FHWA-HRT-04-100, Washington, D.C.; FHWA. Manual on Uniform Traffic Control Devices, 2009 Edition. (revised 2012). Chapter 4F, Pedestrian Hybrid Beacons. FHWA, Washington, D.C.; FHWA. Crash Modification Factors (CMF) Clearinghouse. http://www.cmfclearinghouse.org/; FHWA. Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE). http://www.pedbikesafe.org/PEDSAFE/; Zegeer, C., R. Srinivasan, B. Lan, D. Carter, S. Smith, C. Sundstrom, N.J. Thirsk, J. Zegeer, C. Lyon, E. Ferguson, and R. Van Houten. (2017). NCHRP Report 841: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. Transportation Research Board, Washington, D.C.; Thomas, Thirsk, and Zegeer. (2016). NCHRP Synthesis 498: Application of Pedestrian Crossing Treatments for Streets and Highways. Transportation Research Board, Washington, D.C.; and personal interviews with selected pedestrian safety practitioners.

Appendix F Evaluation Criteria and Performance Measures Memorandum

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MEMORANDUM

Date:	October 7, 2020	Project #: 23021.020
To:	Project Management Team Project Advisory Committee	
From:	Nicholas Gross, Nick Gross, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville Active Transportation Concept Plan	
Subject:	Final Evaluation Criteria and Performance Measures	

INTRODUCTION

The purpose of this document is to articulate the goals and objectives, evaluation criteria, and performance measures to fulfill the Corridor Vision Statement for the McMinnville Active Transportation Concept Plan. Understanding and executing a performance-based approach with clear, actionable, and measurable evaluation criteria enables project teams to make informed decisions about the performance trade-offs of alternative solutions to best suit the project goals based on the corridor context and needs of the intended users. The corridor context and relative need of the intended users are set according to the Oregon Department of Transportation (ODOT) Blueprint for Urban Design (BUD – Reference 1) and the Draft Corridor Vision (Reference 2).

GUIDING GOALS AND POLICIES

The primary purpose of the McMinnville Active Transportation Concept Plan is to identify improvements along the OR99W corridor in the City of McMinnville that will result in a safer, more comfortable, and attractive place to walk, bike, roll and facilitate transit. The City of McMinnville Transportation System Plan (TSP – Reference 3) identifies guiding goals and policies for the transportation vision for the City. The goals and policies relevant to the McMinnville Active Transportation Concept Plan are included in Table 1 on the following page.

Table 1: TSP Goal and Policy Guidance

TSP Goals and Supplemental Policies	
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."*
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."*
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" including "walking and bicycling."*
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."*
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)."*
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."*

EVALUATION CRITERIA AND PERFORMANCE MEASURES

The goals and policy guidance from the TSP have been converted into draft evaluation criteria for the Active Transportation Concept Plan. These criteria align with the Draft Corridor Vision for OR99W. The performance measures provide a performance-based decision framework for the selection of a preferred alternative. Aligning with guidance from the BUD, the performance measures are designed to be understandable, consistent, measurable, able to differentiate between alternatives, and specific to this project.

Table 2 provides the draft evaluation criteria and performance measures for the McMinnville Active Transportation Concept Plan.

- **Evaluation Criteria** are derived from the goal and supplemental policies from the McMinnville TSP and will be used to evaluate draft alternatives.
- **Description** includes the purpose and general explanation of the evaluation criteria, connecting the criteria to the specific community or agency values (based on the TSP) goals and desired outcomes for the project.
- **Performance Measures** are the measurements used to assess the evaluation criteria.
- **Proposed Methodology** describes how the criterion will be measured, whether it is qualitative or quantitative, and the data needed to evaluate the criteria.

Table 3 provides a scoring scale from -1 to +2, reflecting the extent to which a project achieves the prioritization measure and describes the data required to complete the scoring. Performance measure sub-categories within each evaluation criterion are scored individually, and then averaged to provide an overall score for the evaluation criterion. Each evaluation criteria score can result in a range between -7 (worst possible score) to +14 (best possible score) based on the seven evaluation criteria listed in Table 2.

Appendix A provides a sample evaluation of potential projects.

Table 2: Evaluation Criteria and Performance Measures

Evaluation Criterion	Description	Proposed Performance Measures
Complete Streets	The alternative provides comfortable facilities for people walking and biking, regardless of age and ability. The "complete streets" criterion addresses the "Complete Streets" goal and supplemental policy identified in the TSP.	• Bicycle Level of Traffic Stress (BLTS) • Pedestrian Level of Traffic Stress (PLTS)
Multi-Modal Transportation System	The alternative provides integrated network of facilities and services for a variety of motorized and non-motorized travel modes based on the appropriate relative priority given the corridor context. The multi-modal transportation system criterion addresses the "Multi-Modal Transportation System" goal and supplemental policy identified in the TSP.	• Type and presence of pedestrian, bicycle, transit, motor vehicle, and freight facilities align with the recommendations from the Blueprint for Urban Design (provided in Appendix B)
Connectivity	The alternative provides comprehensive connectivity and circulation to existing active transportation facilities in the City of McMinnville. The alternative encourages walking and biking to essential destinations within the City of McMinnville. The "connectivity" criterion addresses the "Connectivity and Circulation", "Transportation System and Energy Efficiency", and "Transportation Sustainability" goals and supplemental policies identified in the TSP.	• Connection of alternative to the existing and planned bicycle and pedestrian network • Barriers to walking and biking (including an unsafe crosswalk or facilities in poor condition) removed by the alternative • Facility gap filled by alternative • Proximity of alternative to essential destinations • Proximity of alternative to activity generators
Safety	The alternative provides safety countermeasures that reduce the number of fatal and severe injury crashes. The "safety" criterion addresses the "Transportation Safety" and "Transportation Sustainability" goals and supplemental policies identified in the TSP.	• Percentage (%) of anticipated crash reduction based on crash reduction factor (CRF) scaled by planning-level cost of project • Bicyclist and pedestrian crash history • Pedestrian Risk Factor • Bicyclist Risk Factor
Equity	The project meets the requirements set forth in the Americans with Disabilities Act (ADA) and provides transportation options to transportation disadvantaged populations. The "equity" criterion addresses the "Accessibility for Persons with Disabilities" and "Health and Welfare" goals and supplemental policies identified in the TSP.	• This will use the Transportation Disadvantaged Population (TDP) Index from the ODOT Active Transportation Needs Inventory (ATNI). The index considers the following characteristics of a census block: elderly populations (65 and older), youth populations (under 18), non-white and Hispanic populations, low-income populations (households earning less than 200% of the poverty level as determined by the census), limited English proficiency population (aggregate of census populations who speak English "not well" or "not at all"), households without access to a vehicle, and people with a disability (severe or non-severe disability) • This criterion will also consider impacts to ADA compliance.
Livability	The alternative minimizes impacts to adjacent property owners and encourages the use of public transit, bikeways, sidewalks, and walkways. The project provides equity and receives public support. The "livability" criterion addresses the "Livability" and "Aesthetics and Streetscaping" goals and supplemental policies identified in the TSP.	• Right-of-way acquisition needs • Neighborhood street modification, business access and parking • Anticipated public support based on Open House and Public Advisory Committee Comments
Design Feasibility	The alternative has no major design feasibility concerns. The "design feasibility" criterion does not directly address any goals or supplemental policies identified in the TSP.	• Constructability (including, but not limited to, right-of-way availability, existing terrain, utility location, visibility concerns, etc.)

Table 3: Evaluation Criteria Scoring

Evaluation Criterion	Performance Measure	Scoring Scale				Resources
		-1	0	+1	+2	
Complete Streets	Quantitative: BLTS	Project **degrades** existing BLTS	Project makes **no change** to existing BLTS	Project **improves** existing BLTS by **1 point**	Project **improves** existing BLTS by **2 or 3 points**	Posted speed, traffic volumes, number of lanes, and bicycle facility type
	Quantitative: PLTS	Project **degrades** existing PLTS	Project makes **no change** to existing PLTS	Project **improves** existing PLTS by **1 point**	Project **improves** existing PLTS by **2 or 3 points**	Posted speed, traffic volumes, number of lanes, and pedestrian facility type
Multi-Modal Transportation System	Qualitative: Type and presence of pedestrian, bicycle, transit, motor vehicle, and freight facilities align with the recommendations from the Blueprint for Urban Design (provided in Appendix B)	Project **degrades** modal priorities based on urban context.	Project has **no impact** on modal priorities based on urban context.	Project **improves** modal priorities for urban context.	Project **significantly improves** modal priorities for urban context.	Posted speed, travel lane characteristics, shy distance, median, bicycle facility type and characteristics, pedestrian facility type and characteristics, parking type and characteristics The urban context was determined to be Traditional Downtown/CBD and Urban Mix in the Corridor Vision (Reference 2). Based on recommendations from the Blueprint for Urban Design, Transit, Bicyclist, and Pedestrian are "High" priority modes (reference table provided in Appendix B)
Connectivity	Qualitative: Project is identified by the City of McMinnville Transportation System Plan (TSP) or is located on the Safe Routes to School (SRTS) Network.	N/A	The project **is not** identified by the TSP **or** located on the SRTS Network	The project **is** identified by the TSP **or** is located on the STRS Network	The project **is** identified by the TSP **and** is located on the SRTS Network	City of McMinnville Transportation System Plan, Safe Routes to School Network
	Qualitative: Project removes barrier to walking and biking or fills gap in the walking and biking transportation network	Project **creates** barriers or gaps in the walking and biking transportation network	Project has **no impacts** to barriers or gaps in the walking and biking transportation network	Project **indirectly addresses** barriers or gaps in the walking and biking transportation network	Project **directly addresses** barriers or gaps in the walking and biking transportation network	Existing conditions inventory
	Quantitative: Proximity to activity generators and essential destinations	N/A	Project would serve **no** active generators or essential destinations in ¼ mile radius	Project would serve **some** active generators or essential destinations in ¼ mile radius	Project would serve **many** active generators or essential destinations in ¼ mile radius	Count of active generators and essential destinations within ¼ mile of the project location.
Safety	Quantitative: Crash Reduction Factor C/Planning Level Project Cost	N/A	The project is **not** anticipated to reduce crashes at a location.	The project provides a **moderate** value crash reduction factor given the project cost.	The project provides a **high** value crash reduction factor given the project cost.	This is a quantitative measurement based on crash countermeasures and planning-level cost estimates.
	Quantitative: Crash History	N/A	There were **no** bicyclist or pedestrian crashes reported in the 5-year crash history within 250 feet of the project.	There were **1 or 2** bicyclist or pedestrian crashes reported in the 5-year crash history within 250 feet of the project.	There were **3 or more** bicyclist or pedestrian crashes reported in the 5-year crash history within 250 feet of the project.	5-Year Crash History
	Quantitative: Pedestrian Risk Factor Scoring	N/A	The project is **not** located on, or perpendicular to a **Medium or High** risk factor location.	The project is located on, or perpendicular to a **Medium** risk factor location.	The project is located on, or perpendicular to a **High** risk factor location.	This is a quantitative measure based on the ODOT Statewide Pedestrian and Bicycle Safety Plan's established risk factor scoring for systemic safety.
	Quantitative: Bicyclist Risk Factor Scoring	N/A	The project is **not** located on, or perpendicular to a **Medium or High** risk factor location.	The project is located on, or perpendicular to a **Medium** risk factor location.	The project is located on, or perpendicular to a **High** risk factor location.	

Table 3: Evaluation Criteria Scoring

Evaluation Criterion	Performance Measure	Scoring Scale -1	Scoring Scale 0	Scoring Scale +1	Scoring Scale +2	Resources
Equity	Quantitative: Project impact to transportation disadvantaged populations based on the ODOT Transportation Disadvantaged Population (TDP) Index	Project **degrades** transportation options and facilities for transportation disadvantaged populations	Project has **no impact** on transportation options and facilities for transportation disadvantaged populations	Project **indirectly improves** transportation options and facilities for transportation disadvantaged populations	Project **directly improves** transportation options and facilities for transportation disadvantaged populations	Census block data
	Qualitative: Project impact to ADA compliance	Project **degrades** ADA compliance	Project makes **no improvements** to ADA compliance	Project makes **moderate improvements** to ADA compliance	Project makes **significant improvements** to ADA compliance	ODOT ADA Inspection Summary, ADA Standards for Accessible Design
Livability	Quantitative: Right-of-way acquisition needs	The project requires **significant** right-of-way acquisition	The project requires **minor** right-of-way-acquisition	The project requires **no** right-of-way acquisition	N/A	Right-of-way maps
	Qualitative: Neighborhood street modification, business access and parking	The project **degrades** access and/or mobility to residential and commercial areas	The project **has no impact** to access and/or mobility to residential and commercial areas	The project **indirectly improves** access and/or mobility to residential and commercial areas	The project **directly improves** access and/or mobility to residential and commercial areas	Parking inventories, locations of residential and commercial properties in study area
	Qualitative: Public response based on Open House and Public Advisory Committee Comments	The project has (or is expected to have) significant **negative** public response	The project has (or is expected to have) a **neutral** public response	The project has (or is expected to have) a **positive** public response	The project has (or is expected to have) **strong support** from the public	Open House and Public Advisory Committee Comments
Design Feasibility[1]	Qualitative: High-level feasibility of constructing the intended project at the location.	The project poses **significant** design challenges	The project poses **moderate** design challenges	The project poses **minor** design challenges	The project poses **no notable** design challenges	Constructability (including, but not limited to, right-of-way availability, existing terrain, utility location, visibility concerns, etc.)

[1] ADA design requirements will be considered but not included as a precluding factor to design feasibility.

NEXT STEPS

The Evaluation Criteria and Performance Measures has been reviewed by the project management team (PMT) and updated to produce the Final Evaluation Criteria and Performance Measures. The Evaluation Criteria will be used to compare the alternatives developed as part of Task 5: Alternatives Development, Analysis, and Preferred Alternative Concept.

REFERENCES

1. Oregon Department of Transportation. *Blueprint for Urban Design, 2020.*
2. Kittelson & Associates, Inc. *Corridor Vision, 2020.*
3. City of McMinnville. *Transportation System Plan, 2010.*

Appendix A Sample Evaluation

Bulb-Out Improvements at NE 8th Street / NE Baker Street Intersection[1]		
Evaluation Criterion	**Score**	**Methodology[1]**
Complete Streets	1	Posted speed: 30 mph Number of Lanes: 2 AADT: 14300 Change in LTS: 1 point
Multi-Modal Transportation System	1	The project improves facilities for people walking and biking, improving modal priorities for the urban context.
Connectivity	1.3	The TSP recommended that new curb extensions should be installed at the NE 8th Street / NE Baker Street Intersection. The project is not on a SRTS network. There are some essential destinations and active transportation generators within ¼ mile of the intersection. The project directly addresses a barrier in the walking transportation network.
Safety	1.8	Two crashes involving pedalcyclists within a 5-Year Period: 1 serious injury crash and 1 minor injury crash. Install Curb Ramps and Extensions with a Marked Crosswalk and Pedestrian Warning Signs (BP12) has a Crash Reduction Factor of 37% for pedestrian crashes. This is a high value crash reduction factor given the project cost. Project is located on a high risk factor location for bicyclists and pedestrians.
Equity	2	Project highly improves ADA compliance at a location. Project directly improves transportation options and facilities for transportation disadvantaged populations.
Livability	0.3	The project requires no right-of-way acquisition. The project indirectly improves access to residential and commercial areas. The project is expected to have a negative public response.
Feasibility	2	The project has no significant design challenges
Total Score	9.4	

[1] The scoring provides an example of the evaluation criteria and performance metrics, however the methodology includes incomplete data and analysis. The scoring for this particular project would need to be refined in the project development process if it is considered in Task 5 of this project.

