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Active Transportation

DRAFT Southwest Corridor Existing
Conditions Technical Report

June 2012

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1. INTRODUCTION

1.1 Active transportation, a definition

Active transportation describes the bicycling, walking and trails that create a community's access to key neighborhood and community destinations. These destinations could include transit stops, jobs, urban amenities (e.g., cafes, grocery stores) and public facilities (e.g., parks, schools, libraries). Active transportation advances the creation of livable and vibrant neighborhoods, supports local businesses, and promotes a healthy environment. Walking and biking allows for an intimate experience with the neighborhood and increases individual and community health. This report details the existing and future conditions related to active transportation within the Southwest Corridor's data collection area.

1.2 Why it matters

Community access to active transportation is at the heart of the region's goals. Metro defines the goal of creating great communities through growth in a sustainable and compact metropolitan structure and through great cultural and recreational opportunities. Both of these goals help define the role that community access plays in creating sustainable, connected, compact and culturally rich communities that are connected to recreation and nature. Safe and reliable transportation is manifested in the provision of active transportation options. Having safe and convenient choices enhances personal and regional quality of life.

The provision of a balanced multimodal transportation system allows for the creation of livable communities. Active transportation options encourage and promote physical activity, health, recreation, social interaction, opportunity, equity, environmental stewardship and resource conservation. Places where residents can easily access basic services and community assets through active transportation create a connected, safe and convenient neighborhood for people to live, learn, work and play.

1.3 Methodology

The existing conditions are analyzed using the regional, county and local transportation system plans, pedestrian and bicycle master plans, capital improvement projects, and the jurisdictions' non-motorized trail plans. Information was collected through partnerships with existing programs and projects such as the Regional Transportation Plan, TriMet Pedestrian Network Analysis, Portland's Safe Routes to School program, and Portland State University (PSU) and Oregon Transportation Research and Education Consortium (OTREC) researchers. Neighborhood, non-profit, and advocacy plans were also consulted. These documents inventory the current extent of pedestrian and bicycle infrastructure, the number of pedestrian and bicycle crashes, the level of current and planned investment, and related policies.

This report contains an overview of the existing conditions through analysis of policies adopted related to community access in the jurisdictions of the Southwest Corridor. Policies are followed by a review of the existing built environment for pedestrians. Pedestrian focus areas throughout the Corridor are then highlighted. Crash data is introduced for pedestrians and bicycles. The existing built environment for bicycles is introduced alongside a report of recent bicycle counts throughout the Corridor.

Future planned improvements are introduced for active transportation for trail and on-street bike riders and pedestrians. This includes an overview of the projects funded in the Statewide Transportation Improvement Program (STIP), Metropolitan Transportation Improvement Program (MTIP), projects included in the Regional Transportation Plan (RTP) and an overview of planned trail network development throughout the study area.

A brief introduction is given to the Sustainable Mobility & Accessibility Research & Transformation (SMART) concept of transportation nodal analysis tied to telecommunication innovations.

The final part of the report includes the key findings that summarize the problems, opportunities and constraints for community access in the Southwest Corridor.

2. EXISTING CONDITIONS

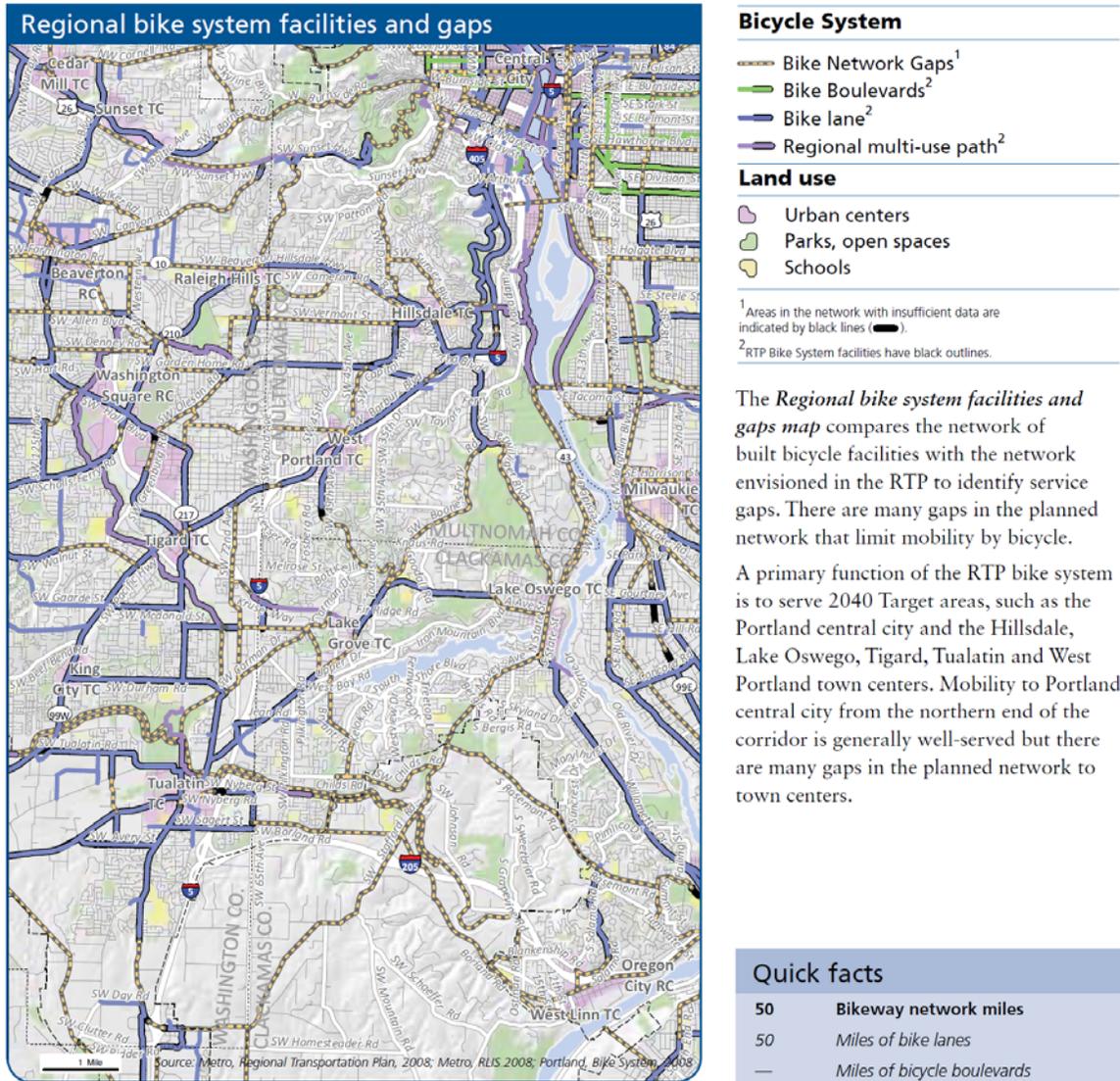
2.1 Introduction of existing conditions components

An image of the current extent of the active transportation network in the Southwest Corridor data collection area has been broken into three components: the on-street pedestrian environment, the on-street bicycle environment and trails in the area. These three components of the active transportation environment are inter-related and connected; they do not exist in isolation. These three components are analyzed using data collected about the existing infrastructure from Metro's Regional Land Information System (RLIS) and other jurisdictions' maps, pedestrian and bike crash locations, trail counts, Oregon Department of Transportation (ODOT) data, pedestrian focus area studies performed by PSU, OTREC and TriMet and policy information taken from state, regional, county and city plans.

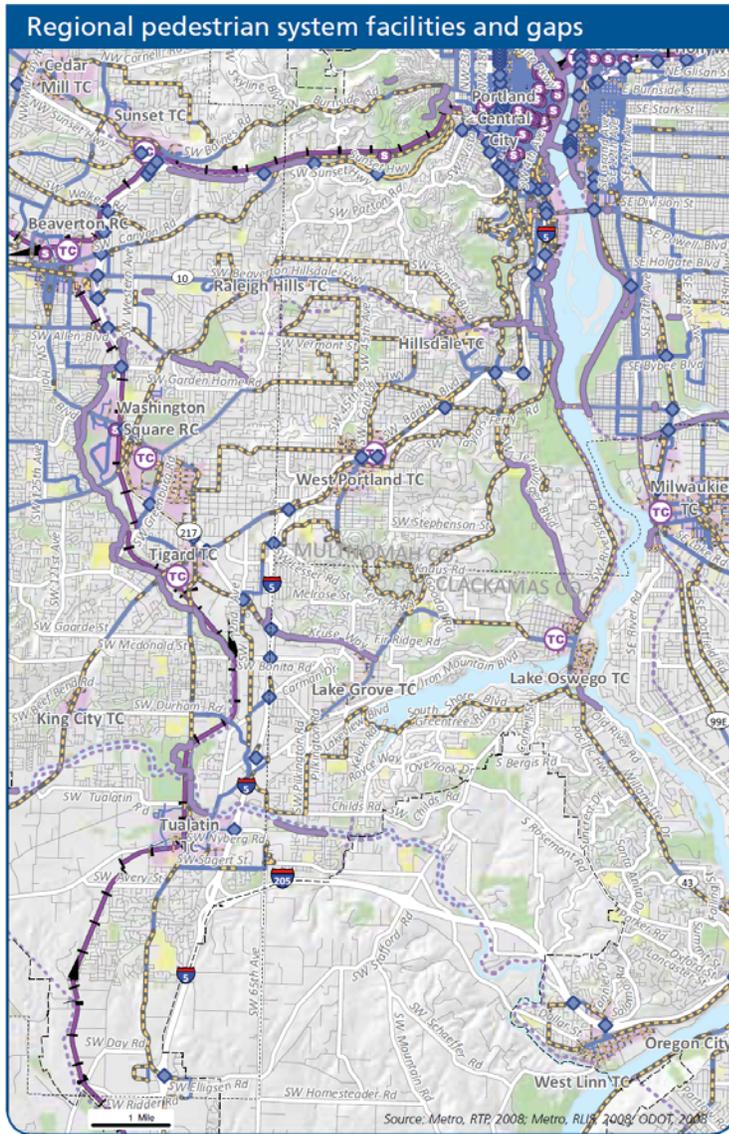
An overview of the area can be found in the Metro Mobility Corridor analysis (Chapter 4, Regional Transportation Plan). The Mobility Corridors Atlas visually represents land use and transportation data for the region's major travel corridors to help local transportation planners and policymakers develop strategies that improve mobility. RTP Chapter 4 identifies needs and strategies for the two Mobility Corridors in the Southwest Corridor study area, and Chapter 6 identifies the parameters of the Southwest Mobility Corridor Refinement Plan. This concept focuses on the region's network of freeway and highways and includes parallel networks of arterial streets, regional multi-use paths, high capacity transit and frequent bus service. The function of this network of integrated transportation corridors is metropolitan mobility. Connections made by active transportation have been thoroughly considered and continue to be incorporated into the integrated transportation system of the region.