RRFB at NE 8th Street / NE Baker Street Intersection[2]		
Evaluation Criterion	**Score**	**Methodology[1]**
Complete Streets	2	Posted speed: 30 mph Number of Lanes: 2 AADT: 14300 Change in Crossing LTS: 2 points
Multi-Modal Transportation System	2	The project significantly improves modal priorities for urban context, as it provides an enhanced crossing for people walking and biking.
Connectivity	1.3	The TSP recommended that new curb extensions should be installed at the NE 8th Street / NE Baker Street Intersection. The project is not on a SRTS network. There are some essential destinations and active transportation generators within ¼ mile of the intersection. The project directly addresses a barrier in the walking transportation network.
Safety	1.5	Two crash involving pedalcyclists in 5-year period: 1 minor injury crash and 1 fatal injury crash Install Rectangular Rapid Flashing Beacon (2-Lane Road) (BP8) has a Crash Reduction Factor of 10% for pedestrian crashes. This is a moderate value crash reduction factor given the project cost. Project is located on a high risk factor location for bicyclists and pedestrians.
Equity	2	Project highly improves ADA compliance at a location. Project directly improves transportation options and facilities for transportation disadvantaged populations.
Livability	0.7	The project requires no right-of-way acquisition. The project indirectly improves access to residential and commercial areas. The project is expected to have a neutral public response.
Feasibility	2	The project has no significant design challenges.
Total Score	11.5	

[2] The scoring provides an example of the evaluation criteria and performance metrics, however the methodology includes incomplete data and analysis. The scoring for this particular project would need to be refined in the project development process if it is considered in Task 5 of this project.

Bike Lane along Baker Street between NE 1st Street and 5th Street[3]		
Evaluation Criterion	**Score**	**Methodology**
Complete Streets	1.5	Posted speed: 30 mph Number of Lanes: 2 AADT: 14300 Change in BLTS: improve by 2 points Change in PLTS: improve by 1 point
Multi-Modal Transportation System	1	Based on the context the BUD recommends buffered facilities. Therefore, although this project improves modal priorities for urban context, it does not provide ideal facilities.
Connectivity	1.3	The project is not identified by the TSP or located on the SRTS Network. The project directly addresses a gap in the biking transportation network. The project would serve many active generators and essential destinations in a ¼ mile radius.
Safety	1.8	There were 3 or more crashes involving pedalcyclist in a 5-year period. Install Bike Lanes (BP18) has a Crash Reduction Factor of 36% reduction for crashes involving bicyclist. This is a high value crash reduction based on project cost. Project is located on a medium pedestrian risk factor location and high bicyclist risk factor location.
Equity	1	Does not impact ADA compliance. Project directly improves transportation options and facilities for transportation disadvantaged populations.
Livability	1.3	The project requires no right-of-way acquisition. The project directly improves mobility to residential and commercial areas. The project is expected to have a positive public response.
Feasibility	2	The project has no anticipated design challenges.
Total Score	9.9	

[3] The scoring provides an example of the evaluation criteria and performance metrics, however the methodology includes incomplete data and analysis. The scoring for this particular project would need to be refined in the project development process if it is considered in Task 5 of this project.

Appendix B Blueprint for Urban Design

Designing based on urban context, considering roadway designations and activity of different modes

Urban Context	Target Speed (MPH)[4]	Travel Lanes[2]	Turn Lanes[1,2]	Shy Distance[1,3]	Median[1,2]	Bicycle Facility[1,2,5]	Sidewalk	Target Pedestrian Crossing Spacing Range (feet)[4]	On-street parking[1]
Traditional Downtown/ CBD	20-25	Start with minimum widths, wider by roadway characteristics	Minimize additional crossing width at intersections	Minimal	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility	Ample space for sidewalk activity (e.g., sidewalk cafes, transit shelters)	250-550 (1-2 blocks)	Include on-street parking if possible
Urban Mix	25-30	Start with minimum widths, wider by roadway characteristics	Minimize additional crossing width at intersections	Minimal	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Ample space for sidewalk activity (e.g., sidewalk cafes, transit shelters)	250-550 (1-2 blocks)	Consider on-street parking if space allows
Commercial Corridor	30-35	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Typically used for safety/ operational management	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks, with space for transit stations	500-1,000	Not Applicable
Residential Corridor	30-35	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks	500-1,000	Generally Not Applicable. Consider roadway characteristics
Suburban Fringe	35-40	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks	750-1,500	Not typical
Rural Community	25 - 35	Start with minimum widths, wider by roadway characteristics	Balance crossing width and operations depending on desired use	Consider roadway characteristics, desired speeds	Optional, use as pedestrian crossing refuge	Start with separated bicycle facility, consider roadway characteristics	Continuous and buffered sidewalks, sized for desired use	250-750	Consider on-street parking if space allows

Source: ODOT Blueprint for Urban Design, Volume 1
Orange box indicates Urban Contexts considered as part of this project.

General Modal Considerations in Different Urban Concepts

Land Use Context	Motorist	Freight	Transit	Bicyclist	Pedestrian
Traditional Downtown/CBD	Low	Low	High	High	High
Urban Mix	Medium	Low	High	High	High

Source: ODOT Blueprint for Urban Design, Volume 1

Public Involvement & PAC Meeting Notes

KITTELSON & ASSOCIATES

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MEMORANDUM

Date:	April 13, 2021	Project #: 23021.020
To:	Project Management Team	
From:	Nick Gross, Amy Griffiths, Marc Butorac, PE, PTOE, PMP	
Project:	McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan	
Subject:	Public Involvement Summary	

The project team, Oregon Department of Transportation ("ODOT"), and the City of McMinnville ("the City") hosted a virtual open house for the McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan ("McMinnville Active Transportation Concept Plan"). The goal of the virtual open house was to educate the public on the project and solicit feedback on the selection of a preferred concept for advancement into the draft Concept Plan.

OVERVIEW

The virtual open house contained an accompanying survey which was open from February 25 through March 11, 2021. A livestreamed virtual meeting was held on Thursday, March 4 and a recording of this meeting was posted to the virtual open house website. This memorandum summarizes the feedback received from the virtual open house.

The City advertised the open house through social media posts and newspaper advertisements. Information about the virtual open house was also provided on the project website.[1]

The virtual open house for the McMinnville OR 99W Active Transportation Concept Plan had the following components:

- Information about the project, including the project purpose, background, and study area;
- Information about three preliminary concepts developed to address the active transportation needs in the study area;
- An interactive map where participants can make location-specific comments and draw their preferred neighborhood greenway route;

[1] https://www.walkbike99wmcminnville.com/

- A survey where participants could provide input on the preliminary concepts; and,
- A livestreamed public meeting that included a Q&A session on the project.

VIRTUAL OPEN HOUSE FINDINGS

The virtual open house had 76 survey responses and 536 page views. Findings from the survey, comment map, and input received during the live meeting are summarized below.

Appendix "A" provides the survey responses.

Appendix "B" provides a detailed summary of the livestreamed virtual meeting.

Respondent Characteristics

Chart 1 shows respondents' confidence levels biking. The survey overrepresents confident cyclists; the Concept Plan will work to provide facilities that meet the needs of less confident users.

Chart 1: Type of Cyclist of Respondents

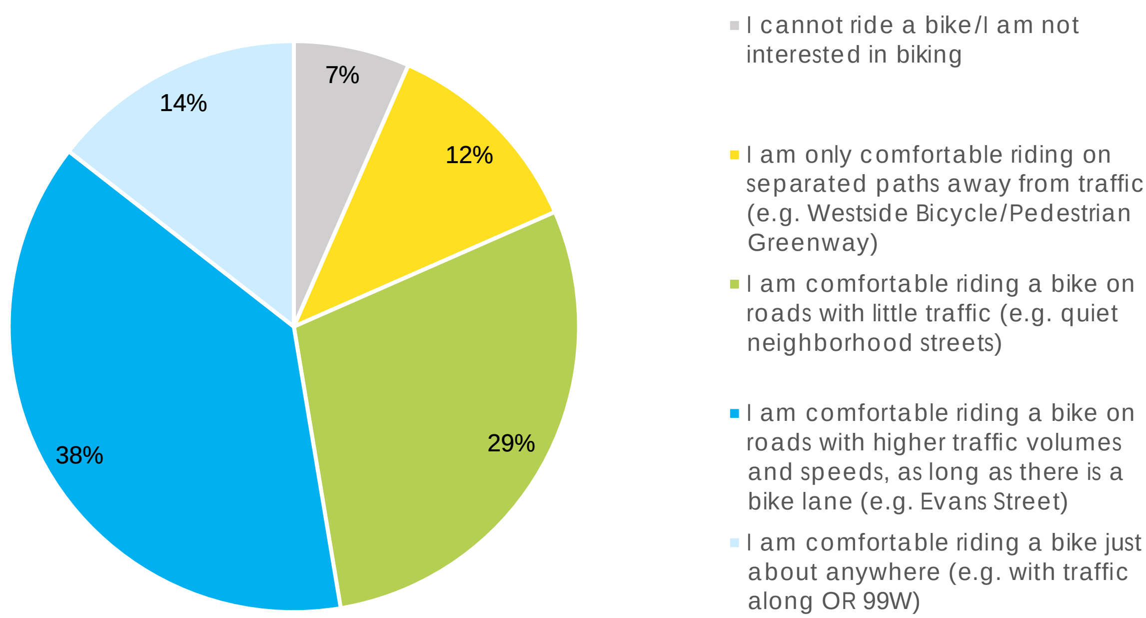
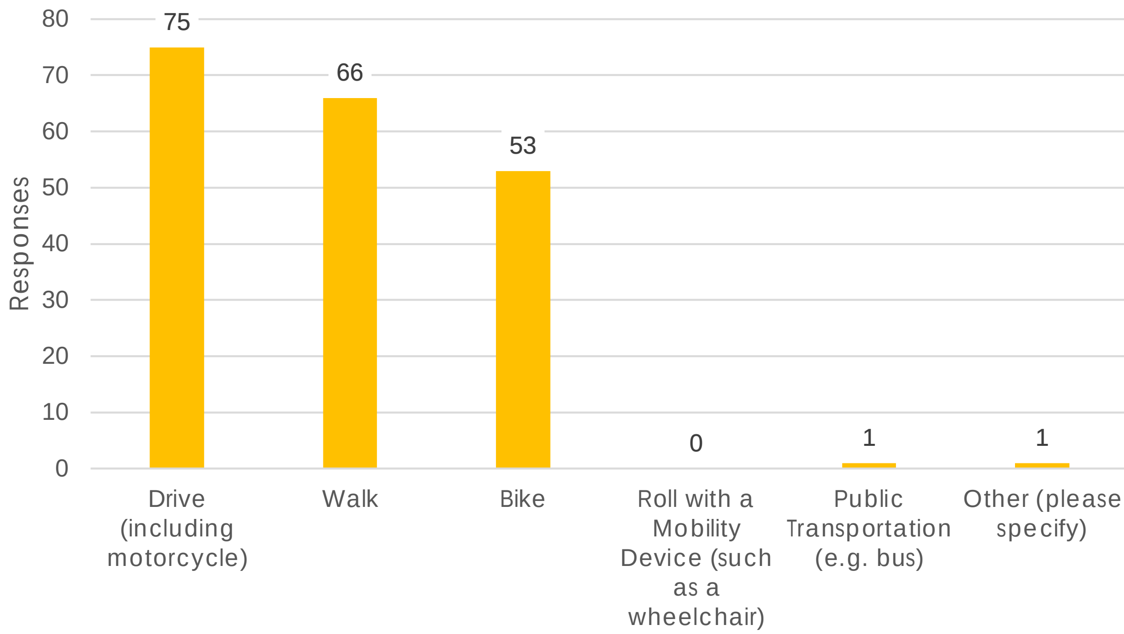


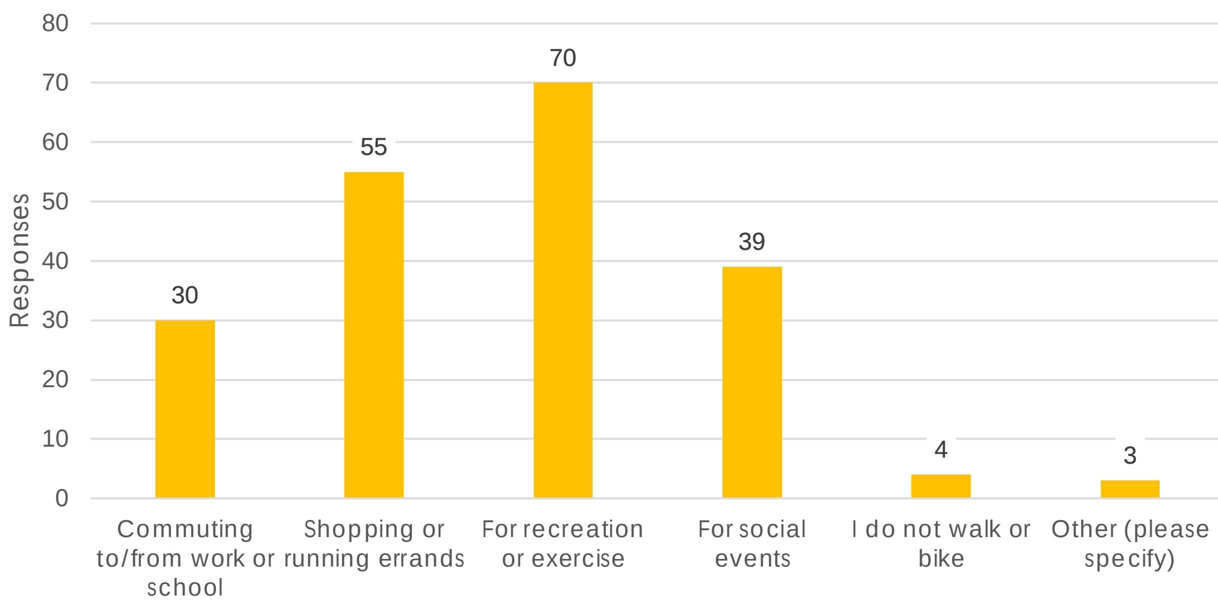
Chart 2 shows the travel modes used by respondents. Almost all respondents use a combination of vehicular and active transportation; they are able to provide insight on the needs for both vehicular and active travelers.

Chart 2: Respondents' Travel Modes



As shown in Chart 3, respondents walk and bike in McMinnville for a variety of trips, including recreation, shopping, commuting to work or school, and social events. The Concept Plan will provide facility recommendations that continue supporting recreational trips and active transportation access in the community.

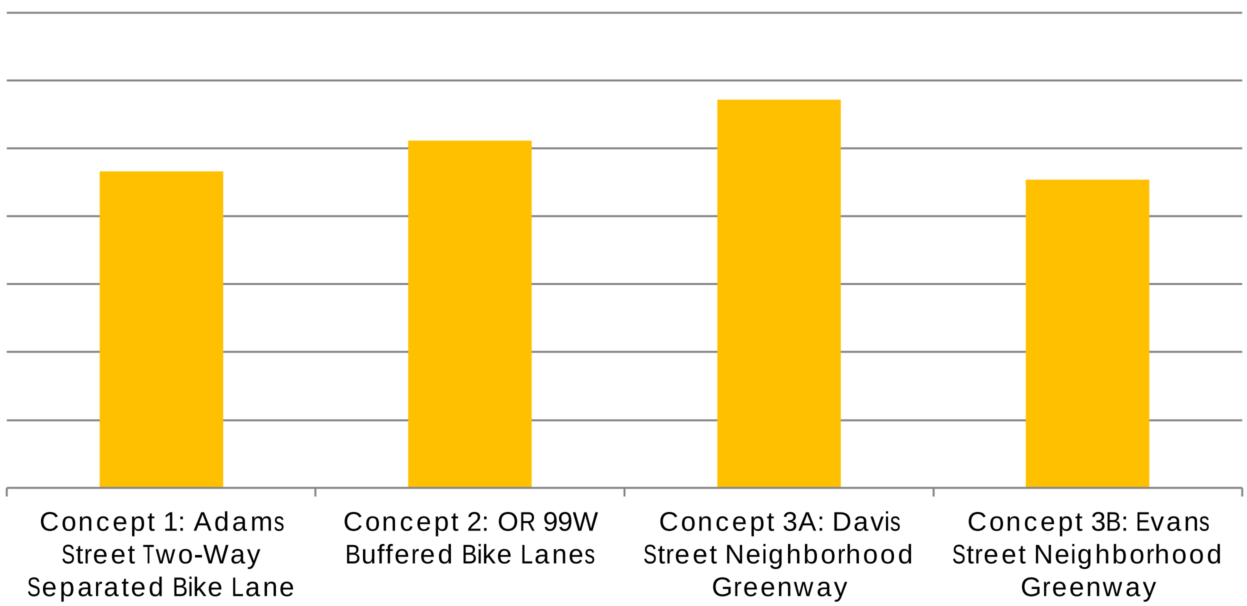
Chart 3: Purpose of Walking and Biking Trips



Concept Feedback

Survey respondents were asked to rank their preference on concepts. As shown in Chart 4, Concept 3A and Concept 2 were the most preferred options.

Chart 4: Concept Preference



Respondents provided the reason they support their top preference. These reasons are described below.

For people who prefer Concept 1, they think that it:

- Looks the safest and most accessible for people biking (due to separation),
- Would be the most used option,
- Provides more separation for pedestrians from traffic lanes, and
- Only impacts Adams Street (does not impact Baker Street).

For people who prefer Concept 2, they think that:

- It is the most intuitive and practical (due to directional flow),
- It has low maintenance requirements,
- It provides direct access to businesses on OR 99W, and
- People would continue biking on Baker Street even if there was a two-way facility on Adams Street.

For people who prefer Concept 3A, they think that:

- It is attractive and sensible (due to low traffic volumes and speeds);
- It supports children and beginner bikers;

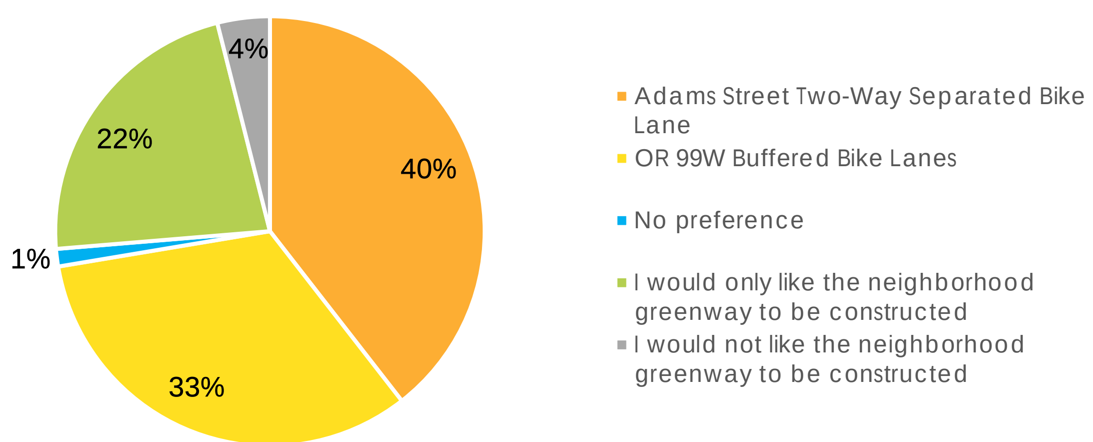
- It is already used as a parallel route today;
- There is no advantage to making OR 99W more bike friendly because there is no need to use it in town; and,
- Options on OR 99W would increase congestion.

For people who prefer Concept 3B; they think that:

- There is less traffic along Evans Street than OR 99W;
- Evans Street is already a high-use bicycling area; and
- It provides clear access to McMinnville High School.

Respondents provided their top preference for facilities along OR 99W, assuming that the neighborhood greenway is also constructed. As shown in Chart 5, respondents are supportive of constructing facilities along OR 99W in addition to neighborhood greenway facilities. Slightly more respondents preferred constructing the Adams Street Two-Way Separated Bike Lane Concept *in addition to the neighborhood greenway* (40%) to the constructing OR 99W Buffered Bike Lanes Concept *in addition to the neighborhood greenway* (33%). The primary reason for this preference was due to the presence of vertical separation from traffic. Based on the input above, and the overall preference for OR 99W Buffered Bike Lanes (as shown in Chart 4), recommendations to add future vertical separation to the buffered bike lanes will likely make the OR 99W Buffered Bike Lanes Concept the preferred option.

Chart 5: Top Preference for OR 99W Facilities (In Addition to Neighborhood Greenway)

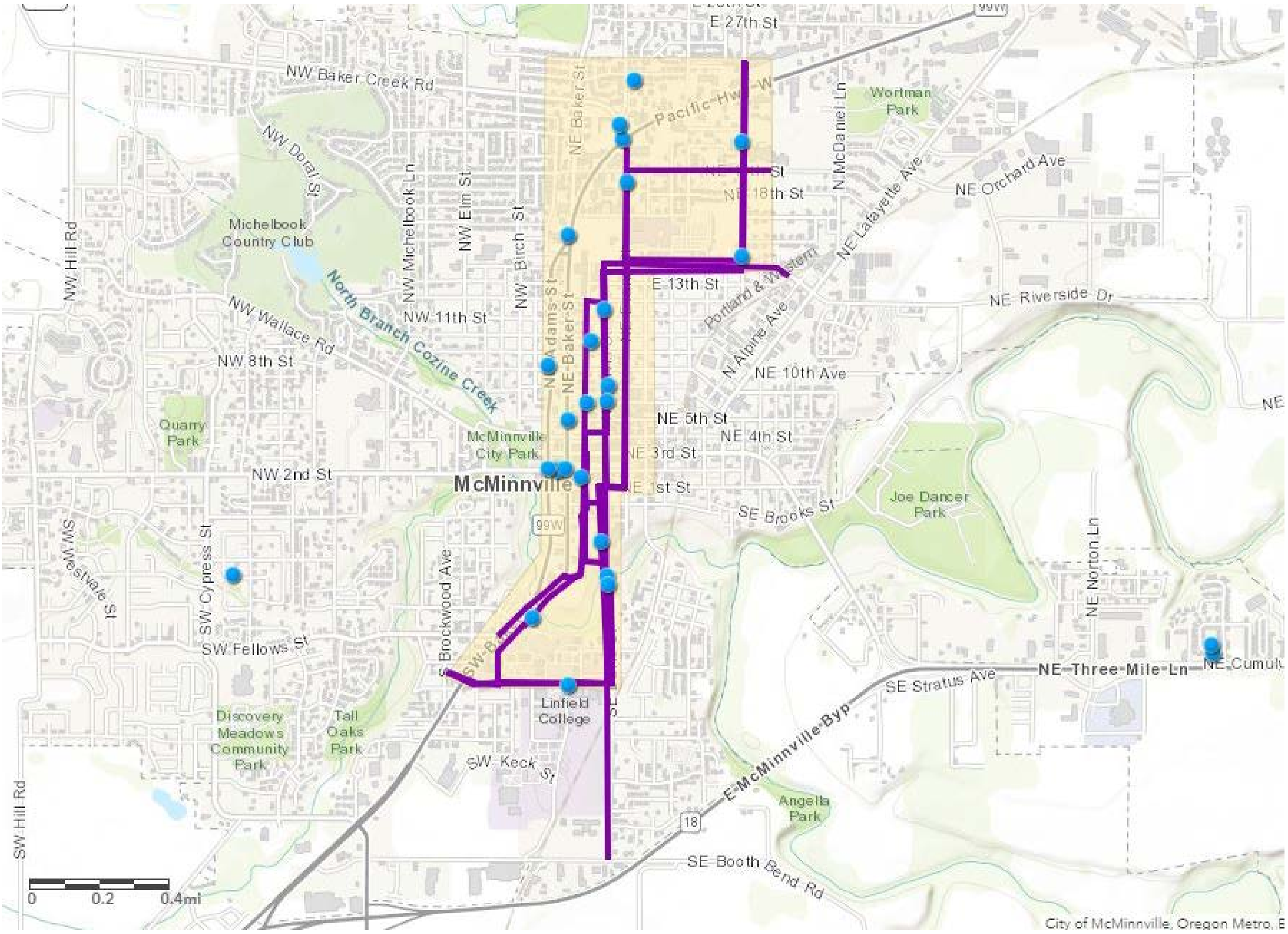


Virtual open house participants were able to draw their preferred neighborhood greenway alignment. As shown in Figure 1, there are a variety of recommended routes:

- Linfield Avenue and Cowls Street were both identified as southern connections to OR 99W;
- Cowls Street, Davis Street, and Evans Street were all identified as preferred locations for the alignment; and

- 14th Street and 19th Street were both identified as northern connections to OR 99W.

Figure 1: Neighborhood Greenway Alignment Recommendations



Respondents provided a variety of "other ideas" for projects to make walking, biking, and rolling in the study area more enjoyable. These ideas include the following:

- Provide stronger buffers (e.g., concrete curbs or planters),
- Add sitting benches,
- Add a bike share program, and
- Provide connections to and along Lafayette Avenue, 3rd Street, 4th Street, 5th Street, Birch Street, and Alder Street.

No participants identified a concern with removing parking along the west side of Adams Street.

Influence on Concept Plan Recommendations

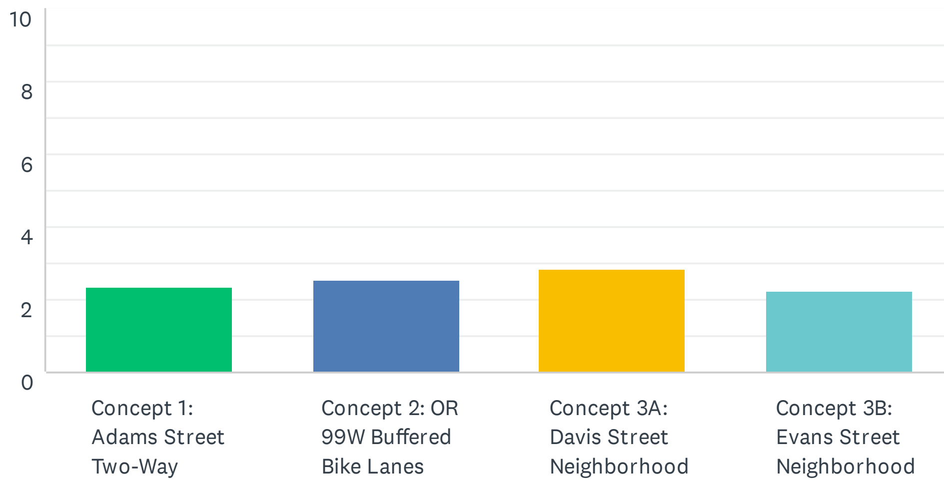
Public input confirms the recommendation to provide both a low-stress neighborhood greenway route and facilities directly on OR 99W. The following modifications to the preferred concept will be made in the Concept Plan based on public input:

- Near-term and long-term recommendations for adding physical separation to Concept 2 will be included in the Concept Plan, where possible.
- Additional traffic calming recommendations will be included with Concept 3A, particularly along Davis Street between Linfield Avenue and 1^{st} Street.
- Concept 3A's northern connection to OR 99W will be modified from 17^{th} Street/18^{th} Street to 19^{th} Street.
- The Concept Plan will provide recommendations for potential low-stress connections to these concepts that could provide a low-stress walking, biking, and rolling network in McMinnville.

Appendix A Survey Responses

Q1 Please rank your preference of the concepts from highest preference (1) to lowest preference (4).

Answered: 74 Skipped: 2



	1	2	3	4	TOTAL	SCORE
Concept 1: Adams Street Two-Way Separated Bike Lane	26.03% 19	16.44% 12	21.92% 16	35.62% 26	73	2.33
Concept 2: OR 99W Buffered Bike Lanes	26.39% 19	29.17% 21	18.06% 13	26.39% 19	72	2.56
Concept 3A: Davis Street Neighborhood Greenway	37.84% 28	25.68% 19	21.62% 16	14.86% 11	74	2.86
Concept 3B: Evans Street Neighborhood Greenway	10.81% 8	28.38% 21	37.84% 28	22.97% 17	74	2.27

Q2 For the concept you ranked as your highest preference, why is it your preferred concept?

Answered: 72 Skipped: 4

#	RESPONSES	DATE
1	It highlights alternative transportation to cars. We’ve got to get people out of their vehicles and seeing folks on bikes will give the visibility and prominence that alternative transport deserves.	3/11/2021 10:01 PM
2	Keeps bikes off 99W and leaves Evans Street as accessible to cars.	3/11/2021 8:05 PM
3	Safer	3/11/2021 8:04 PM
4	I personally find HWY 99 to be loud and busy, even if there was a safe way to bike it, and would prefer to be in neighborhoods.	3/11/2021 8:29 AM
5	It provides the best separation for cyclists.	3/10/2021 9:40 AM
6	I like the way it looks, bikes are going the same direction as cars in a lane of their own, it won't narrow the drive lanes like the Two-Way Separated Bike Lanes will	3/9/2021 4:47 PM
7	Seems easiest to implement.	3/9/2021 10:25 AM
8	it feels adequate, safe enough and less expensive than #1	3/9/2021 9:03 AM
9	between riding/walking on a busy street like 99 or a quieter greener one, I would prefer the greener.	3/8/2021 7:55 PM
10	It is the safest and it's also nice to pass by other bikers on their way, to build a culture of biking in this place where few bike. Culture shift relies on people feeling a part of a movement or group that matters.	3/8/2021 10:40 AM
11	Because it seems the safest and I think the most used.	3/8/2021 10:19 AM
12	It seems like the most community impact in a positive way and also the least amount of maintenance in the future for the city.	3/8/2021 9:32 AM
13	changes the 99w corrider and improves its safety instead of hoping you can change the behaviors of people. Seems the greenway alternative is just the best choice because it is the cheapest - which isn't a good basis if you are trying to keep people safe.	3/8/2021 8:05 AM
14	Evans is quiet and would work for multi purpose much better than other options, plus it goes straight into downtown.	3/7/2021 7:25 PM
15	Davis would be a safe low traffic route through town. I already use much of Davis when I bike through town.	3/7/2021 3:27 PM
16	99W is becoming more of a thorough fair every year and the more we adapt to climate change as a community we have to be adapting infrastructure to support changes in transportation options. The more commuters that can safely travel in the major thoroughfare in town the closer we can get to a carbon neutral city.	3/7/2021 1:44 PM
17	Access to businesses on 99w via bicycle	3/7/2021 11:36 AM
18	Slower traffic, more enjoyable to bike through neighborhoods than on highways.	3/7/2021 11:35 AM
19	Less/slower car traffic, fewer/no big trucks, more scenic/quieter than Hwy 99	3/7/2021 11:30 AM
20	Best all around chance for bike commuting in McMinnville. Safest route by far. Doesn't require impact on both Baker and Adams since it is double lane on one road.	3/7/2021 10:45 AM
21	Easy division of road space along the main route.	3/5/2021 7:00 PM
22	Longest straight run.	3/5/2021 5:57 PM
23	Feels more dedicated and safer than a buffered lane.	3/5/2021 2:40 PM
24	I'm concerned that changes to the parts of 99W could worsen traffic. I'd rather see safer routes through neighborhoods.	3/5/2021 12:40 PM
25	Seems safer to get bike traffic off the Main Street.	3/5/2021 9:42 AM
26	I like a greenway	3/5/2021 9:33 AM
27	The first one is out as I do not like reduced lane widths. I believe the walkers/bikers should be away from the highway.	3/5/2021 9:06 AM