Mobility Corridors 2 and 20 were identified as high-priority corridors and together they constitute the Southwest Corridor data collection area. There is overlap between the two Mobility Corridors, so the analysis only demonstrates some of the overall differences in the built environment. Figure and Table 2.1.1 provides an introduction to active transportation components as identified in Mobility Corridor 2 and Figure and Table 2.1.2 introduces Mobility Corridor 20:

Figure and Table 2.1.1: 2008 Mobility Corridor 2



The Portland Central City to Tigard/Tualatin mobility corridor has several 30-minute or better bus routes serving the Hillsdale, Lake Oswego, Tigard, Tualatin and West Portland town centers. Transit



Sidewalk System

- Existing sidewalk¹
- - - Sidewalk gap²
- Regional multi-use path
- · · Proposed regional multi-use path

Inside Pedestrian Districts³

- Existing Sidewalk
- - - Sidewalk gap²
- Light rail transit
- Streetcar
- TC Transit centers
- S Rail transit stations

Land use

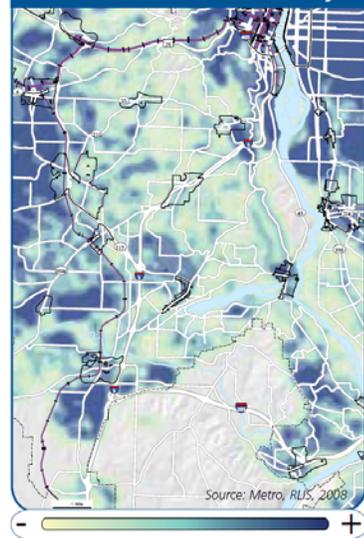
- PTP RTP Pedestrian Districts
- S Schools
- P Parks, open spaces
- ◇ Pedestrian overcrossing

¹ Along 30-min. or better transit and RTP Pedestrian Corridors.

² Less than 100% on both sides

³ Pedestrian Districts are 2040 centers and Station Communities.

Sidewalk and trail density



2008 Mobility Corridor 2: Portland central city to Tualatin

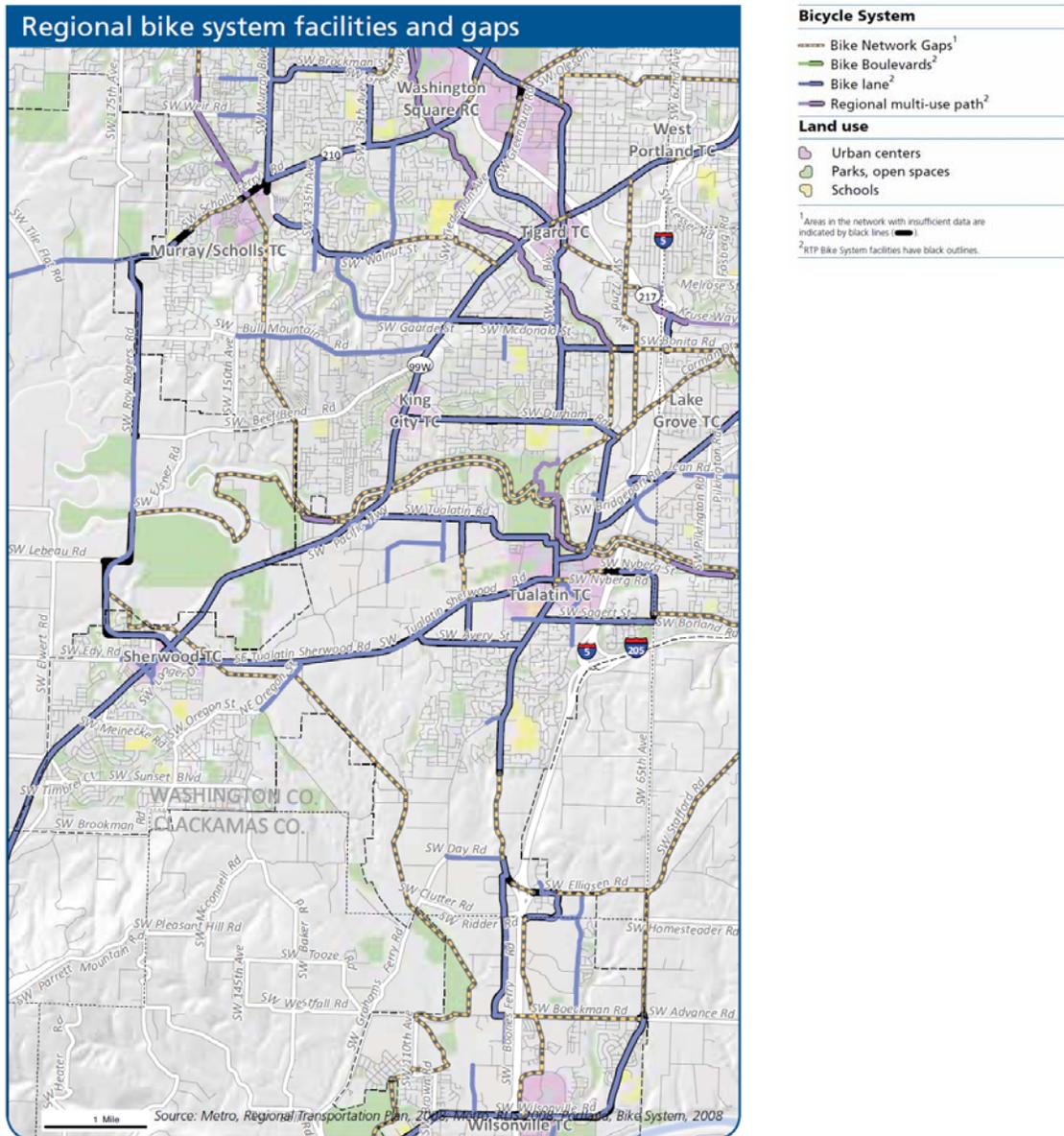
Bikeway miles	50
Trail Miles	13
Sidewalks completed in the RTP pedestrian districts, station communities and town centers*	40.0%
Intersections per square mile	104

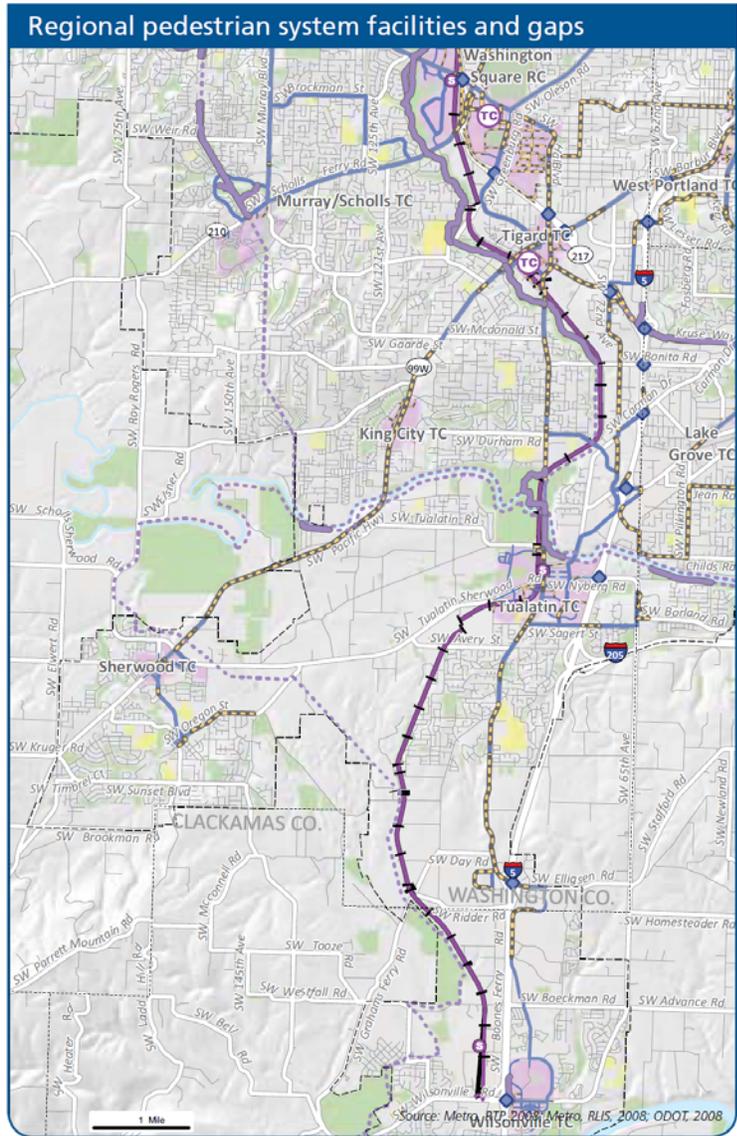
* RTP Pedestrian Districts are defined as areas of high, or potentially high, pedestrian activity where the region places priority on creating a walkable environment. These include the central city, regional and town centers and light rail station communities.