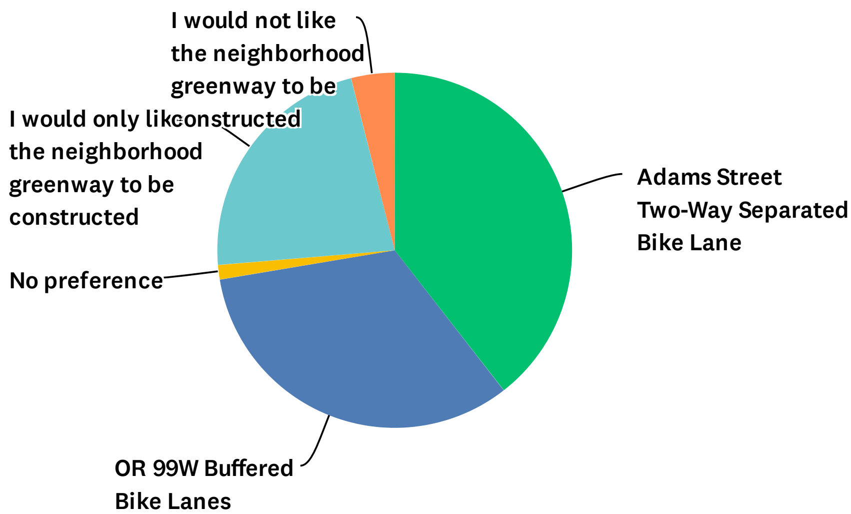
28	Davis Street is a perfect North South connector. It is off of buys roads and connects Linfiled and Sue Buel Elementary, the High School and shopping + services near and around 99w.	3/5/2021 8:53 AM
29	Good for children & beginning bikers	3/5/2021 8:28 AM
30	All of these ideas dont make sense. The only people that ride bikes are the homeless and they dont follow the laws anyway.	3/5/2021 8:04 AM
31	With proper design and cooperation of the neighborhoods I think it would work best for the entire cycling community, families and timid bikers	3/4/2021 7:55 PM
32	Least busy with traffic of the 4 options.	3/4/2021 4:29 PM
33	SE Davis is already a popular option for walkers and cyclist who want to avoid 99W. Limiting motor vehicles to the local residents would make it a popular and safe choice for families and small groups of students riding from Linfield. It also stretches from Booth Bend Rd all the way to NE 14th St. There could be two sections separated by the blocks from SE 1st to NW 4th streets.	3/4/2021 2:04 PM
34	Appears to be the safest option for the most highly used pedestrian/cyclist areas.	3/4/2021 12:59 PM
35	Because there are actual barriers that indicate for bikers only. There are no parked cars along the bike area that can pull in or out with no warning. I think bikers feel safer that way.	3/4/2021 12:47 PM
36	1. Low traffic north of downtown. 2. Traffic light at 3rd St. for safety in crossing 3rd. 3. Davis goes all the way to Linfield and Booth Bend Rd. Negative: Crossing 2nd and 1st.	3/4/2021 7:37 AM
37	In my opinion there is no advantage to making 99W more bike-friendly, it will never be. I am an active, experienced cyclist with 25 years in McMinnville and I NEVER use 99 in town. One does not need to.	3/3/2021 5:29 PM
38	Keeps bicycles on one side of the street, painted markings are very visible and defined.	3/3/2021 4:29 PM
39	Walking, w/chair, or biking would be much quieter on this street, more scenic, and it seems safer to me.	3/3/2021 4:13 PM
40	With the amount of traffic I don't think any feasible improvements to 99W/Adams would do enough to truly increase bike or pedestrian traffic. The Greenway idea provides a space with shade in the summer and less right and left turns from vehicle traffic. This option would be safer and see a lot more use from walkers/runners/cyclists.	3/3/2021 3:43 PM
41	I'm not sure any level of design along Baker or Adams will make me feel safe as a bicyclist. The amount of commercial traffic (such as semi tractor-trailers and agricultural equipment) is so high so consistently. Evans Street is already a relatively high-use bicycling area where drivers may already be more aware to be on the lookout for non-drivers using the right-of-way. The Evans Street route is also adjacent to the high school, athletic areas, and the closest grocery store (Grocery Outlet) for many who live in that residential area. It also provides access to Rite-Aid, as well as an apartment complex. I bike this route for work as often as the weather permits, and I think having it enhanced would be a great way to go. Invest the time and effort in an area that is already being utilized, don't pursue something on Adams and Baker that will need lots of convincing. By enhancing Evans Street, people will feel more encouraged to join other walkers/bikers/rollers who already utilize it, I can't imagine that as many people would opt in to bike on Adams and Baker vs. Evans even if Adams and Baker were enhanced instead.	3/3/2021 1:46 PM
42	1 appears to be the safest.	3/3/2021 1:10 PM
43	Best for bikers	3/3/2021 8:04 AM
44	A davis greenway is the most attractive and sensible option for the existing city design.	3/2/2021 10:38 PM
45	Because it separates non motorized traffic from cars. I feel it’s safer for both groups of users and more enjoyable for all. Evans street is even too busy of a car street to have significant use by active transport users.	3/2/2021 9:48 PM
46	Steers bicycles off of busy roads, often used by non-residents who may not be use to the bike lanes. Moving to quieter residential streets would be better for cyclists and motorists.	3/2/2021 6:39 PM
47	Hwy 99 is already too congested, and the congestion will increase over time. Adding pedestrian/bike lanes to Adams and or Baker would exacerbate the situation.	3/2/2021 5:59 PM

48	Biking along 99, even with buffered lanes, is scary. Especially for kids.	3/2/2021 5:25 PM
49	avoid 99/47/18. truckers need it	3/2/2021 4:56 PM
50	Under Concept 2 bike traffic moves in same direction as motor traffic, making merges easier and safer and more consistent with normal traffic patterns. The painted buffer strips help maintain separation from motor traffic.	3/1/2021 11:16 PM
51	Like neighborhood greenway instead of cyclists along 99W. Davis is best street for this, since Evans is already used by many cars as a secondary road to reach downtown, avoiding traffic on 99W.	3/1/2021 4:25 PM
52	More space for bikes and well marked for vehicles	3/1/2021 1:31 PM
53	There are bike highways (two-way bike lanes) in Hillsboro that work wonderfully in separating car and bike traffic. Cornelius Pass Road in Hillsboro has a great example between Cornell Road and 26.	3/1/2021 10:52 AM
54	I ride my bike as a mode of transportation. I prefer to not ride along high traffic roads to avoid exhaust, debris, and noise. I like the idea of having a dedicated neighborhood road for biking. Given the number of large trucks that travel on Hwy. 99, even with dedicated bike lanes it seems unsafe. Also, with the dedicated bike lanes on Hwy. 99, it seems like turning left through traffic would be difficult for bikes.	3/1/2021 8:53 AM
55	It seems to be the most convenient and likely to be used option. Adams is also in bad shape and also needs a lot of work, so this could facilitie that happening. And if freight could be encouraged to use Lafayette Hwy instead of Adams, that would be a benefit.	2/26/2021 8:28 PM
56	Does not involve narrowing lanes for vehicular traffic on 99	2/26/2021 6:52 PM
57	It seems like logistically it is easier to maintain than the 2-way separated lanes, but keeps bikes separate from cars.	2/26/2021 4:29 PM
58	Dedicated bicycle route keeps everyone safer.	2/26/2021 1:42 PM
59	Davis runs continuous from the high school south beyond the southern border of the project area, and offers a safer biking environment than anything that can be reasonably developed on Adams Street, with its continuously heavy traffic.	2/26/2021 1:28 PM
60	The buffered bike lane still allows parking along the side of the road while creating spacious sections for bikers and pedestrians.	2/26/2021 10:32 AM
61	Cost and don't want to deal with pedestrian and bike traffic at all.	2/26/2021 7:01 AM
62	Evans street is a clearer access to the high school and 3rd Street with less traffic. It is already wider than Davis which is more residential. Given the variety of traffic on 99 (log trucks, etc) losing lane width seems difficult and would still make me hesitant to ride a bike even with a designated lane.	2/25/2021 8:02 PM
63	It looks safest, and it looks like Portland.	2/25/2021 7:46 PM
64	Creating north/south bound access for bicycles on routes that are already established as north/south bound makes most sense to me; to create a 2-lane buffered zone for bikes isn't conducive to accessing all of the turn-offs from the highway that bicyclists may need without having to cross 2 lanes of highway traffic + 1 bike lane of traffic to make it so.	2/25/2021 7:10 PM
65	Stays away from trucks and traffic, slower speeds, no debris in the streets that can affect safety,	2/25/2021 6:40 PM
66	The idea of a safe and accessible bike lane is more of what Mcminnville needs	2/25/2021 6:17 PM
67	Davis has the most direct connection to Linfield, and has less traffic than Evans. The 2-way separated lane on Adams comes in last because of difficulties in keeping the road surface clean.	2/25/2021 2:51 PM
68	People are always biking along the highway, on both sides-- Adams and Baker. A two-way bike lane is not going to push all bike traffic there-- they will still be in a hazardous area on Baker. For everyone's safety, please make bike lanes on both Adams and Baker!	2/25/2021 2:40 PM
69	It seems the most practicial	2/25/2021 2:35 PM

70	A 2-way buffered lane would provide even more protection for pedestrians on the sidewalk, from noise, and proximity to cars.	2/25/2021 2:17 PM
71	Davis has less vehicular traffic and goes all the way to Linfield College. Evans has slightly more vehicular traffic but is a wonderful route from downtown to the high school and 99W.	2/25/2021 11:56 AM
72	it feels like it would be the safest for bike traffic	2/25/2021 11:42 AM

Q3 If a neighborhood greenway is constructed in addition to facilities along OR 99W, which facilities would you prefer to be constructed along OR 99W?

Answered: 76 Skipped: 0



ANSWER CHOICES	RESPONSES	
Adams Street Two-Way Separated Bike Lane	39.47%	30
OR 99W Buffered Bike Lanes	32.89%	25
No preference	1.32%	1
I would only like the neighborhood greenway to be constructed	22.37%	17
I would not like the neighborhood greenway to be constructed	3.95%	3
TOTAL		76

Q4 Do you have other ideas for walking or biking facilities along OR 99W that you prefer to the concepts outlined above? If so, please describe your recommendation in the comment box below.

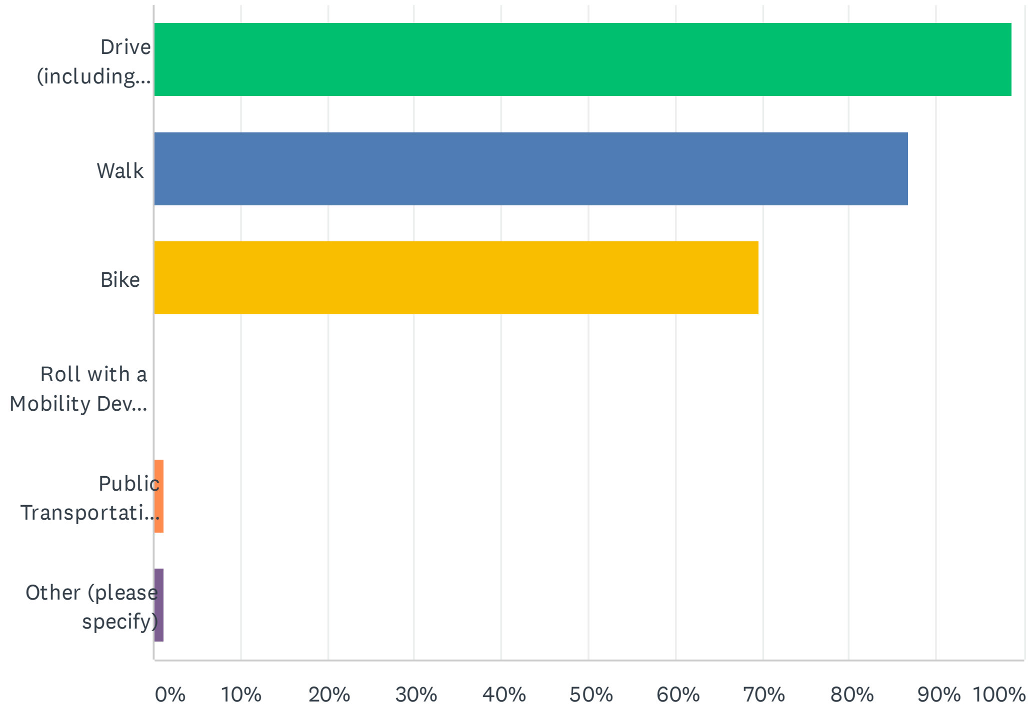
Answered: 41 Skipped: 35

#	RESPONSES	DATE
1	Nothing I can think of at this time.	3/9/2021 4:47 PM
2	A well-marked bike lane on the bridge that goes to the hospital and a well-marked bike lane on Lafayette would promote safer, easier biking. Closing 3rd Street to cars would, obviously, promote more biking and walking as well, but perhaps a well-marked biking option on 3rd,4th or 5th would also be helpful.	3/8/2021 10:40 AM
3	Yes! A bike-share such as CitiBike in NYC, where there are bikes that you can rent/pick up and leave at different locations!	3/8/2021 10:19 AM
4	no	3/8/2021 8:05 AM
5	Expanding Baker Creek out to Hill Road and out to Pevine. Also, a way for tourist to get from downtown on 2nd to Hill Road and out to side roads. More importantly current bike lanes need to be frequently cleaned. I get so many flats and it's hard to ride in existing infrastructure. Please keep bike lanes clean.	3/7/2021 7:25 PM
6	I would not choose to bicycle along Hwy 99W, even with additional bicycle lanes. There is too much traffic.	3/7/2021 3:27 PM
7	The idea shown in some of the images of a barrier between the bike lane and car lane seems very important for a narrow highway with many turns. As clear signage and distinction as possible!	3/7/2021 1:44 PM
8	Bicycle greenway through or parallel to downtown with easy connection to 99w project and sw 2nd avenue. Right now getting from Lafayette ave to sw 2nd bike lanes is unclear and unsafe.	3/7/2021 11:36 AM
9	Designated bike shoulders along the hills through upper and lower city park.	3/7/2021 11:35 AM
10	It might be safer to have a full size 3' concrete wall or highway divider instead of the low curb so that vehicles cannot jump the curb while texting, etc.	3/7/2021 10:45 AM
11	N/A	3/5/2021 7:00 PM
12	I don't think bike lanes should be put along Adams or Baker. Have you ridden along Hawthorn St., in Portland? As someone who drives a car along those streets, it is scary! Bikes "have the right of way" and give no consideration to what cars need to watch out for. Bikes need to be away from cars. and especially on Adams, the almost no stop merges from the side streets/Westside Rd will cause serious injuries and death.	3/5/2021 5:57 PM
13	Trash cans along sidewalks but make them environment friendly. Corvallis has lovely receptacles with plants on top which allows them to blend in but also be good for the environment.	3/5/2021 2:40 PM
14	I think some sort of flashing light or improved crosswalk at 99w and Third street is much needed. Those intersections connecting CIty Park, the Library, the Pool and more to the "core" of our City + County services, and main visitor destination are critical.	3/5/2021 8:53 AM
15	Electrical charging stations for e-bikes & mobility equipment.	3/5/2021 8:28 AM
16	Dont worry about it. Only the homeless ride bikes, and they dont follow the law.	3/5/2021 8:04 AM
17	As a pedestrian it makes more sense to move north/south via Cowls or Davis and at the southern end to cut through the Linfield campus.	3/4/2021 4:29 PM
18	none	3/4/2021 12:47 PM
19	Can you make crossing 99W (at intersections with traffic lights, like 19th St. or Fellows St. for instance) easier for cyclists regarding triggering the traffic light sensors by bicycles? That is, so cyclists do not have to get up on the sidewalk to push the pedestrian crossing button in order to get a green light for the cross street. Being at the sidewalk means the cyclist is in an awkward position, in conflict with auto traffic (which arrives after pushing the pedestrian button) making right turns from the cross street on to 99W.	3/4/2021 7:37 AM
20	At some point, the State, County and City need to address a cyclists or walkers need to reach county roads by traveling in or out of Mcminnville safely. All local cycling routes into or out of town are unsafe with the lone exception of Hill Road west towards Old Sheridan road or Peavine. 99 east towards Lafayette has a dangerously narrow and unsafe bridge. Ditto leaving	3/3/2021 5:29 PM

	town on 3rd to Three mile lane, a bad bridge and then hwy 18. Finally, you can't even consider using Westside road as it is very narrow and speeds are high, same with HWY 47 which has a fig leaf of a bike shoulder.	
21	Stop/Turn green areas at lights and intersections. Easy access to crosswalk signal buttons.	3/3/2021 4:29 PM
22	If possible along walkways, maybe a sitting bench every 4-6 blocks. This would help accommodate seniors and/or limited ability folks who may walk for groceries a place to rest. Options to dispose of trash, drink containers, etc. should be available every 4-6 blocks as well.	3/3/2021 4:13 PM
23	There would need to be more green space along 99W, from 17th to Lafayette especially. It just seems way too tight through there to make improvements that would actually make that space usable/safe.	3/3/2021 3:43 PM
24	Two way bike lane seperated by a curb for safety	3/2/2021 10:38 PM
25	4 way Car only stop signs at every block for cars. No stopping required for active transporters.	3/2/2021 9:48 PM
26	A walking path could be added without hurting car and truck traffic. There's only a limited area that doesn't have good walking access at this time, and that could be widened and paved without cutting into current traffic lanes. Bikes could be routed along Davis and/or Evans	3/2/2021 5:59 PM
27	ruts along pool and 12th are hard to cross and bikers swerve to avoid =danger	3/2/2021 4:56 PM
28	Needs "safe zones" for merging left-turning bicycle traffic at intersections.	3/1/2021 11:16 PM
29	For pedestrians, place buffer between sidewalk and street (strip of low landscaping or grass). Bike lane could also provide this buffer area.	3/1/2021 4:25 PM
30	Multi-use sidewalk plan (where the bike lanes end at sidewalk curbs and you use the sidewalk to ride your bike on).	3/1/2021 10:52 AM
31	There really needs to a stoplight crosswalk or at least a flashing light to cross Adams at 3rd. It's really dangerous and kids cross often	2/26/2021 8:28 PM
32	Are there ways to create separate bike lanes in the neighborhood greenways?	2/26/2021 4:29 PM
33	Add dedicated left hand turn signal at intersection of Hwy 99 and Baker Creek Road.	2/26/2021 1:42 PM
34	We need a continuous sidewalk along 99W !!!!!!!!!!!!! At present this is missing from SE Adams St.	2/26/2021 1:28 PM
35	It would be nice if you would concentrate on vehicular traffic not bikes and walkers!	2/26/2021 7:01 AM
36	More pedestrian friendly sidewalks. Additional lighting and safety features along with look/feel of McMinnville/3rd St vs. current rundown feel that is less inviting. A better crosswalk from the High School across Baker and Adams. Potentially a light there or some way for people to more easily and safely cross.	2/25/2021 8:02 PM
37	No parking on Baker Street on the side where the bike lane would be--too easy to be hit by a car door or a car pulling in/out of parking space.	2/25/2021 6:40 PM
38	I don't have any other ideas:)	2/25/2021 6:17 PM
39	no	2/25/2021 2:35 PM
40	I think any options for providing additional buffers to the sidewalks and bike lanes is helpful and useful. Planter boxes, textured bumps if it's a buffered bike lane, signage - it is not a pedestrian or bike friendly road.	2/25/2021 2:17 PM
41	I would sincerely love to see our community more connected by trails of all kinds. My kids love to ride their bikes, and knowing they have safe ped/bike routes through the neighborhoods and to major points of interest is exciting as a community member.	2/25/2021 11:56 AM

Q5 What type of transportation do you currently use in McMinnville? Select all that apply.

Answered: 76   Skipped: 0

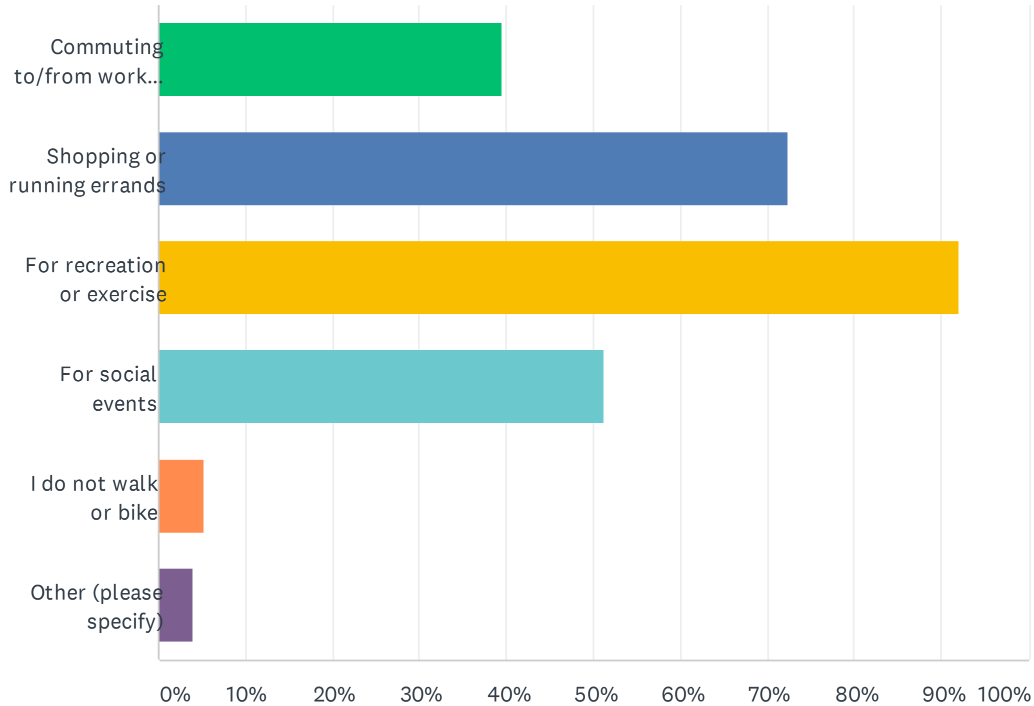


ANSWER CHOICES	RESPONSES	
Drive (including motorcycle)	98.68%	75
Walk	86.84%	66
Bike	69.74%	53
Roll with a Mobility Device (such as a wheelchair)	0.00%	0
Public Transportation (e.g. bus)	1.32%	1
Other (please specify)	1.32%	1
Total Respondents: 76		

#	OTHER (PLEASE SPECIFY)	DATE
1	run, run with stroller, bike with child	3/8/2021 8:06 AM

Q6 If you walk or bike in McMinnville, what are the purpose of your trips? Select all that apply.

Answered: 76 Skipped: 0

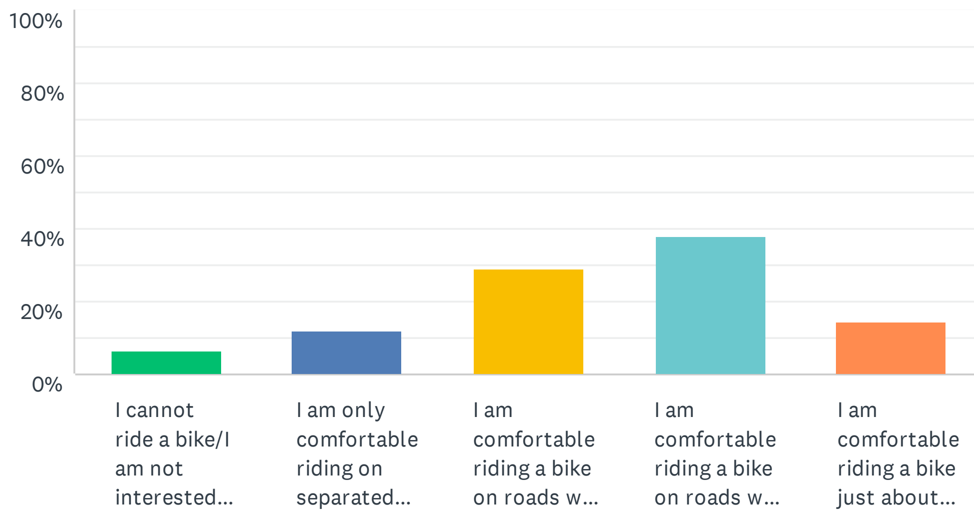


ANSWER CHOICES	RESPONSES	
Commuting to/from work or school	39.47%	30
Shopping or running errands	72.37%	55
For recreation or exercise	92.11%	70
For social events	51.32%	39
I do not walk or bike	5.26%	4
Other (please specify)	3.95%	3
Total Respondents: 76		

#	OTHER (PLEASE SPECIFY)	DATE
1	Exercise	2/26/2021 6:53 PM
2	Accessing public facilities, govt. offices, and churches.	2/26/2021 1:37 PM
3	to get to outlying areas for cycling--like to Amity, Dayton, Newberg, Sheridan and Lincoln City	2/25/2021 6:46 PM

Q7 How would you characterize your biking ability?

Answered: 76 Skipped: 0



ANSWER CHOICES	RESPONSES	
I cannot ride a bike/I am not interested in biking	6.58%	5
I am only comfortable riding on separated paths away from traffic (e.g. Westside Bicycle/Pedestrian Greenway)	11.84%	9
I am comfortable riding a bike on roads with little traffic (e.g. quiet neighborhood streets)	28.95%	22
I am comfortable riding a bike on roads with higher traffic volumes and speeds, as long as there is a bike lane (e.g. Evans Street)	38.16%	29
I am comfortable riding a bike just about anywhere (e.g. with traffic along OR 99W)	14.47%	11
TOTAL		76

Q8 Is there anything else you would like to share with us about these concepts or about walking, biking, rolling, or taking transit in the study area?

Answered: 42   Skipped: 34

#	RESPONSES	DATE
1	Yes; we are raising our children to be independent and responsible, including instilling the value of trusting their own abilities and capabilities. Unfortunately there are few protections for bikers in town: the 2nd Street bike lane disappears in between two busy lanes just as you approach Adam's heading east, and then the bike stencils continue up 2nd smack in the middle of the road. All kids and adults should be made to feel safe on our streets. The reroute of traffic to 5th Street with the inclusion of street lights has pushed more traffic onto 1st and 2nd Street making it at times dangerous when trying to head south of downtown. There needs to be lined crosswalks and 4 way stops.	3/11/2021 10:06 PM
2	Talking about concept 2 here: if bike lanes are constructed on 99W, I strongly feel that enforcement of proper use should be a priority, not sure the best way to do that but it needs to be a consideration. Is a car allowed to drive the wrong way on a one-way street? Not without consequences, and the same should be for a bicyclist. I am reasonably sure, for example, that people will try to use the bike lane on Adams to go north if deemed "more convenient" or faster to get where they want to be.	3/9/2021 4:57 PM
3	I feel it's not necessary to spend 400,000 and that the greenway is the best option.	3/8/2021 7:57 PM
4	We need more bike lanes in McMinnville! And more public transportation! I am super excited about this project!	3/8/2021 10:20 AM
5	please consider bikes with children	3/8/2021 8:06 AM
6	Really the most important thing for me is maintenance. We can put in all the bike lanes in the world but if they are full of gravel and other debris then people are not going to use them. That is the only thing keeping me from riding to work at the moment. However, I have also notice bike paths getting messy even mid summer. Thank you for all your work on this.	3/7/2021 7:29 PM
7	Would appreciate the enhanced bike designated pathways as I bicycle or walk whenever the weather allows. Many times I can reach my destination faster and more comfortably than driving. These designated pathways will encourage more bicycling and help reduce automobile traffic. I would leave 99W for the cars.	3/7/2021 3:34 PM
8	As much information as possible at various locations would be helpful so folks know what is happening and why. Also to ensure proper use of facilities and infrastructure.	3/7/2021 1:46 PM
9	I am comfortable riding anywhere by myself, but riding with my kids is very uncomfortable in most places including higher speed roads like 99w and Lafayette ave or downtown where they can't be on sidewalks. That is where most all shops and restaurants are. So we find ourselves walking bikes downtown and riding on sidewalks elswhere.	3/7/2021 11:40 AM
10	While currently only in an exploratory phase, I would like to see decisions about this plan tied in to the potential of a new community/recreation center next to Albertsons. Creating the safest possible route for families and children to access these facilities should be a top priority. I personally would not want my children biking along Hwy 99.	3/7/2021 11:34 AM
11	I think it would be wise to also consider a reduction in speed along 99W for the entire length of any section that will gain bike path/route protection. 25 mph or 30 mph tops. It is common to see vehicles driving at 40-45 mph (in 35 mph zones) which is quite dangerous for walking/biking.	3/7/2021 10:49 AM
12	With all of the new housing that will come online in Mac, I agree that recreational bike lanes will be needed. I'd also bet that only a minute percent of those that decide to live in Mac will actually bike to work. Sorry, but Mac isn't an urban city where biking (like in Portalnd) will catch on all that much. Surely not enough to make mess up traveling on Adams, Baker, and 99W worth the investment. 99W is how many MANY drivers get from point A, to point B: Portland/Metro to the coast. If you want to make a nice road for bikes to travel on, widen Westside Rd. and put in a lane that connects Mac to Carlton and Yamhill. Since the ladies on the commission nixed the trail project, there is still a need to have a FUN place to ride. (Mac, along 99W, would never be a fun destination place to ride.)	3/5/2021 6:06 PM
13	With regards to walking. Many of McMinnville's sidewalks in downtown areas are from an older era and are in varied shapes of disrepair. I walk a lot during the winter when it's raining or has recently rained. These are slippery and can be dangerous. Addressing them would be helpful as part of a transportation plan.	3/5/2021 12:43 PM
14	It would be great if it could link with Recreational bicycle ride through the countryside. This	3/5/2021 9:44 AM

	could be a great tourist draw.	
15	Greenway needs to be well signed for both bikes & cars.	3/5/2021 8:31 AM
16	Dont waste the time or money.	3/5/2021 8:05 AM
17	It only crosses the study area, but the Cozine Creek Greenway in the City's Parks Plan that was never implemented would be a useful way to talk through part of this area without dealing with cars.	3/4/2021 4:32 PM
18	There is a real lack of adherence to bicycle etiquette and rules among riders (especially young people). I'm surprised by how many cyclists ride on the wrong side of the road and without helmets. When I was young, we used to participate in annual bike safety fairs, where we went through the basics of safe riding, registered our bikes, and received a certificate for our participation. All of the kids I knew took part in it. It was free and was held in the parking lot of the local school. It would be nice if we want to encourage ridership, that we ensure that our riders know the rules of the road.	3/4/2021 2:12 PM
19	I would love to cycle to work (coming from Carlton into McMinnville) but there aren't many safe places to enter the highway/road ways, especially in busy and high traffic areas.	3/4/2021 1:02 PM
20	I see many bikers on sidewalks even when there are bike lanes or it a slow moving residential area. That indicates to me they do not feel safe. However, by being on the sidewalks they present a safety hazard for themselves, pedestrians and for cars pulling out of driveways or sidestreets.	3/4/2021 12:50 PM
21	I bike about 30 miles per week in McMinnville. When I answered that I was comfortable riding 99W as is (above), I do it, but I would prefer one of the options being discussed. I often use Davis St. from NW 12th St. to Booth Bend Rd. I also often cross 99W at traffic signaled intersections throughout the study area. My favorite crossing is on NW 12th because the signal does not require activation of buried sensors to change. My least favorite are the signals in the Linfield area. I am 78 years old.	3/4/2021 7:47 AM
22	Mcminnville and it's environs is a great place to ride but getting into and out of town safely is hard. Mcminnville seems to have the right idea in planning to make local cycling safer and it will need to cooperation of ODOT and Yamhill county to really make the area a more attractive cycling venue by making access to county roads more safe and crossing state highways 99W and 18 easier.	3/3/2021 5:33 PM
23	These are all good and improvements are needed. 99w will only have more traffic and more people will be riding bicycles especially after COVID. Safe riding and walking should be first priority.	3/3/2021 4:35 PM
24	This will be a great improvement for McMinnville whichever option is chosen.	3/3/2021 4:15 PM
25	With high traffic areas it becomes more important to keep the bike lane swept. Along 99W this is a major issue for folks who want to ride their bikes. Even if there is a little separation for the bike lane the road grit and gravel make it into the lane, increasing hazards for cyclists	3/3/2021 3:46 PM
26	I'm really concerned about the separated bike lane. The concept description warns that it would be difficult to maintain and sweep. It doesn't take much to pop a tire. How can it be kept clear of debris and items that could puncture tires?	3/3/2021 1:50 PM
27	A Davis st greenway would attract significant amount of bikers who currently feel unsafe to ride. It would also be attractive to tourists.	3/2/2021 10:40 PM
28	This is a great idea! Parking along the 99 couplet as well as large cross traffic makes bike lane concept hard to me. Green way seems to mimic the natural traffic pattern. I frequently use Evans as my main north south road when driving, but I always chose to walk or bike down Davis or cowls. It’s also nice that Davis has a stop light to cross 3rd street.	3/2/2021 9:51 PM
29	not at this time	3/2/2021 6:02 PM
30	McMinnville could increase the desirability of its downtown core even more by making the area more accessible (and safer) for biking and walking. I know people complain about parking, but biking and walking are the future. Let's invest money there.	3/2/2021 5:26 PM
31	hopefully, this will be greater than the 70s bike signs added. Is gas tax money to be used?	3/2/2021 4:58 PM
32	Avoid using bi-directional bike lanes! They increase risks of bike-to-bike collisions and	3/1/2021 11:34 PM

	motorists face adjacent oncoming bike traffic on the "wrong" side of the street. Physical separators like curbing tends to get broken up by wayward vehicles and can trip a distracted bicyclist into oncoming traffic. A curbed separator was tried on Farmington Road in the 1970's and eventually had to be taken out because of the hazards. They would be a safety and maintenance nightmare.	
33	For kids and teens what are the routes that would be the most convenient and safest?	2/26/2021 4:30 PM
34	Thank you for the opportunity for citizen input!	2/26/2021 1:43 PM
35	I have had several dangerous incidents while walking and attempting to cross Adams Street from the NW corner with Second St. Vehicles traveling south on Adams Street that are approaching or stopped at a yellow red light and want to turn right (west) on Second Street oftentimes threaten walkers who legally enter the crosswalk there.	2/26/2021 1:37 PM
36	Please make this more public,not just a little side ad in the online News Register! Traffic is horrible now and very few people walk or use bikes! Everyone has to know this before you start getting excited about changing everything!	2/26/2021 7:05 AM
37	As cyclists-- road conditions like pot holes, bumps, debris are important considerations for any proposed bike route. Also important for routes to get to shopping areas, recreational areas and to outer areas	2/25/2021 6:46 PM
38	Keep in mind accessibility for those who are disabled and people who use these modes of transportation a lot but don't have the means to fill out a survey like this.	2/25/2021 6:19 PM
39	I believe that education and enforcement are important components to integrating cycling into the transportation model. Enforcement in particular is lacking -- too many cyclist flaunt laws, anger/ endanger motorists and pedestrians, and suffer no legal consequences for doing so. This creates a hostile environment for all cyclists.	2/25/2021 2:54 PM
40	I am very excited for all bike improvements along hwy 99. If crosswalk signals are in consideration, I highly recommend ones at 8th and Adams and Baker.	2/25/2021 2:45 PM
41	I think if the crossing signals could allow for "head start" for pedestrians, it would be safer at the major signals (at Albertson's/Roth, and Linfield) Drivers do not expect pedestrians crossing OR99	2/25/2021 2:19 PM
42	I enthusiastically support the creation of more trails and routes connecting our community for peds and bikes! Thank you!	2/25/2021 11:58 AM