Mobility by bike to Portland central city from the northern end of the Corridor is generally well served, but there are many gaps in the planned network to town centers. The regional bike system facilities and gaps map demonstrates that there are many gaps in the bike system connecting Hillsdale Town Center (TC) to West Portland TC and Washington Square Regional Center, and from Hillsdale TC and West Portland TC to Lake Oswego TC. There are also gaps between Tigard, Lake Grove and Tualatin and between Tualatin and King City.

The regional pedestrian system facilities and gaps map demonstrates that there are many gaps in the pedestrian system. The Corridor is largely deficient in sidewalks along arterials and local streets, and lacks street connectivity creating difficult conditions for comfortable walking.

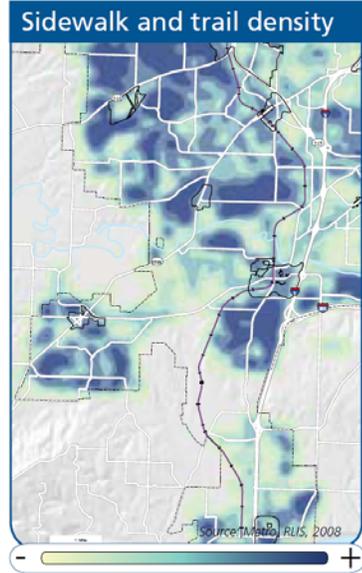
Figure and Table 2.1.2: 2008 Mobility Corridor 20





- Sidewalk System**
- Existing sidewalk¹
 - Sidewalk gap²
 - Regional multi-use path
 - Proposed regional multi-use path
- Inside Pedestrian Districts³**
- Existing Sidewalk
 - Sidewalk gap²
 - Light rail transit
 - Streetcar
 - TC Transit centers
 - Rail transit stations
- Land use**
- RTP Pedestrian Districts
 - Schools
 - Parks, open spaces
 - Pedestrian overcrossing

¹ Along 30-min. or better transit and RTP Pedestrian Corridors.
² Less than 100% on both sides
³ Pedestrian Districts are 2040 centers and Station Communities.



2008 Mobility Corridor 20: Tigard and Tualatin to Sherwood

Bikeway miles	58
Trail Miles	8
Sidewalks completed in the RTP pedestrian districts*	60.6%
Intersections per square mile	51

*RTP Pedestrian Districts are defined as areas of high, or potentially high, pedestrian activity where the region places priority on creating a walkable environment. These include the central city, regional and town centers and light rail station communities.

While much of the planned bicycle network is complete some significant gaps still remain. The lack of a continuous street grid in the Corridor also impedes the ability to travel by bicycle across the Corridor.

Significant gaps remain in the pedestrian system on many arterial and collector streets, and on local streets in the town centers. The discontinuous local street grid diminishes access to transit and neighborhood destinations.

The different number of intersections per square mile between the two Mobility Corridors results in a very different human-scale experience. Mobility Corridor 2 has a low rate of sidewalk completion in the pedestrian districts (40 percent) but more than twice the intersection density of Mobility Corridor 20 (104 and 51, respectively). Intersection density represents connectivity for pedestrians and bicycles, reduced out of direction travel and access to destinations. Intersections often require slower and more cautious operation for automobile users, possibly decreasing the danger of the sidewalk and bicycle network gaps. Mobility Corridor 20 has 60.6 percent sidewalk completion in pedestrian districts but many of these sidewalks lack destinations within walking distance or do not provide network connectivity. Many areas within the Mobility Corridors do not meet the Regional Transportation Plan's design guidelines for pedestrians, bicycles and network continuity.

Future updates to the Mobility Corridor Atlas will reflect changes made to the regional bicycle and pedestrian networks. This includes changes made to proposed trail alignments reflected on the 2008 Mobility Corridor maps.

Policies, modal and performance targets related to active transportation

In 1991, the State of Oregon's Department of Land Conservation and Development (DLCD) adopted the Transportation Planning Rule (TPR) in order to implement Goal 12, the transportation goal that was adopted in 1974. One purpose of Goal 12 is to "reduce reliance on the automobile and assure that the planned transportation system supports a pattern of travel and land use in urban areas which will avoid the air pollution, traffic and livability problems faced by other areas of the country." The TPR requires all Transportation System Plans (TSPs) to include a "bicycle and pedestrian plan for a network of bicycle and pedestrian routes through the planning area." The TPR requires local jurisdictions to include regulations for the creation of bikeways and sidewalks along arterials and collector streets. Consideration must be given to direct, convenient and safe pedestrian travel within and between residential areas and neighborhood activity centers.

Metro's Regional Transportation Plan (RTP), Regional Urban Growth Goals and Objectives (RUGGOs), Urban Growth Managements Functional Plan (UGMFP), and the Regional Transportation Functional Plan (RTFP) contain a number of recommendations to better integrate and connect the region. The RTFP sets forth requirements for local TSPs and corridor plans. The RTFP implements the goals, objectives, and policies of the RTP and its constituent freight, high capacity transit and transportation system management and operations plans which cities and counties of the region will carry out in their

comprehensive plans, transportation plans, other land use regulations and transportation project development. Throughout these plans, the provision of safe and convenient pedestrian and bicycle access is prioritized. The RTP includes design guidelines for street connection spacing of no more than 530 feet and a continuous regional network of on- and off-street bikeways connected to other transportation modes and local bikeway systems. Ongoing planning efforts in the region include the Regional Active Transportation Plan (ATP), which will be amended to the Regional Transportation Plan and update regional active transportation policies and priorities. This plan will identify the region’s principal active transportation network, develop guiding principles and criteria and prioritize regional projects. Additionally, the ATP will update policies, performance targets and concepts in existing plans and will develop a funding strategy and implementation plan. The ATP will incorporate active transportation priorities and policies developed in the Southwest Corridor planning process.

Clackamas, Multnomah, and Washington counties all include bicycle and pedestrian components in the transportation elements of their comprehensive plans. Multnomah and Washington counties both have stand-alone master plans for bicycles and pedestrians. All of the counties’ plans are in accordance with the state’s TPR and stipulate a network of connected streets, bikeways, walkways and trails.

The transportation system plans of the cities include system plans for pedestrians and bicycles. They vary in level of detail and development. The City of Portland’s Pedestrian Master Plan and Bicycle Plan emphasize the comprehensive plan’s Goal 6: Transportation is to provide “safe and efficient movement of people and goods while preserving, enhancing, or reclaiming neighborhood livability.” Vital to this renovation is the development of pedestrian networks that increase the opportunities for walking to shopping and services, institutional and recreational destinations, employment and transit. Portland comprehensive plan policy 12.4 has the objective that walking should be the primary mode of transportation in the city and that the environment occupied by the pedestrian should be enhanced and enriched.

Metro and the City of Portland have adopted design guidelines for pedestrian and bicycle environments. Metro publishes *Creating Livable Streets: Street design guidelines for 2040*, and the City of Portland’s Pedestrian Master Plan and the Bicycle Plan for 2030 include design guidelines that the city is instructed to follow.

Table 2.1.3: Related Goals and Policies, below, provides an introduction to the goals and policies in place that guide the provision of community access.

Table 2.1.3: Related goals and policies

	Active transportation goals, policies and functional classification
State of Oregon	The Statewide Planning Goal 12 (Transportation) and the Statewide Transportation Planning Rule (TPR) require the provision of a safe, convenient and economic transportation system. The TPR targets the reduction of vehicle miles

	<p>traveled (VMT) through better connecting land use and transportation planning. Through consideration and planning for multimodal transportation improvements and transportation demand management solutions such as local street network connectivity and bicycle and pedestrian improvements jurisdictions implement the state VMT and air quality standards. The Oregon Transportation Plan forms the multi-modal state transportation system plan. The plan addresses multimodal transportation facilities and creates guidance for transportation improvement prioritization including non-highway investments. The Oregon Bicycle and Pedestrian Plan offers strategies to meet the state multi-modal transportation goals. The Oregon Public Transportation Plan provides general guidance and encouragement for public transportation throughout the state. These projects are instructed to support compact development and mixed-use projects. The Oregon Highway Plan addresses the functional classifications, freight designations, mobility targets, and access management policies along Interstate 5, Highway 99W and other state facilities.</p>
Metro	<p>Metro’s Urban Growth Management Functional Plan provides policy to meet the goals in the 2040 Growth Concept. Planning for compact development and multi-modal transportation options are central to the regional plans. The Regional Transportation Functional Plan requires jurisdictions’ TSPs (and corridor refinement plans) to be consistent with the Regional Transportation Plan (RTP). The 2035 RTP establishes a regional transportation policy framework that holds multi-modal transportation improvements central to the region’s transportation system. These multi-modal improvements are formed along Mobility Corridors that include highways, arterials, bicycle parkways and trails, sidewalk connections, high capacity transit, and frequent bus routes. Transit supportive growth patterns are encouraged through requirements that jurisdictions plan for a mix of uses, encourage transit users, have well-designed streets, provide safe, direct and convenient pedestrian and bicycle access and have good bicycle and pedestrian connectivity. The RTP includes the High Capacity Transit System Plan which identifies a prioritized system of HCT corridors. The SW Corridor is the Region’s next priority HCT Corridor. The HCT System Expansion Policy calls for land use planning that encourages transit ridership through multimodal station access and connections.</p>
Clackamas County	<p>The Comprehensive Plan has the goals of creating a safe, efficient, and effective transportation system for multiple modes. The Transportation chapter concludes that a “greater reliance on transit, bicycles, foot traffic, carpools, and other transportation modes will be necessary, along with decreased average trip length, in order to decrease energy consumption and road congestion.” The Plan directs the development of pedestrian and bicycle facilities in the County through the Bicycle Master Plan and the Pedestrian Master Plan. These plans focus policy toward the creation and promotion of a system of networked facilities for bicycling and walking; additionally, they support creation of compact, connected, and walkable neighborhoods and commercial developments.</p> <p>The Comprehensive Plan also directs land use as it relates to active transportation. In existing neighborhoods the Comprehensive Plan makes it a County goal to “provide for efficient use of land and public facilities, including greater use of public transit.” Residential land use policy that supports this goal includes Policy 2.3, “land within walking distance (approximately one-quarter mile) of a transit stop should be zoned for smaller lots.”</p>

Multnomah County	<p>The Comprehensive Framework Plan includes Policy 33C which instructs the County to encourage the creation of a balanced transportation system through the implementation of a bicycle and pedestrian networks that are an integrated part of the County-wide transportation system. Policy 34, Trafficways, directs the County to “develop the existing trafficway system to maximize efficiency, and to consider the mobility of pedestrians by providing safe crossings.” The trafficways are to incorporate and encourage planned pedestrian, bicycle, and transit facilities. The policy, while maintaining the function of the trafficways, fosters choice of transportation modes through the provision of opportunities for non-single occupant vehicle trips.</p>
Washington County	<p>The Comprehensive Plan includes the 2020 Transportation Plan, the Pedestrian Plan and the Bicycle Plan. The Plan states that the County supports land use changes made through the growth strategy, bicycle and pedestrian developments made to support transit, and other system improvements connected to transit. Policies 14 and 15 of the Transportation Plan comprise the County’s Pedestrian and Bicycle Plan. Walking and bicycling are to be encouraged and supported as a means to reduce reliance on automobile travel.</p>
Durham	<p>The Comprehensive Plan states that in order to comply with the State Planning Rule’s (TPR) vehicle miles traveled reduction goal the City has updated ordinances to provide bicycle parking throughout the city and requires safe and convenient access to new developments for bicycles and pedestrians. Title 6 of the Plan, Regional Accessibility, ensures compliance with the Regional Transportation Plan’s (RTP) connectivity standards, street design standards, and transportation support systems requirements for active transportation.</p> <p>The Park and Recreation Plan states that parks, schools, and other public spaces should be connected by pedways and bikeways. Street connections to the Fanno Creek Trail are recommended through the plan.</p>
King City	<p>In the Municipal Code Chapter 16.212, Neighborhood Circulation provides standards for safe and convenient bicycle and pedestrian access to transit and details street connectivity requirements. These provisions are in accordance with the state’s Transportation Planning Rule and Metro’s urban growth management functional plan. “This chapter is not necessarily intended to require a grid street system, but is intended to provide a development pattern, which provides choices and convenient circulation for pedestrians, bicycle users and transit users as well as motorists.” Neighborhood Circulation provides a set of review standards to create development patterns that promote active transportation.</p> <p>The Comprehensive Plan’s chapter on Transportation instructs the City to strive to create a transportation system that provides “suitable facilities for all modes of transportation including walking, bicycling, and transit” and “provides for special needs for individuals who do not have ready access to automobiles or transit and encourages the use of other alternatives to the automobile by providing improvement to facilities, amenities, and programs.” The Plan also instructs the City to look for opportunities to improve access for all users, provide improved crosswalks and other improvement to promote walking and bicycling.</p> <p>There have been no potential or approved Oregon Recreational Trails or Wild and Scenic Waterways or State Scenic Waterways identified in the Plan. It is noted that the Tualatin River Basin and its floodplain and wetlands may be identified for</p>

	nature and recreational trails.
Portland	<p>Currently, the City is currently revising the Comprehensive Plan through the development of the Portland Plan. As adopted, the plan is in accordance with all state and regional standards related to active transportation. Transportation System Plan (TSP): the TSP provides transportation choices for Portland, making it more convenient to walk, bicycle, take transit, and drive less to meet their daily needs. The TSP provides a balanced transportation system to support neighborhood livability and economic development.</p> <p>Under the TSP a Pedestrian Master Plan establishes a framework for improvements that will enhance the pedestrian environment and increase opportunities to choose walking as a mode of transportation. This includes a list of capital projects in the study area. The TSP also includes the Bicycle Plan for 2030, a plan that dramatically strengthens the City's policies to support bicycling, expands programs that support and encourage bicycling, and recommends the expansion of the bikeway system to grow citywide ridership to a 25% total mode-split. This dense network of bikeways aims to serve riders of all types and ages and to make connections throughout the region including throughout the study area.</p> <p>Portland's citywide master plan, the Portland Plan, has recently been adopted. The Plan provides a roadmap for the city to grow in a sustainable vibrant way with compact urban form and excellent multimodal connections. The Plan will direct and inform the upcoming Comprehensive Plan and Transportation System Plan updates.</p> <p>Portland Parks & Recreation have Trail Plans within the Southwest Corridor for the Red Electric Trail. The Recreational Trail Strategy is a 20-year vision set forth in 2006 for Portland's Regional Trail System. This document updates the 2001 Parks 2020 Vision, reinforcing the goal of making Portland the 'walking city of the West.' This plan emphasizes an interconnected network of park sidewalks, hiking trails, pathways, multi-use trails and greenways connecting to city sidewalks, bikeways, and transit.</p>
Sherwood	<p>The Transportation System Plan's Goal 4 instructs the City to develop complementary infrastructure for bicycles and pedestrian facilities to provide diverse range of transportation choices for city residents. Policies 4.2 states: Sidewalks and bikeways shall be provided on all arterial and collector streets for the safe and efficient movement of pedestrians and bicycle users between residential areas, schools, employment, commercial and recreational areas. 4.3: The city will pursue development of local and regional pedestrian trail facilities, especially a trail system connection between the city and the Tualatin National Wildlife Refuge. 4.6: development of a coordinated regional bikeway system.</p> <p>Strategies for future pedestrian and bicycle access include the connection of key corridors to schools, parks, transit centers and activity centers. The Plan instructs the City to fill in gaps in the network and to identify connections and corridors that commuters will use.</p>
Tigard	<p>The City's Transportation System Plan (TSP) Goal 3: Multi-modal transportation system includes policies to provide transportation options for non-motorized vehicles. Chapter 3 states that the City shall develop and maintain neighborhood connections and provide direct pedestrian accessibility to transit routes. The City is to design all projects to encourage pedestrian and bicycle travel and is to construct</p>