Appendix B Public Open House Meeting Notes

LIVESTREAMED VIRTUAL MEETING

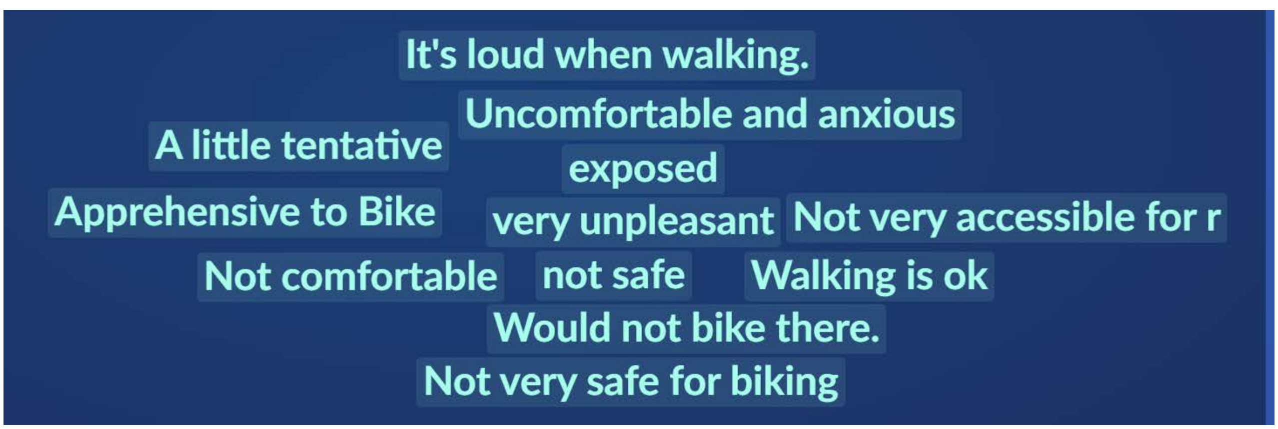
A livestreamed virtual meeting was held on Thursday, March 4 from 6:30 to 8:00 PM. This meeting was attended by 17 people: Jenna Berman, Larry Sherwood, Heather Richards, Marc Butorac, Nick Gross, Amy Griffiths, Galen McBee, Barb Jones, Katherine Martin, Mark Davis, Karen Willard, Jamie Fleckenstein, Bill Wilson, Kathy McBee, Bonnie Laux, Peter Higbee and Roger Hall.

The group was asked how many times they walked, biked, or rolled along the OR 99W couplet in McMinnville this past year. Figure 2 shows a word cloud of the responses.

Figure 2: Participants' Walking, Biking, and Rolling Frequency along OR 99W

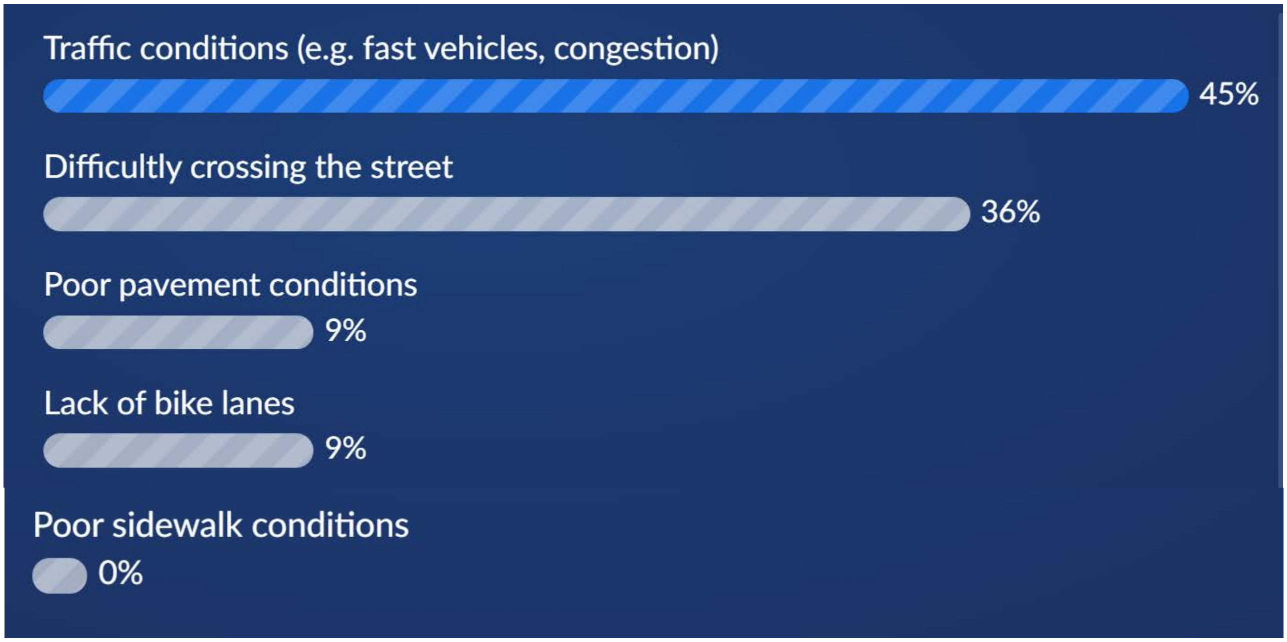
Participants were also asked how they currently feel walking, biking, and/or rolling along the Adams Street/Baker Street Couplet. Figure 3 shows a word cloud of the responses. Participants feel uncomfortable, apprehensive, and unsafe walking, biking, and rolling along the couplet today.

Figure 3: How Participants Feel Walking, Biking, and Rolling along the Couplet



Participants were asked what the greatest barriers are to walking, biking, and/or rolling in the study area. As shown in Figure 4, almost half of participants selected traffic conditions as the greatest barrier to walking, biking, and/or rolling in the study area.

Figure 4: Barriers to Walking, Biking, and Rolling in the Study Area



The group discussed the three preliminary concepts to address the need for safer, more comfortable walking, biking, and rolling facilities in McMinnville. The following items were brought up by the participants:

- A participant stated that they felt that Concept 1 seems to work very well. Another participant expressed concerns about maintenance and sweeping the two-way separated bike lane. Special equipment would be needed to sweep the bike lanes under Concept 1 due to the constrained width and vertical separation.
- A participant mentioned that that the little bit of extra space associated with a buffer on Concept 2 makes it more comfortable. Another participant asked if vertical separation can be added to Concept 2 as a future phase of work. The project team mentioned that the Concept Plan could include long-term recommendations for vertical separation.
- A participant asked about the cost of adding traffic diverters to Concept 3. The project team mentioned that the cost of diverters can range from about $7,000 to $25,000 per intersection depending on needs.
- A participant mentioned that Davis Street from Linfield Avenue to 1st Street is very busy and has lots of parked cars. If Concept 3A moves forward based on public input, the project team will consider traffic calming features like speed humps and chicanes to slow traffic in this segment.
- A participant highlighted the importance of the enhanced crossing at Baker Street / Cowls Street because they feel it is “very dangerous” to cross there now.

The participants expressed support for this project’s efforts to create safe, comfortable, and accessible active transportation facilities.

Meeting Notes

McMinnville OR 99W (NE McDonald Road to Linfield Avenue) Active Transportation Concept Plan

PAC Meeting #1

Thursday, December 10 | 3:00 – 5:00 PM

Attendance:

- Kittelson & Associates, Inc.: Marc Butorac, Nick Gross, Amy Griffiths
- Oregon Department of Transportation: Jenna Berman, Daniel Fricke
- The City of McMinnville: Larry Sherwood, Heather Richards
- Barb Jones, Accessibility Advocate
- Cyrus Scarboro-Ford, McMinnville High School Student
- Chuck Hillestad, Former Planning Commissioner, Board of Yamhill County Historic Society
- Dave Rucklos, Director of McMinnville Downtown Association
- Jack Crabtree, McMinnville School District
- Jamie Fleckenstein, McMinnville Planning Department and cyclist
- Cole Mullis, ODOT District Manager
- Peter Higbee, Bicyclist Community
- Steve Macartney, Public Safety
- Zach Geary, McMinnville City Council

1. Action Items

    a. PAC to complete Concept Development Workshop Homework and share completed homework with Amy Griffiths. – **Due December 17**

    b. PAC to review background documents and provide comments to Amy Griffiths. – **Due December 17**

2. Kittelson provided a review of background documents, including the Corridor Vision, TM #1: Performance Based Design Decision Framework, TM #2: Plans and Policy Review, Evaluation Criteria and Performance Measures, and TM #3: Analysis Methodology and Assumptions. Kittelson provided the following clarifications based on questions from the PAC:

    a. This project is planning to provide facilities while maintaining existing curb-to-curb width and will not require right-of-way acquisition.

    b. For considering crash history, people using motorized scooters and/or wheelchairs are coded as pedestrians.

3. Kittelson reviewed TM #4: Existing Conditions and Future Needs and the PAC provided input based on their firsthand knowledge of the corridor.

   a. Steve mentioned that he hopes for this project to be included in a STIP-funded multi-modal project.

   b. Steve commented that this plan has to be part of a greater program that looks at intersections, traffic calming, speeds. This exercise is part of a greater thing that needs to occur on OR 99W. Multiple intersections on the corridor are broken. He also mentioned that there are long crossing distances and crossings that do not intersect perpendicularly, which is challenging for people crossing the street.

   c. Chuck mentioned that he finds it unlikely that a bicyclist would use OR 99W (including the couplet) by preference unless they were unaware of alternate routes. Jenna mentioned that she observed more bicyclists along the couplet than expected when she was conducting the parking inventory.

   d. Peter mentioned that even where there are bike lanes, they are too dirty to ride in. Jenna mentioned that maintenance is important to this project, and that Cole Mullis is on the PAC to provide a maintenance perspective for this project.

   e. Jenna mentioned that ODOT will be bringing all of the ADA ramps into compliance as a result of a lawsuit, so there will be a ramp project along the corridor. Larry mentioned that we need to focus on improving driveway cross slopes and ADA ramps to improve pedestrian access. Jamie asked if bulb-outs/curb extensions are included in ADA work. Jenna clarified that they can be, and that the team is looking to the PAC to determine where they consider the extensions to be valuable. Jamie asked how curb extensions would work with dedicated bike lanes on OR 99W. Jenna mentioned that the extensions may only occur on one side. Peter mentioned that the curb extensions can force people biking into the vehicle traffic lane. Cyrus mentioned that the bike lanes could pop up onto the sidewalk to limit bike-driver contact. This would be fleshed out in the alternatives development.

   f. Chuck mentioned that data suggests that there will be in increase in the people who need motorized scooters and wheelchairs.

   g. Heather mentioned that she sees a lot of people in wheelchairs or scooters in the street. They did a survey and found that the concrete joints made an uncomfortable ride and it was unpleasant to make all the ups and downs for driveways and ramps. Jaime mentioned that materials is important for accessibility. Chuck mentioned that the slope of driveways crossing sidewalks discourages people from using the sidewalks.

   h. Chuck mentioned that drivers do not always look closely at the crosswalks they are turning onto, which caused a crash with a handicapped pedestrian in a motorized scooter at the NE corner of Baker Street/2nd Street a few years ago. Chuck also mentioned that when people in scooters cross multiple lanes and a car stops to allow crossing the driver may assume that the car was stopping to make a left turn and not see the person in the scooter because the scooter is too low. Barb mentioned general visibility concerns people in wheelchairs have. For this reason, she feels that it a parallel route along Evans may be preferred.

i. Chuck mentioned that bicycle lanes are often incompatible with someone on a scooter because of speed. He is concerned that the bicycle has to swerve out of traffic when it is occupied by a scooter, which can be dangerous for both parties. Chuck also mentioned that he feels that the potential for "dooring" where there is high parking turnover is a concern for people biking.

j. Barb emphasized the importance in driver education that supports visibility for people biking, walking, rolling along and across the street. Marc mentioned that this plan can include recommendations for educational components.

k. Steve mentioned that single side crosswalk markings may be something to consider so that pedestrians cross on the upstream side of potential left turns on the one way streets. Marc mentioned that we take the upstream side of the intersection when recommended enhanced crossings.

l. Action Item: PAC to review background documents and provide comments to Amy Griffiths.

4. The concept development workshop homework is provided to gather input on the preferred facility types and alignments to be considered as part of the alternatives development. Members of the PAC provided initial comments on the alignment:

    a. Barb mentioned that two-way facilities along Adams may provide better access to the highway and be a more pragmatic and cost-effective approach to providing facilities along the couplet.

    b. Dave mentioned that the Farmer's Market is held on Cowls Street, and that bicycle activity is not allowed along Cowls when the market is open. This would add complexity to route along Cowls because it would have to be re-routed frequently. Cowls should not be considered as a parallel route for this project.

    c. Chuck recommends Davis Street due to low traffic volumes. He mentioned that it would require abundant signage to redirect users to that corridor.

    d. Peter mentioned that Davis Street has a big hill that people must travel up and down if they travel the extent of the corridor.

e. Cyrus mentioned that he observed that Evans Street has the most significant flow of pedestrian traffic to/from the high school. Evans Street would therefore be a good candidate for a parallel route.

f. Action Item: PAC to complete Concept Development Workshop Homework and share completed homework with Amy Griffiths.

5. Next PAC Meeting (Marc)

    a. Date/Time: Thursday, February 18 | 3:00 – 5:00PM

    b. Agenda: Alternatives Development and Preferred Alternative Concept

Meeting Notes

McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan

PAC Meeting #2

Thursday, February 18 | 3:00 – 5:00 PM

Attendance:

- Marc Butorac, Nick Gross, and Amy Griffiths; Kittelson & Associates, Inc.
- Jenna Berman, Oregon Department of Transportation
- Larry Sherwood and Heather Richards, The City of McMinnville
- Barb Jones, Accessibility Advocate
- Bahram Refaei, Linfield University
- Cyrus Scarboro-Ford, McMinnville High School Student
- Chuck Hillestad, Former Planning Commissioner, Board of Yamhill County Historic Society
- Dave Rucklos, Director of McMinnville Downtown Association
- Jack Crabtree, McMinnville School District
- Lori Schanche, Planning Commission, Active Transportation Planner
- Peter Higbee, Bicyclist Community
- Steve Macartney, Public Safety
- Zack Geary, McMinnville City Council

Action Items:

a. PAC to review draft TM #5: Alternatives Development and Preferred Alternative Concept and provide comments to Amy Griffiths. – **Due February 25.**
b. PAC to spread the word about and participate in the Virtual Open House. – **February 25th to March 11th**.
c. The consultant team to update concepts based on the feedback summarized below and input received during the Virtual Open House.

Meeting Summary:

The consultant team reviewed draft TM #5: Alternatives Development and Preferred Alternative Concept. The PAC provided input during breakout discussions based on their firsthand knowledge of the corridor.