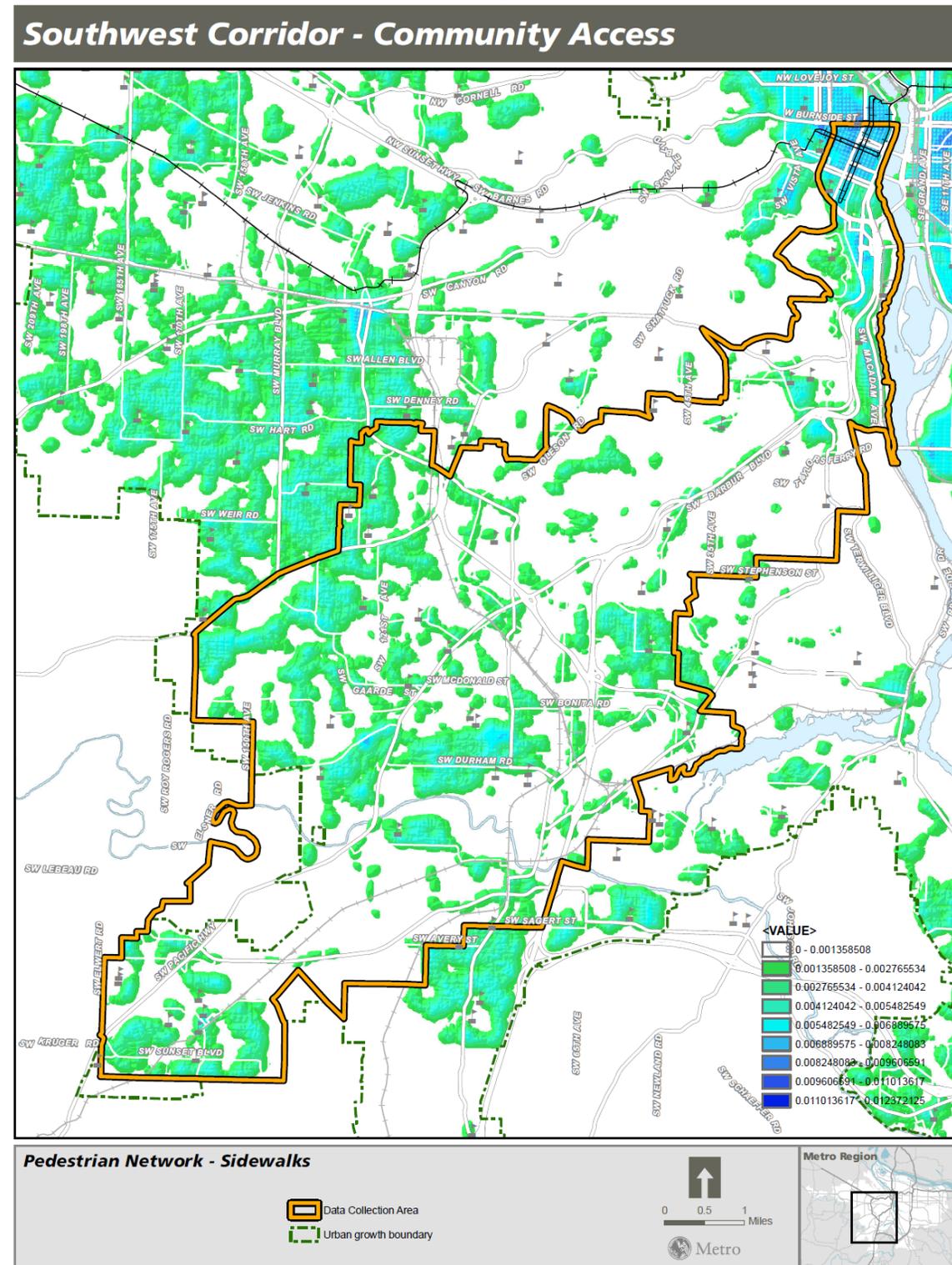
	<p>off-street trails to provide connections. Throughout the City pedestrian and bicycle facilities for all schools, parks, public facilities, and commercial areas are to be provided.</p> <p>The City prioritizes multi-modal access throughout the TSP, the Pedestrian and Bicycle System Plans offer the roadmap and system plans for Tigard’s development of active transportation options.</p> <p>The City’s Greenway Trail System Master Plan has the objectives of increasing the opportunities for walking, bicycling, and accessing transit through the development of trail improvement projects and to identify locations for potential new greenway trails as a means to further promote sustainable, non-auto travel and healthy lifestyles.</p>
Tualatin	<p>The City’s Development Code includes the Community Plan’s Chapter 9 takes steps to allow access to the City’s Green Corridors while minimizing development pressures on rural reserve areas. Chapter 11 notes that there is a lack of transit service both to downtown Portland and to Westside suburban locations and there is a lack of funding to alleviate the problems. Section 11.200 addresses bikeways, bike lanes, shared roadways and bikeway implementation priorities. Section 11.300 addresses pedestrian paths and proposes locations where greenway connections can be made and increased pedestrian access can be provided. Section 11.400 states that it is the City’s goal to have every citizen within two to three block walk from a bus line.</p> <p>The Transportation System Plan’s Chapter 3.3.1 outlines the City’s goals and objectives for pedestrian transportation. To encourage walking it is recommended that continuous pedestrian facilities connect neighborhoods and employment areas. These are to be integrated with transit stops. Chapter 3.3.2 relates to bicycles and states that bicycles should be provided support facilities to make them a viable alternative to motor vehicles. Chapter 3.3.3 addresses transit availability and convenience. The City is currently updating the Transportation System Plan</p> <p>The Tualatin Parks and Recreation Master Plan offers the City’s plan for the development of park facilities. Included in this plan is the creation of pathways connecting neighborhood streets to and through the parks.</p>
Beaverton	<p>The Comprehensive Plan includes the City’s Transportation System Plan (TSP). The TSP is articulated through eight goals, all goals hinge upon the creation of a livable community. The creation of a balanced multimodal transportation system is stressed, making access and mobility important planning policies. These policies are to provide “a seamless and coordinated transportation system that is barrier-free, provides affordable and equitable access to travel choices, and serves the needs of people and businesses.” The TSP supports, encourages and implements strategies that will move the City toward attaining Metro’s 2040 Regional Non-Single Occupant Vehicle Modal Targets.</p>
Lake Oswego	<p>The Comprehensive Plan instructs the City’s transportation system development through coordinated policies. Goal 8 of Parks & Recreation calls for the provision of park, open space, and recreational facilities: both active and passive. The Transportation System Plan (TSP) includes the pedestrian, bicycle and public transportation plans. These plans direct strategies to improve connections within the City and with the City of Portland. These plans aim to lower single occupant automobile trips, to lower vehicle miles traveled and to improve livability. The City</p>

	<p>is currently updating the TSP.</p> <p>The Parks & Recreation Comprehensive Plan and the Trails Master Plan provide guidance for the cities recreational facilities and pathways. The 2001 Open Space Plan provides direction for open spaces, green neighborhoods, and regional connections.</p>
<p>Tualatin Hills Park & Recreation District</p>	<p>The Trails Plan for the Tualatin Hills Park & Recreation District (THPRD) has the goals of providing recreational opportunities, regional connections, community access, and community linkages. The plan addresses issues of limited trail-roadway crossing opportunities, limited public rights-of-way and encroachment, is to better connect facilities. The Plan outlines plans for regional trails within the Southwest Corridor including the Westside Trail (formerly the Beaverton Powerline Trail) and the Fanno Creek Greenway Trail.</p>

2.2 Pedestrian access environment

The pedestrian environment within the Southwest Corridor reflects the patterns of building that have taken place over the years. These development patterns influence the levels and ease of active transportation for residents of, and visitors to, these neighborhoods. Analysis of the pedestrian access focus areas, existing pedestrian infrastructure, pedestrian crash information and the policies in place create an image of the current pedestrian network. The maps below illustrate the patterns of development in the Corridor and how they may affect community access. The first two maps show where the concentrations of sidewalk densities exist in the study area and where there are gaps; the following maps have the road networks illustrating where sidewalks exist in the Corridor.

Figure 2.2.1: Pedestrian network sidewalk density



As shown in the above pedestrian network map, the historic Portland downtown core, in blue, provides a tight pedestrian-friendly environment with lower vehicle speeds, excellent continuity and available sidewalks. As development spread from downtown and across difficult topological barriers, the availability of pedestrian infrastructure falls off precipitously. The red lines in Figure 2.2.4 one through three below represent sidewalk gaps. Throughout the Southwest Corridor there is an abundance of sidewalk gaps and a dearth of connectivity. These gaps are coupled with topographic constraints of steep hills and tight ravines and an auto-oriented built environment along arterials that acts as a cordon line. In the Corridor, sidewalks are often found along high speed arterials and do not extend into neighborhoods. In areas without sidewalks that have low observed motor vehicle speed and motor vehicle volume, the lack of pedestrian infrastructure may not present a great barrier to walking. Without sidewalks, the walkability of the community is diminished, as is safety and convenience.

Figure 2.2.4: Existing pedestrian facilities 1:3

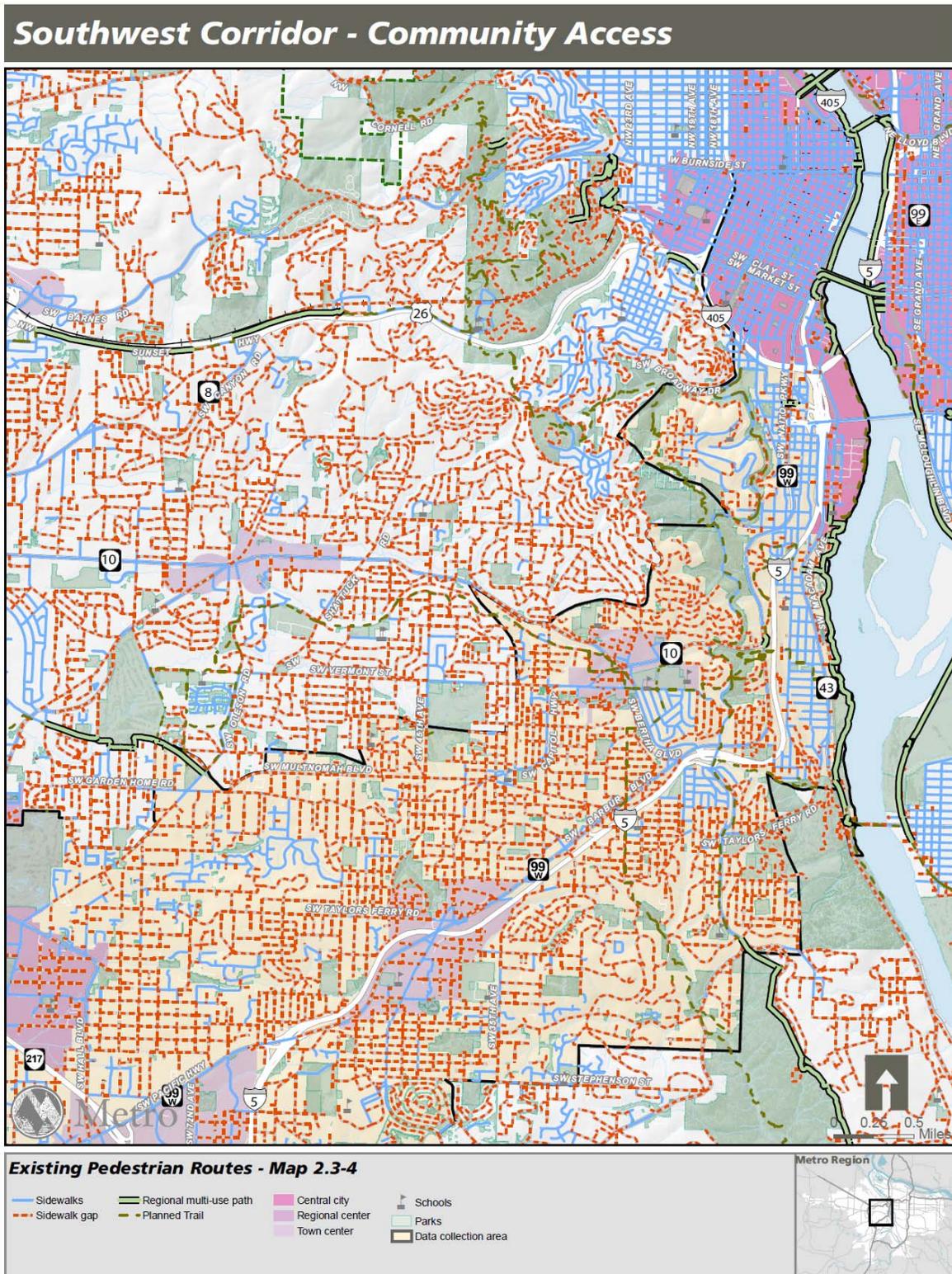


Figure 2.2.4: Existing pedestrian facilities 2:3

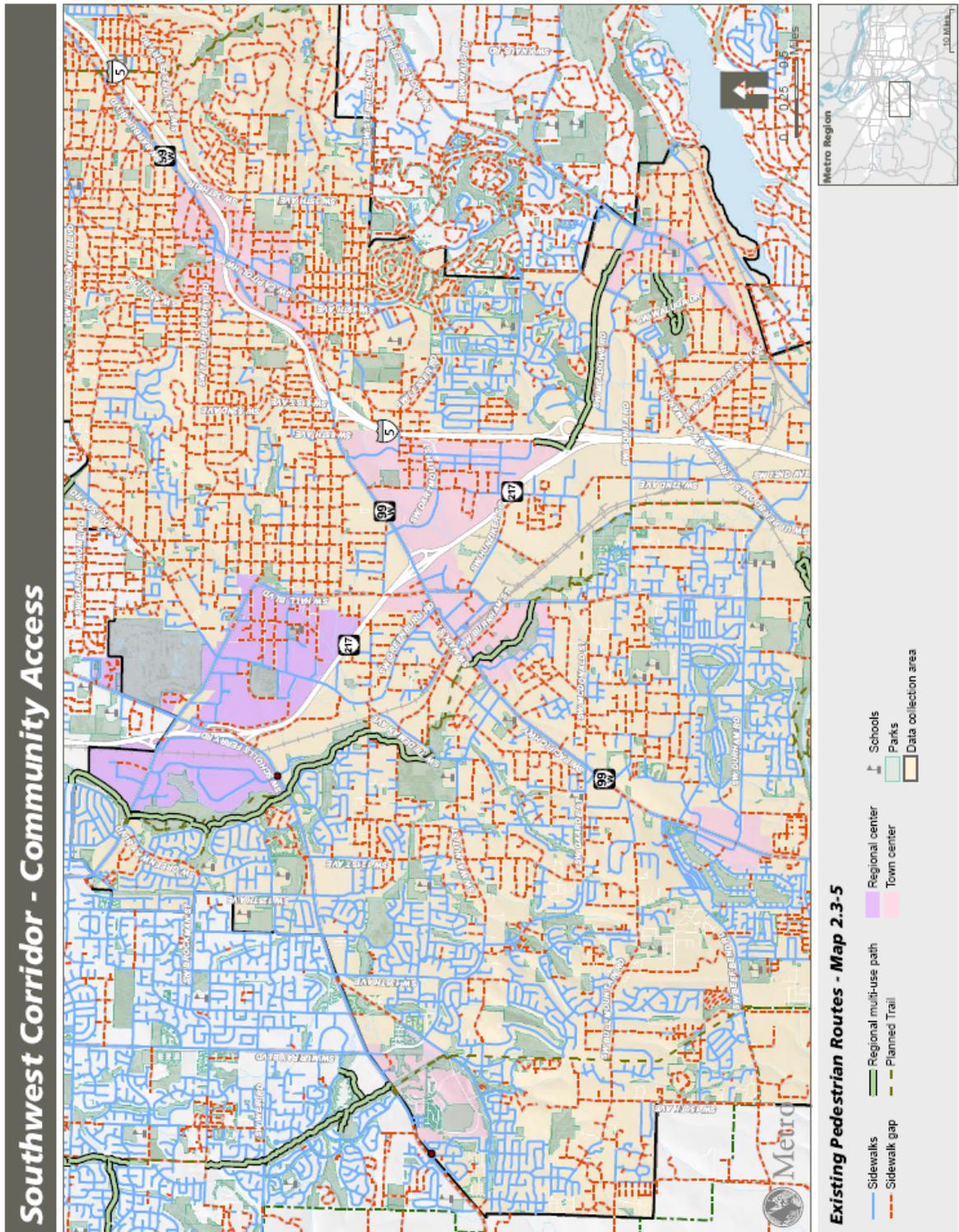
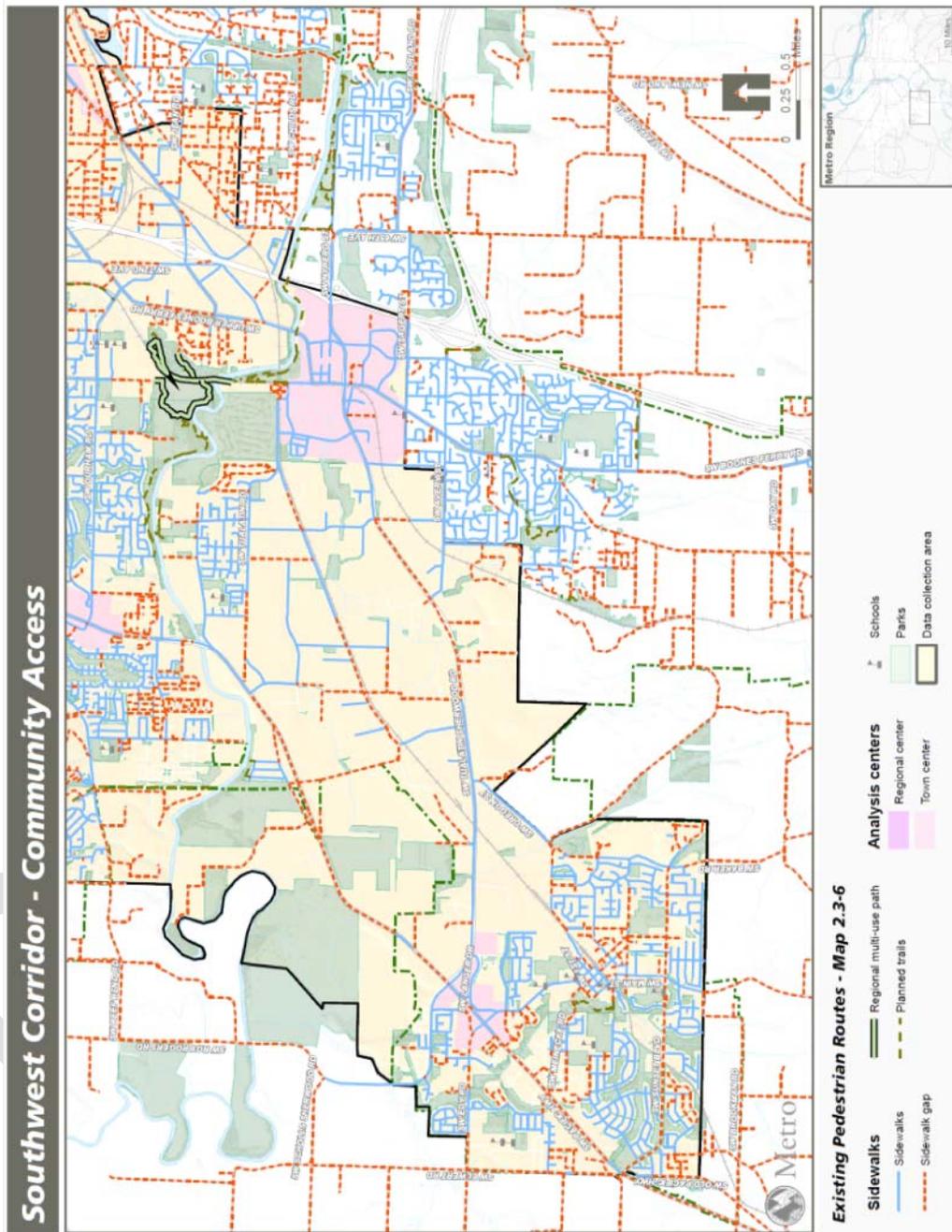


Figure 2.2.5: Existing Pedestrian Facilities 3:3



unmarked crossings extremely dangerous. Sidewalk connectivity was incorporated in the developments of the 1990s that are represented in this map. The fourth map represents a heat map of the sidewalk network density in the Corridor.

Safe Routes to School programming

Active transportation safety for youth is supported through Safe Routes to School (SRTS) programs. SRTS programming educate and encourage more walking and biking to school including maps of safe walking and biking routes, programs that introduce and reinforce pedestrian and bicycle safety, education for students and parents on safe drop-off and pick up zones, and ongoing support for families. Successful programs rely on safe and available infrastructure in the area, well-located schools and a desire to create healthier safer neighborhoods.

In the study area, SRTS programming is strongest in the cities of Portland and Beaverton. Both cities have partnered with the State of Oregon's SRTS program. In the Southwest Corridor, the City of Portland has two schools, Capitol Hill Elementary and Rieke Elementary, which have full SRTS programs instructing youth about safe walking and biking habits. SRTS walking and biking counts for the two schools show that while the percentage of walkers has fluctuated, usually remaining lower than citywide averages for SRTS program schools, the percentage of bikers remains significantly lower in the Southwest Corridor compared to citywide averages for SRTS program schools. For example, in fall 2011, the citywide bike average was 7.57 percent while it was 3.52 percent in the study area; spring 2011: 8.47 percent citywide, 2.57 percent in the study area; fall 2010: 7.93 percent citywide, 1.22 percent in the study area; spring 2010: 5.74 percent citywide, 0.60 percent in the study area. The earliest comparable data points, fall 2007, is the only time that schools in the study area had numbers higher than city averages. The initially higher numbers may be a result of early excitement surrounding the program's launch. Topography and road volumes likely influence the overall trend of lower ridership.