1. **Action Item: PAC to review draft TM #5 and provide comments to Amy Griffiths.**

2. Concept 1: Adams Street Separated Bike Lane
    a. A participant mentioned that this concept must be part of a corridor plan that includes access management at several intersections.
    b. Concept 1 would be more permanent than Concept 2. Incremental construction is not feasible for Concept 1.
    c. A participant mentioned that a traffic study would be needed to consider the viability and safety of crossing at 2nd Street & 15th Street in peak hours.
    d. A participant mentioned that flex post delineators "are targets for vehicles" and have high maintenance costs.
3. Concept 2: OR 99W Buffered Bike Lanes
    a. The group discussed that Concept 2 is not as "permanent" as Concept 1 and would allow for more flexibility in the future. Concept 2 could have phased construction.
    b. Participants asked if it would be feasible to add vertical separation (e.g. flex post delineators) to this concept because vertical separation would increase safety and utility. The following challenges were mentioned:
        i. Maintenance requirements for flex post delineators and other forms of vertical separation are costly.
        ii. The pre-approved ODOT toolbox for vertical separation is limited.
        iii. Parallel parking could not be maintained.
        iv. Vertical separation reduces available width of the roadway, which poses feasibility challenges since the road is a Reduction Review Route for freight.
    c. Three feet is the minimum width requirement for adding vertical separation on an ODOT facility. Adjusting the buffering width from two feet to three feet supports future addition of vertical separation.
        i. Action Item: The consultant team to modify the cross section to show 5-foot bike lanes and 3-foot painted buffers (rather than 6-foot bike lanes and 2-foot buffers).
4. Concept 3: Neighborhood Greenway
    a. A participant mentioned that OR 99W is safer for people in scooters and wheelchairs because there are better ADA ramps. Therefore, the recommendation of constructing both facilities on OR 99W and a neighborhood greenway route is valuable.
    b. The group discussed the route of the neighborhood greenway alignment. The following modifications were discussed:
        i. One participant mentioned that the greenway alignment on Davis Street should extend below Linfield Avenue to Booth Bend Road. This connection is outside

the study area. Future greenway connections to Booth Bend Road could be added in the future.

ii. The group discussed that 13th Street, 14th Street, or 19th Street may be better connections back to OR 99W than the "zig-zag" along 17th Street and 18th Street.

1. 14th Street is narrow, which deters people from using 14th Street as a through-street.
2. 13th Street is wider than 14th Street which provides better visibility; 13th Street has greater separation from inexperienced drivers around the high school.
3. 19th Street provides a direct westward connection. Based on traffic volumes, 19th Street may require bike lanes to be a comfortable option.

iii. The group discussed connections to Baker Creek Road. The group liked the idea of a multi-use path on Evans Street between 17th Street and OR 99W; however, they noted that it would be a high-cost addition to the projects.

iv. Action Item: The consultant team to modify the neighborhood greenway route based on public input received during this meeting and the Virtual Open House.

c. Participants mentioned that the segment of Davis Street south of 2nd Street has higher traffic volumes and speeds. A fatal crash involving a child biking occurred in the "dip" on Davis Streets. The group suggested using bike lanes instead of sharrows in this section.

i. Action Item: The consultant team to consider the feasibility of providing bike lanes in the segment of Davis Street between Linfield Avenue and 2nd Street.

d. The group discussed adding traffic diverters to Concept 3 to calm traffic and make Davis Street more comfortable. The intersections of 10th Street and 7th Street were identified as candidate locations for traffic diverters.

i. Action Item: The consultant team to include traffic diverters in the public open house to gauge public response on traffic diverters. Based on this input, diverters may be added to Concept 3.

e. A couple of participants did not support shifting stop signs off Davis Street. Stop signs on Davis Street help discourage through-movement for people driving. The "Idaho stop" law allows people biking to travel through an intersection without stopping.

5. Enhanced Crossing Concepts

a. The group mentioned that Adams Street/Handley Street is not an ideal location for enhanced crossing treatments because of sight distance challenges, a lack of active transportation generators at Handley Street, topographic challenges with the adjacent creek, and high vehicle speeds through the segment. The group discussed two alternate locations for enhanced crossings: Adams Street parallel with Cowls Street or Adams Street/3rd Street. Based on activity generators and location of existing sidewalks, Adams Street/3rd Street is a more promising location.

   i. **Action Item: Kittelson to replace the enhanced crossing concept at Adams Street/Handley Street with a concept at Adams Street/3rd Street.**

b. The PAC was supportive of the other five recommended crossing locations. According to the homework, the order of preference for implementation is Adams Street & Baker Street/15th Street, then Baker Street/Cowls Street, then Adams Street & Baker Street/8th Street, then Adams Street/3rd Street.

c. A participant inquired about using recessed street surface flashing lighting. The concepts use RRFB's because maintenance of recessed street lighting is difficult and research shows that RRFB's achieve greater driver compliance.

6. Upcoming Meetings

   a. Virtual Open House open February 25th – March 11th

   b. Livestreamed Virtual Open House Meeting: March 4th from 6:30 – 8:00PM

      i. **Action Item: PAC to spread the word about and participate in the Virtual Open House.**

   c. PAC Meeting #3: April 15th from 3:00 – 5:00PM

Meeting Notes

McMinnville OR 99W (NE McDonald Lane to Linfield Avenue) Active Transportation Concept Plan

PAC Meeting #3

Thursday, April 15 | 3:00 – 5:00 PM

Attendance:

- Marc Butorac, Nick Gross, and Amy Griffiths; Kittelson & Associates, Inc.
- Jenna Berman, Oregon Department of Transportation
- Larry Sherwood and Heather Richards, The City of McMinnville
- Barb Jones, Accessibility Advocate
- Bahram Refaei, Linfield University
- Cyrus Scarboro-Ford, McMinnville High School Student
- Chuck Hillestad, Former Planning Commissioner, Board of Yamhill County Historic Society
- Dave Rucklos, Director of McMinnville Downtown Association
- Lori Schanche, Planning Commission, Active Transportation Planner
- Peter Higbee, Bicyclist Community
- Steve Macartney, Public Safety
- Zack Geary, McMinnville City Council

Action Items:

a. City to submit 35 Day Notice to Department of Land Conservation and Development (DLCD)

b. Consultant team to incorporate enhanced crossing location at Adams Street/Walgreens near transit stop at future consideration.

Meeting Summary:

The consultant team reviewed the draft Concept Plan with the PAC and solicited input on the layout and content of the document. The purpose of PAC#3 is to gain consensus to recommend the draft Concept Plan to Planning Commission/City Council.

1. **Planning Commission/City Council**

    a. Planning Commission/City Council Work session is scheduled for April 27.

    b. PAC comments must be provided to project team by close of business April 16 to be incorporated into packet that goes to Planning Commission/City Council

   c. City to submit 35 Day Notice to Department of Land Conservation and Development (DLCD)

2. Overview of Plan

   a. The consultant team walked the PAC through the draft Concept Plan including the background material, draft layouts, and enhanced crossing location.

3. General Discussion

   a. A crossing at Adams Street near the Walgreens is needed. A lot of transient people live west of Adams Street in the Cozine Creek area and cross to go to Walgreens. There is also a transit stop in that vicinity.

      i. Consultant team to incorporate enhanced crossing location at Adams Street/Walgreens near transit stop at future consideration.

   b. Concerned about loss of parking along Adams Street south of 1st Street.

      i. Discussion of tradeoffs; parking on east vs. west side of roadway

      ii. There will be an associated risk regardless; people crossing Adams Street to access parking on the east side; keeping parking does not allow for bicycle facility. If parking is on the east side, it shifts the entire roadway over and introduces more curves.

      iii. The bicycle facility is the priority and needs to be there.

   c. Concerns about speed of vehicular travel along Davis Street south of 1st Street

      i. Opportunity to limit parking; people are currently parking where parking is prohibited forcing people biking into the center of the travel lane.

         1. Potential enforcement issue

   d. When is this project expected to be implemented?

      i. ODOT has a paving project coming in the next 4-6 years. The goal is to incorporate the paving related improvements (bicycle facilities) into that project.

      ii. ODOT has an ADA improvement project coming sooner. The goal is to incorporate the enhanced crossing projects into that project.

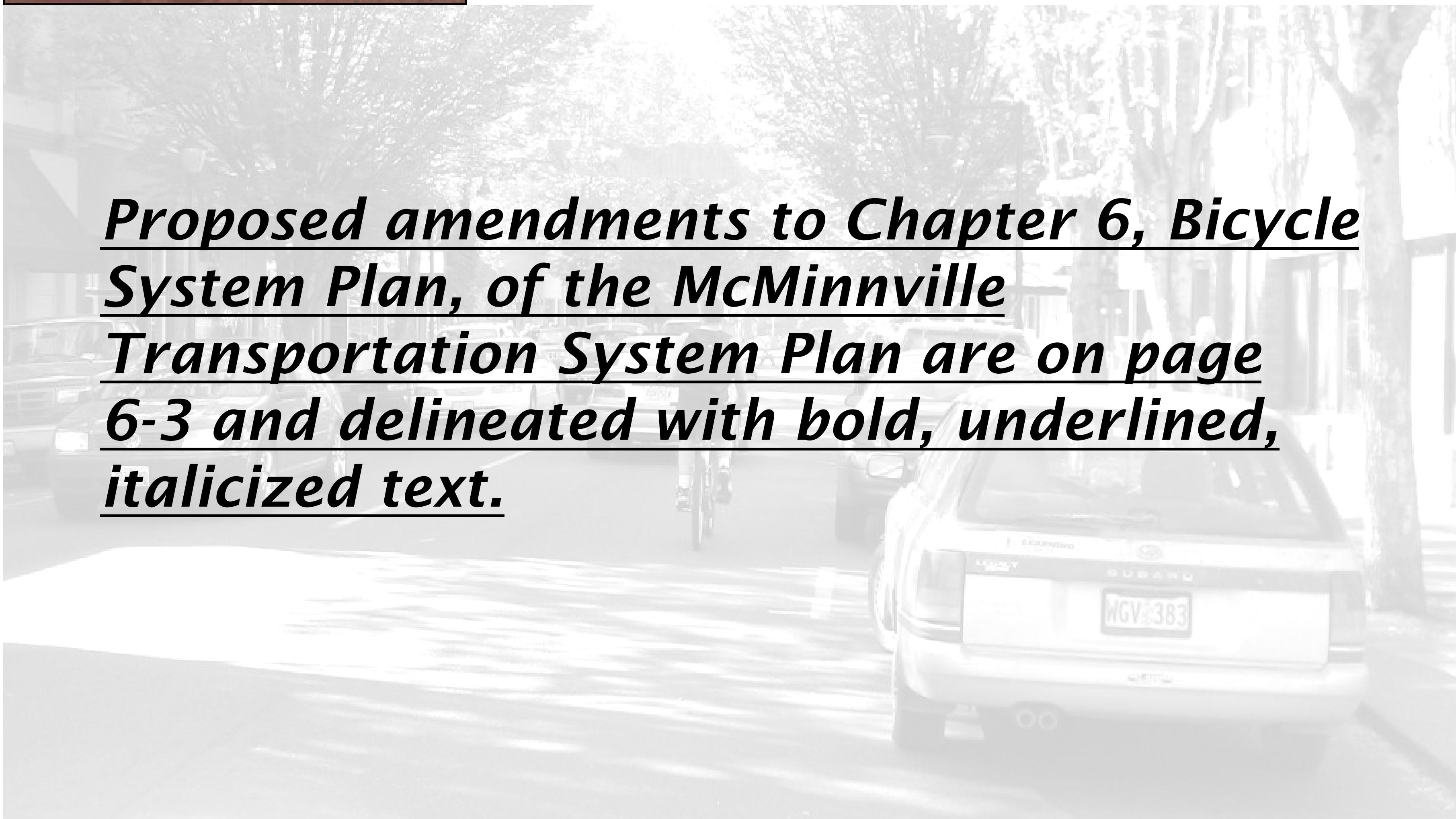
      iii. The timing for the neighborhood greenway is up to the City since it is not a ODOT facility. Depends on City budget.

Oregon Department of Transportation

City of McMinnville

CITY OF McMinnville OREGON

Transportation System Plan



<u>Proposed amendments to Chapter 6, Bicycle System Plan, of the McMinnville Transportation System Plan are on page 6-3 and delineated with bold, underlined, italicized text.</u>

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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.


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. ***Bicycle lanes can be buffered from adjacent traffic by vertical barriers or can be identified by lane striping and signage.***

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.

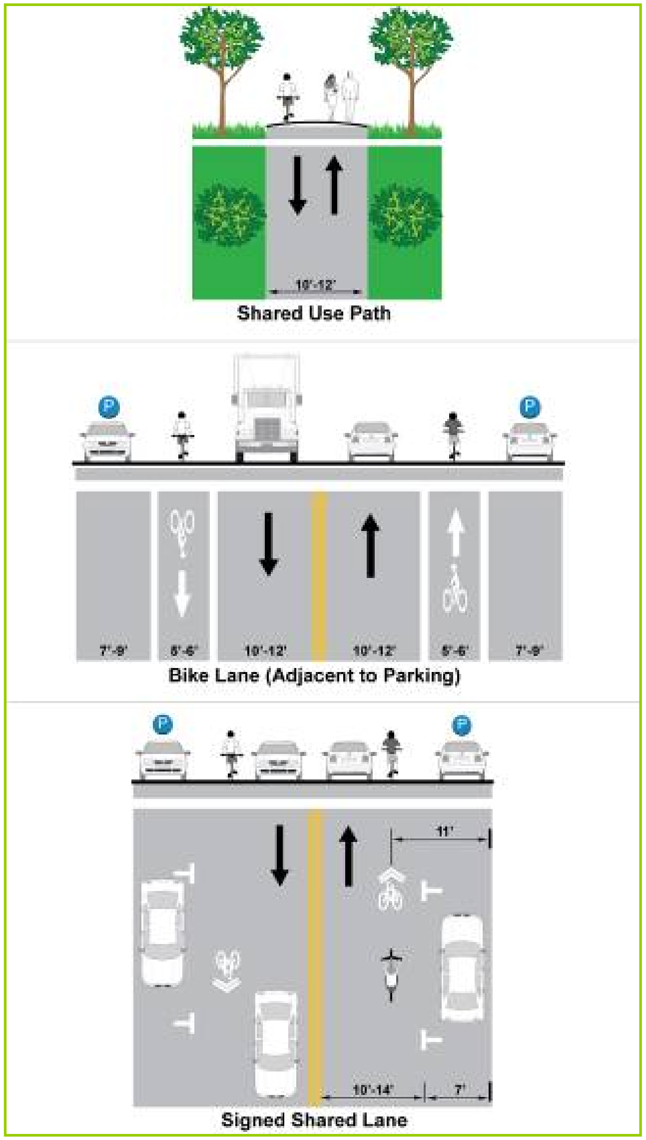
Shared-Use Path

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.

Neighborhood Greenways

Neighborhood Greenways are residential streets designed to prioritize bicycling and enhance conditions for walking. Vehicles should travel 20 mph or less. There should be a daily average of approximately 1,000 cars per day wiht the upper limit set at 2,000 cars. Neighborhood greenways typically include two shared travel lanes and two parking lanes. In order to keep people from jusing neighborhood greenways as automobile cut-through routes, speed bumps and traffic diverters are commonly installed on greenways.

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.

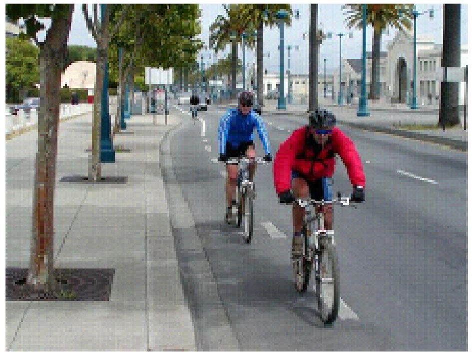
Defining Bicycle Users

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.contextsensitivesolutions.org

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.indygreenways.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.

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.