In 2010, Beaverton was awarded an Oregon Department of Transportation Safe Routes to School program grant of \$100,000 over a two-year period. By the end of the two-year grant all Beaverton School District schools will have access to programs. Currently, the city has 10 pilot programs. The October 2011 first year report evaluating the pilot programs found that there has been a 24 percent increase in walking and biking, and driving has decreased by 5 percent compared to 2010 data. It also found that in 2010, 59 percent of parents thought that schools discouraged walking and biking to school; in 2011, that number dropped to 21 percent.

The cities of Lake Oswego, Sherwood, Tualatin and Tigard do not have official SRTS programs but have expressed interest in SRTS programs.

Pedestrian focus area study

During the spring of 2011, data was collected assessing the existing pedestrian conditions in a number of focus areas by Portland State University graduate students. The focus areas were identified by TriMet as important nodes for transit access. Through an analysis of the land use mix, quality of bicycle and pedestrian infrastructure, and existing roadway conditions, students assessed the transit supportiveness of the focus areas. Since transit ridership is strongly connected to the accessibility of the transit services, the quality of the walking and biking paths is very important. Students provided case studies of the 18 focus areas located along the Southwest Corridor. Map 2.2.4 identifies the locations of these focus areas, and Table 2.2.1, below, describes the existing conditions noted in those areas.

Figure 2.2.4: Existing pedestrian condition assessment focus areas

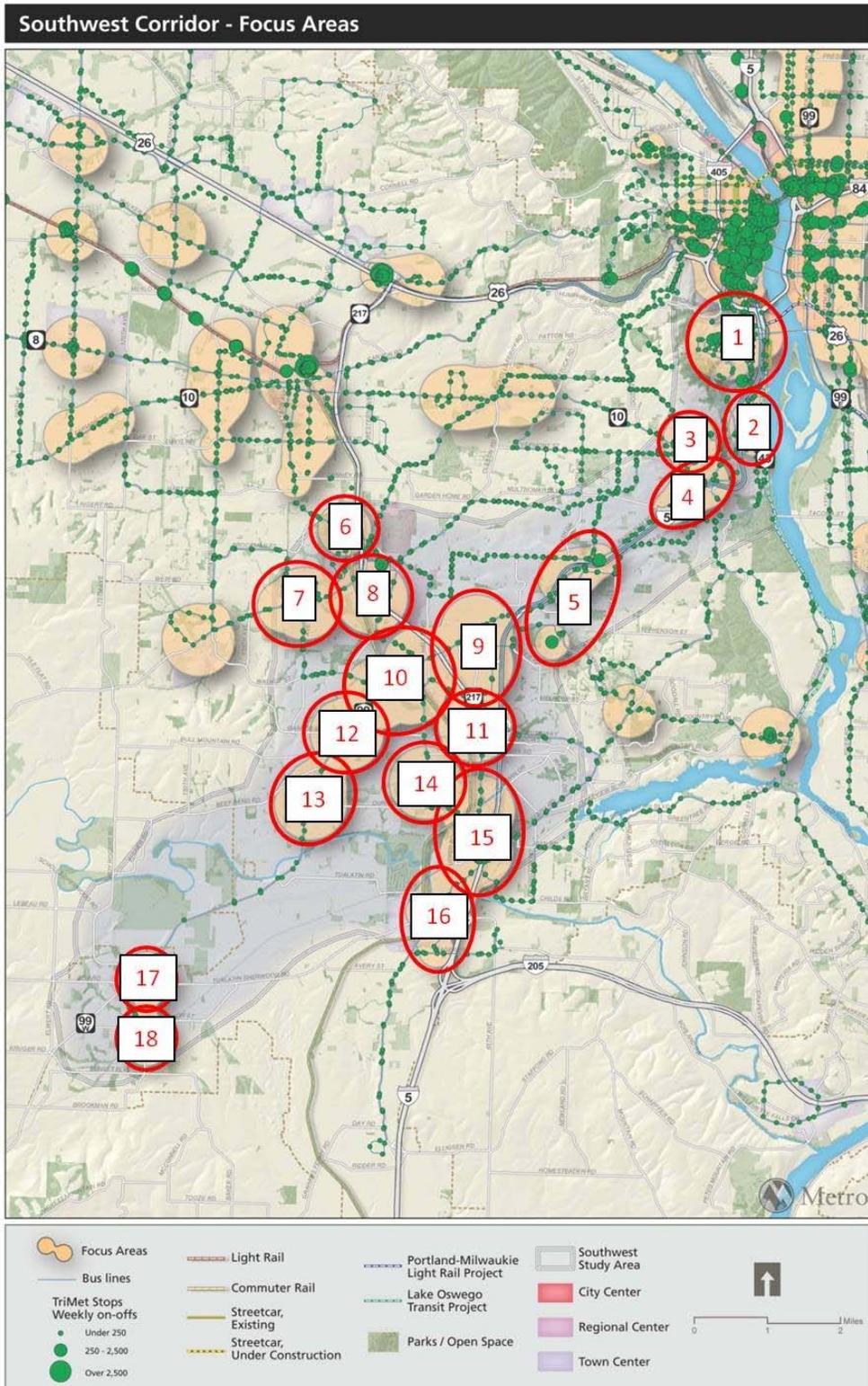


Table 2.2.1 Pedestrian Focus Area Analysis

Focus Area Identification	Existing Conditions
1: South Waterfront, Lair Hill, OHSU Campus	There is deficient sidewalk connectivity throughout the focus area. In the South Waterfront sidewalks do not meet ADA compliance. In the Lair Hill neighborhood inadequate space at transit stops, poor corner and crosswalk design, and inadequate traffic speed limit signs dominate. In the OHSU campus area crosswalk safety and lack of stop amenities are safety deficiencies.
2: John's Landing	Inadequate stop facilities and ADA compliancy found at transit areas. Design is not to human-scale; high-speed arterials and limited pedestrian crossings create dangerous pedestrian environments.
3: Hillsdale	Sidewalk availability is the chief deficiency in the focus area. Sidewalks, when available, lack connectivity. Lack of crosswalks force jaywalking to transit stops. Red Electric Trail Gap exists between south end of Slavin Rd. (at the intersection of Barbur and Capitol Hwy.) and 40-mile Loop Trail through George Himes Park.
4: Burlingame	Sidewalk disconnectivity and infrequency are an issue in the focus area. Lack of sidewalks force walking in the roadway. Where sidewalks existent, they often end abruptly. The lack of crosswalk availability is a challenge to bicycle users. Signal timing is inadequate for pedestrians attempting to cross SW Barbur Blvd. There are inadequate pedestrian safety warning signs at the intersection of SW Barbur Blvd. and SW Bertha Blvd.
5: SW Barbur Blvd., Taylors Ferry Rd. & Capitol Hwy.	Inadequate frequency and connectivity of sidewalks. Insufficient waiting areas at transit stop space with no prepared area for waiting riders. Few functional pedestrian traffic signals and almost no marked sidewalks provide a dangerous pedestrian environment.
6: Hall Blvd.	Fanno Creek intersects Hall Blvd. without a crossing for trail users. Inadequate sidewalks on the north side of Hall Blvd. require pedestrian crossings. Disconnectivity of bike lanes creates network gaps.
7: Scholls Ferry Rd.	The scale is beyond the pedestrian experience with little access to transit due to a large sound barrier. No pedestrian access to retail development. Residential area contains continuous sidewalk infrastructure but is not connected to adjacent commercial area. Crossing distances are over 100 ft. in sections.

- 8: Washington Square Scholls Ferry Rd. is missing sidewalks on the north side of Hwy. 217; some sidewalks on north side of Washington Square Mall have major obstructions built into the environment such as light poles in the middle; sidewalks are discontinuous in the areas outside of the Mall often forcing pedestrians to cross roadway; no sidewalks on Cascade Ave. to connect to Cascade Plaza from Scholls Ferry Rd. Pedestrian crossings along Greenburg Rd. are horseshoe style with one side missing a crosswalk. Crossing Hwy. 217 on Scholls Ferry Rd. there are no sidewalks. Limited Connectivity with the Washington Square Mall property due to low number of sidewalk sections and the need to cross large parking lots. The Washington Square Loop Regional Trail is proposed to better connect the area.
- 9: SW Pacific Hwy.- I-5 to Hwy. 217; SW 68th Ave.- SW Pacific Hwy. to Hwy. 217. Pacific Hwy. (99W) has continuous sidewalks for most of the focus area. Along Pacific Hwy. a couple of segments are in need of improvements. Long crossing distances at intersections.
- 10: Pacific Hwy. West (99W) and Main St. Sidewalks only on south side of SW Walnut St. in area. No bike lanes present on SW Walnut St. Sidewalk is blocked by fence or restricted along 99W in sections. Sidewalks missing in two sections along 99W. Sidewalks are present on both sides of Main St. There is a lack of a planted buffer throughout area. Short crossing time of 25 seconds on 99W intersections.
- 11: SW 72nd & Sandburg St. No roads in focus area have continuous sidewalks. Major gaps exist. Few crossing opportunities exist along Hunziker St. Four of six crossings lengths were greater than 100 ft. The last major gap in the Fanno Creek Trail is from Bonita Rd. to Durham City Park.
- 12: Pacific Hwy. West (99W) Cliff face without sidewalks along 99W eastbound side between Canterbury St. and Bull Mt. Rd.; gravel sidewalks exist on the westbound side. Protected crosswalks at major intersections, crossing requires passage of 4-6 lanes. Corner of Bull Mt. Rd. and 99W has poor pedestrian accessibility, three separate movements required to cross; also at intersection bus stop is set behind the guardrail on a steep embankment.
- 13: Pacific Hwy. west (99W)- King City Sidewalk disconnectivity along the study area. Auto-oriented design limits access for pedestrians. Few crossing opportunities along 99W. Sufficient crossing time allowed at signalized pedestrian crossings, 50 seconds. There is a deficiency in the Tualatin River Greenway Trail on either side of 99W.
- 14, 15, and 16: Tualatin-Tigard focus area Sidewalks exist but are often only present on one side of a road. Sidewalk disconnectivity is an issue throughout the area. Lack of adequate bicycle facilities throughout area. Along Hall Blvd. sidewalks are only on one side of the street, the side changes force pedestrians to make numerous crossings.