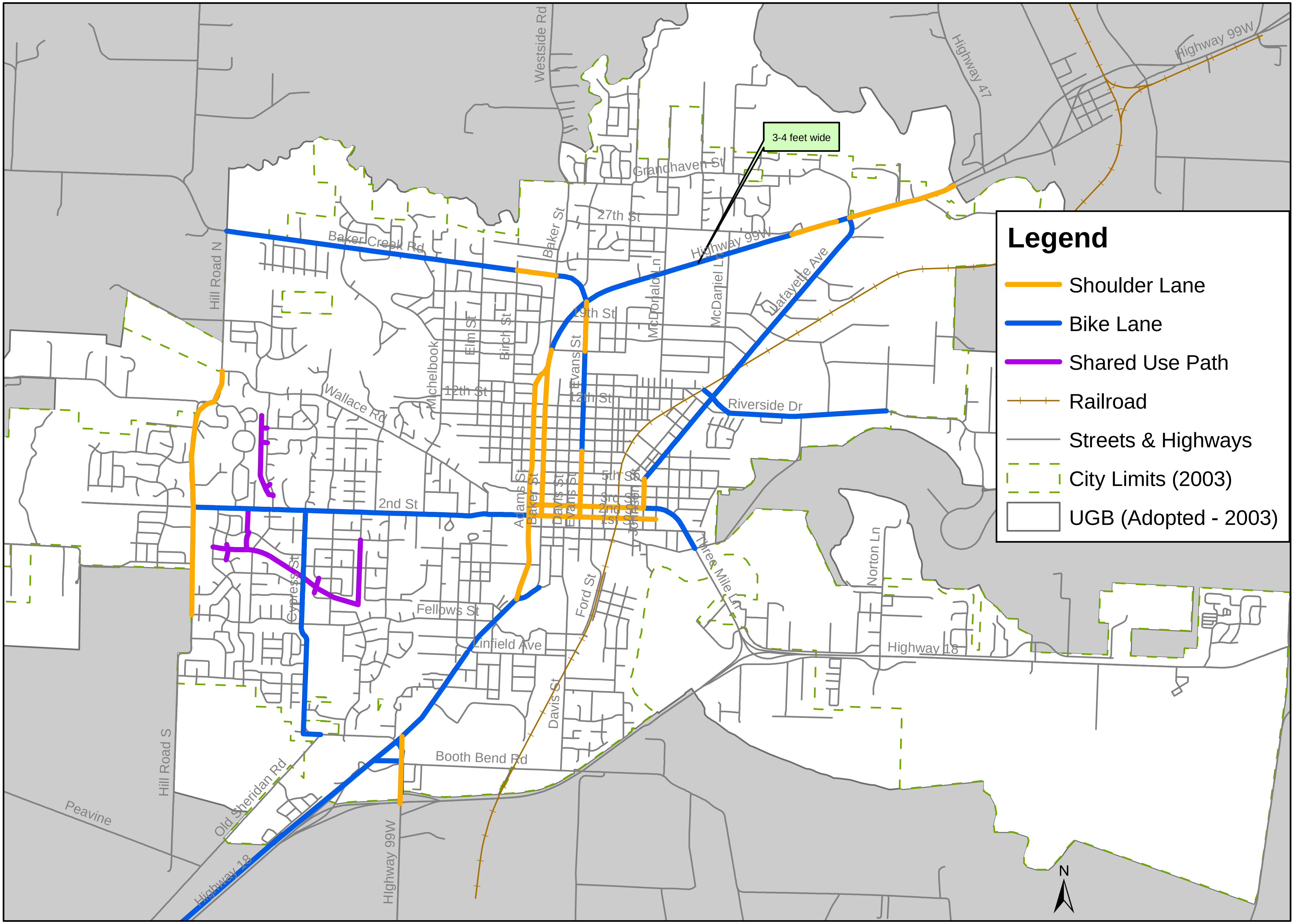
The McMinnville bicycle system has all three types of bicycle facilities (bike lane, shared-use path and unmarked shared roadway) illustrated in Exhibit 6-1, and these facilities are spread throughout the city.

Bike Lane on Highway 99W

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.

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**. There are three types of projects that include bicycle elements.

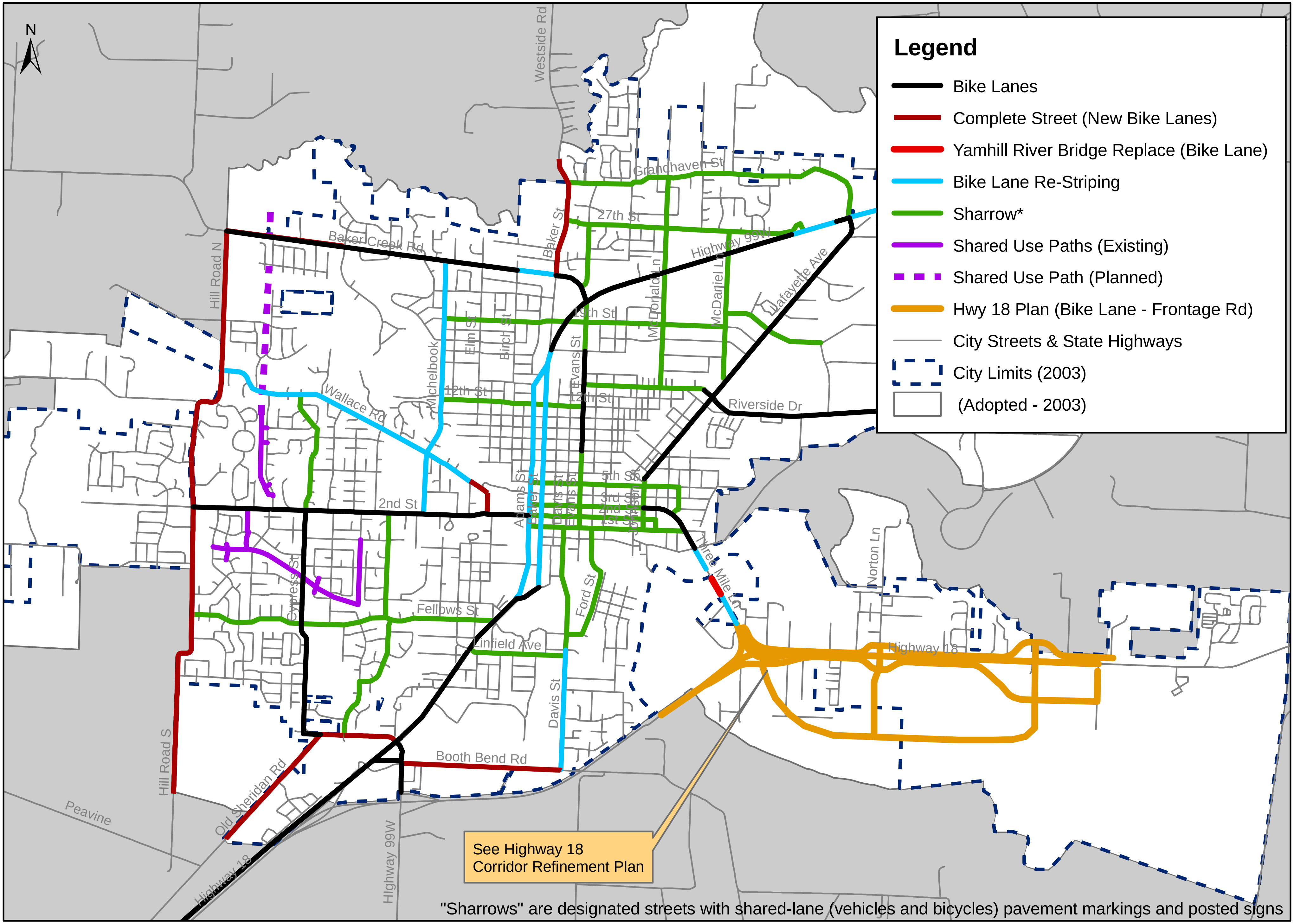
Complete Street Projects – New Bicycle Lanes

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

Street: **Baker Creek Road** Width (ft): **44**

Street Class: *Minor Arterial*

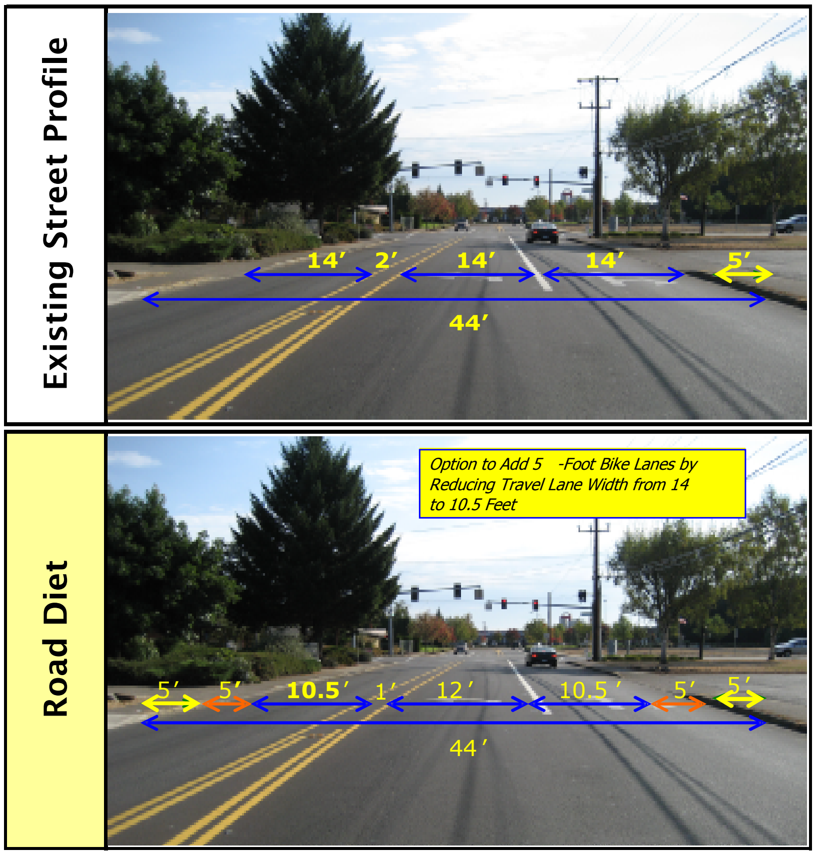


Exhibit 6-5 illustrates a similar Road Diet application on Wallace Road. Wallace Road serves largely residential traffic. The Road Diet application would yield new bicycle lanes, and with reduced travel lane widths the presiding traffic speeds may also slow to desired levels.

Exhibit 6-5 Road Diet – Wallace Road

Street: **Wallace Road** Width (ft): **36**

Street Class: *Minor Collector*

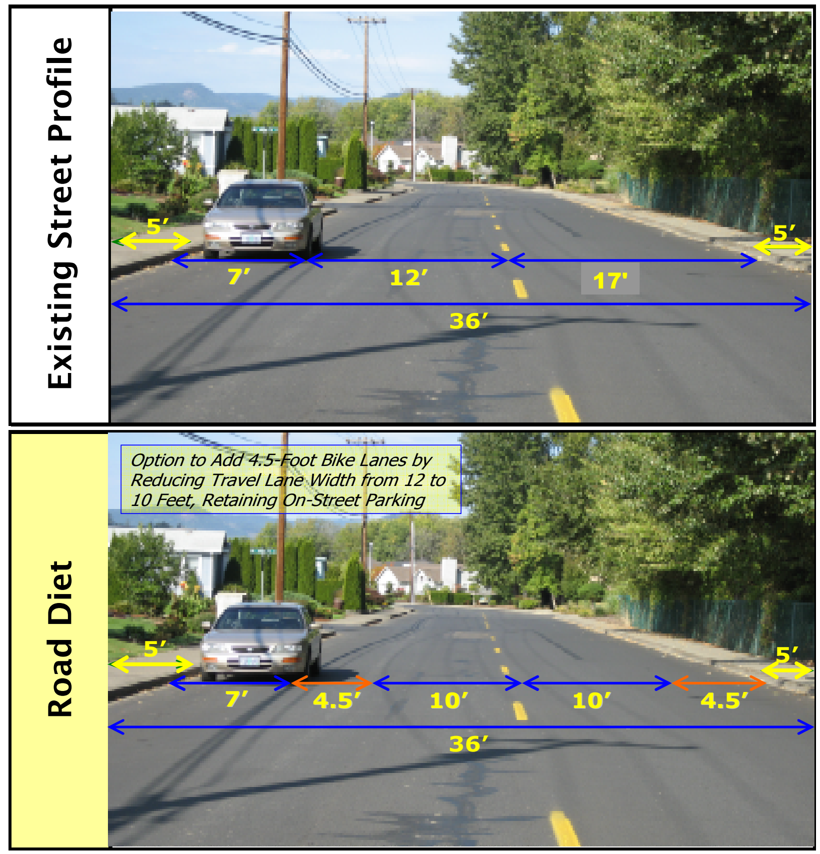
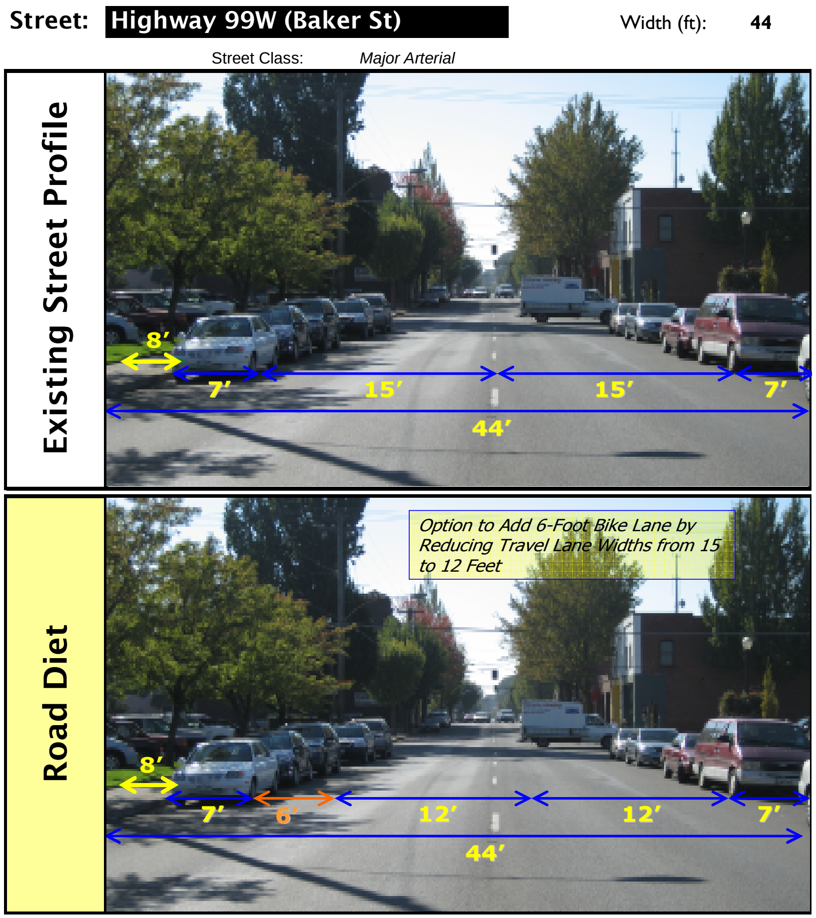


Exhibit 6-6 illustrates another Road Diet application, in this example on Highway 99W (Baker Street) within the one-way couplet section. By reducing travel lanes from 15 to 12 feet, a new 6-foot bike lane can be added.

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

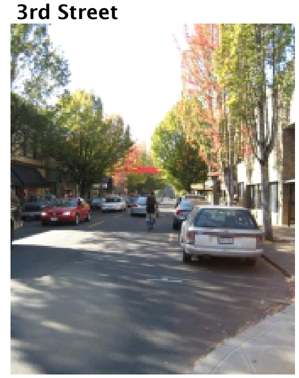


Re-Striping "Sharrows" – Shared-Lane Facilities

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

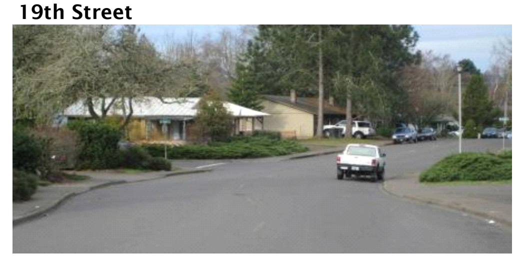
3rd Street



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

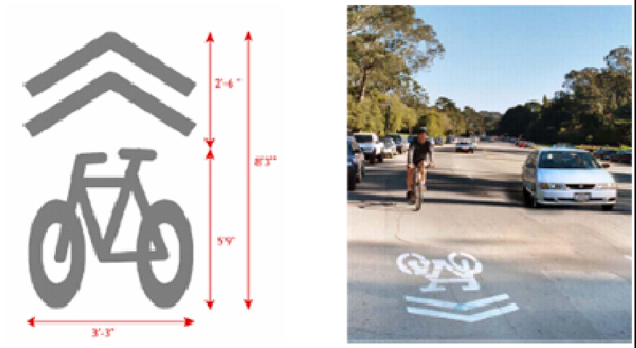
This chapter also includes recommendations for new or revised bicycle facility design guides as part of the McMinnville TSP.

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 Pavement 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.