- 17: Sherwood Town Center Sidewalks in the commercial area lack connectivity. Area lacks sidewalks along 99W. Area lacks ADA curb cuts at many crossings.
- 18: Sherwood Old Town Sidewalks are present throughout the old town district. Sidewalk obstructions abound throughout the area including light and sign posts, café tables, and vegetation. Crossings are colored pavers with numerous flashing lights to alert drivers to a pedestrian’s presence.

Bicycle and pedestrian crash data analysis

Through analysis of 2007-2008 pedestrian and bicycle crash information it is possible to determine high impact areas within the data collection area. Note that the data analysis constraints created by the date of the available crash data and the imperfect reporting of crashes by those involved and by law enforcement. In the time represented, there were a total of 75 pedestrian crashes, with most crashes concentrated in the downtown Portland portion of the data collection area and along the course of 99W. There were a total of three pedestrian fatalities during the study period. All fatalities happened on roads with sidewalks, indicating that crossing safety improvements are necessary. Two fatalities happened on minor arterials with long sight-lines, limited marked crossings and sidewalks. One happened on Southwest 121st Avenue near Scholls Ferry Road and another happened near Southwest 121st Avenue and Walnut Street. High speeds, few marked crossings and limited sight distances can all contribute to unsafe conditions. Driver awareness, discretion and care are the intangible factors. Another pedestrian fatality happened in an office park on Southwest Sandburg Street with sidewalks, no marked crossings and without stop signs at turns. Vehicle speed and the built environment’s facilitation of excessive speed creates lethal conditions for those not in automobiles.

<p>Rate of survival for pedestrians hit by automobiles travelling at:</p> <p>20 mph: 95 percent chance of survival</p> <p>30 mph: 55 percent chance of survival</p> <p>40 mph: 15 percent chance of survival</p> <p><i>Source: United Kingdom Department of Transportation, 1994</i></p>

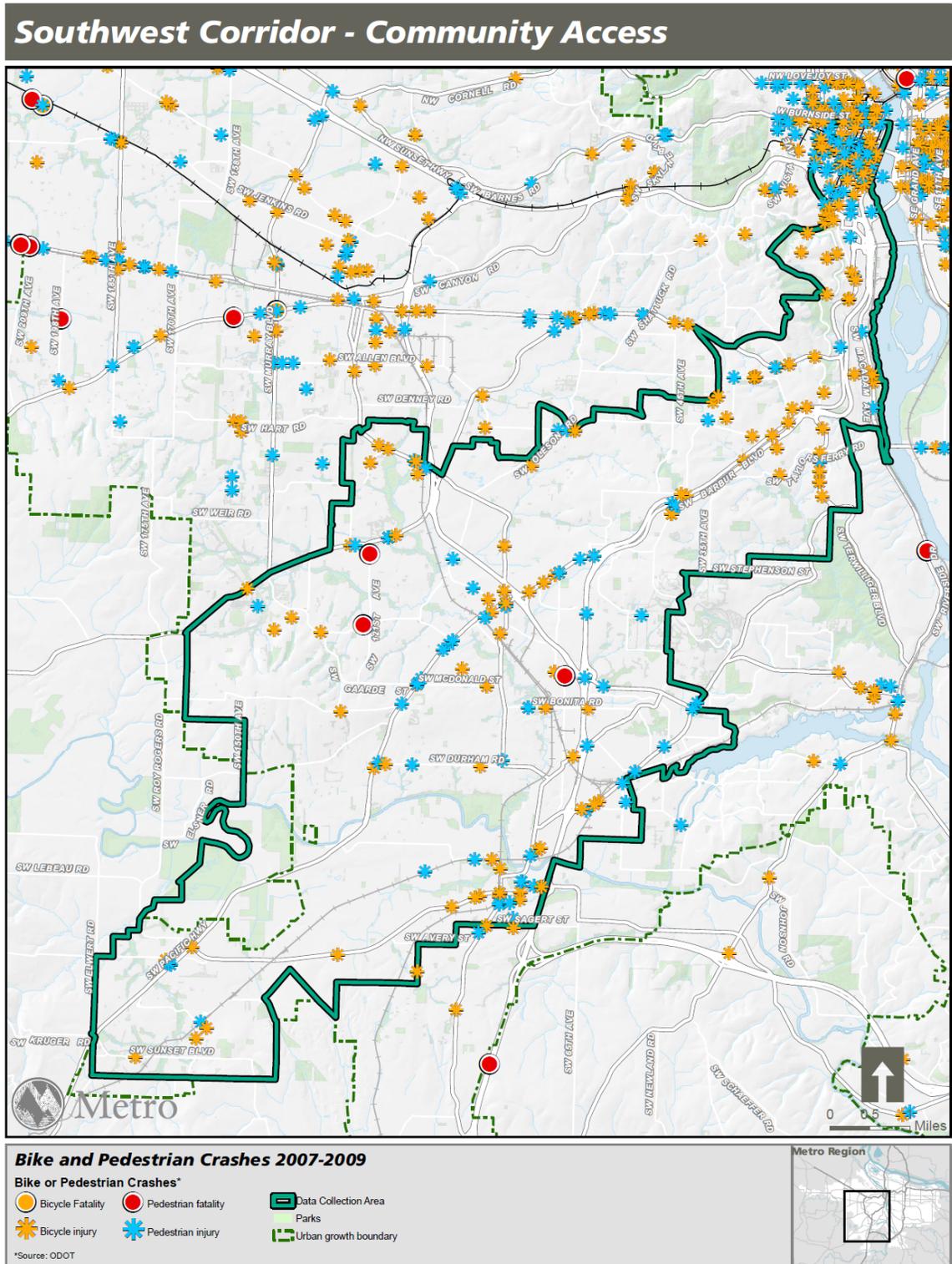
No bicycle fatalities happened in the Corridor during the data collection period. There are many bicycle crashes with reported injuries and more that may have gone unreported. The massing of bicycle crashes can be seen in the downtown Portland section of the Corridor and along arterials such as Southwest Barbur Boulevard (99W) near the Bertha Boulevard intersection, Southwest Capitol Highway near Multnomah Village and along Tualatin-

Sherwood Road in Tualatin. These arterials are often the only readily available route for bicycles and provide a high risk riding environment that is unsafe and uninviting.

The large number of pedestrian and bicycle crashes with injuries along the arterials may result from concentrations of services provided along high speed arterials with limited pedestrian and bicycle facilities. Pedestrians and bicycles must navigate wide streets, auto-serving driveways, large parking lots, limited light timing sequences and bike lanes placed alongside roads with speed limits at or above 45 miles per hour. If greater consideration is made for the needs of community accessibility the number of injuries and deaths for all road users will decline.

Traffic studies, safety focus areas and local transportation plans coordinated with the Southwest Corridor Plan may increase traffic safety awareness and action in the study area. The City of Portland has identified Barbur Boulevard as a high crash corridor. This designation brings increased safety in engineering and enforcement to the Corridor. A number of improvements are planned from sidewalk infill to flashing beacons at crosswalks to increased safety enforcement. Together these policies and projects aim to significantly lower the crash rates in the area. See Appendix E for the City of Portland's Barbur high crash corridor plan. Similar plans throughout the Corridor may influence the crash rates for all users and significantly improve the quality of life for all road users.

Figure 2.2.5: Bike and pedestrian crashes in the Southwest Corridor



2.3 Bicycle access environment

The existing conditions for bicycle users highlight a number of problems and opportunities. The problems include a lack of street connectivity, hills and limited or no provision of bicycle facilities, way finding or secure bicycle parking. The built environment presents riders with many driveways, parking lots and high-speed arterials as the only connecting routes. While all jurisdictions within the study area include considerations and encouragement of bicycles in their transportation system plans, the encouragement is only seen on the ground in a limited fashion.

The maps of existing bicycle facilities demonstrate that most bicycle routes in the Corridor follow high-speed arterials. Limited parallel, low traffic, calm routes are available to avoid unsafe riding conditions. Many gaps in the network remain. If implemented, plans to develop trails and denser street connections would provide a bicycling environment that would encourage higher mode shares.

The City of Portland bicycle counts (Table 2.3.1 below) show that there are a number of popular routes in the Corridor. Southwest Moody Avenue and Gibbs Street and Southwest Moody Avenue and River Parkway in South Waterfront Park have large number of riders as do all roads monitored that lead to the Oregon Health & Science University campus, particularly Terwilliger Boulevard and Broadway. These areas have high ridership, compared to other areas in the Corridor, despite the built environment limitations and presence of hills. It is noteworthy that Barbur Boulevard has a fairly high number of riders, and it is also an identified high crash area. This popular route has higher use, heavy traffic volumes and poor facilities but provides an important connection for cyclists. Safety improvements will make this important connection to downtown Portland safer and more comfortable for all users.

Figure 2.3.1: Existing bicycle facilities 1:3

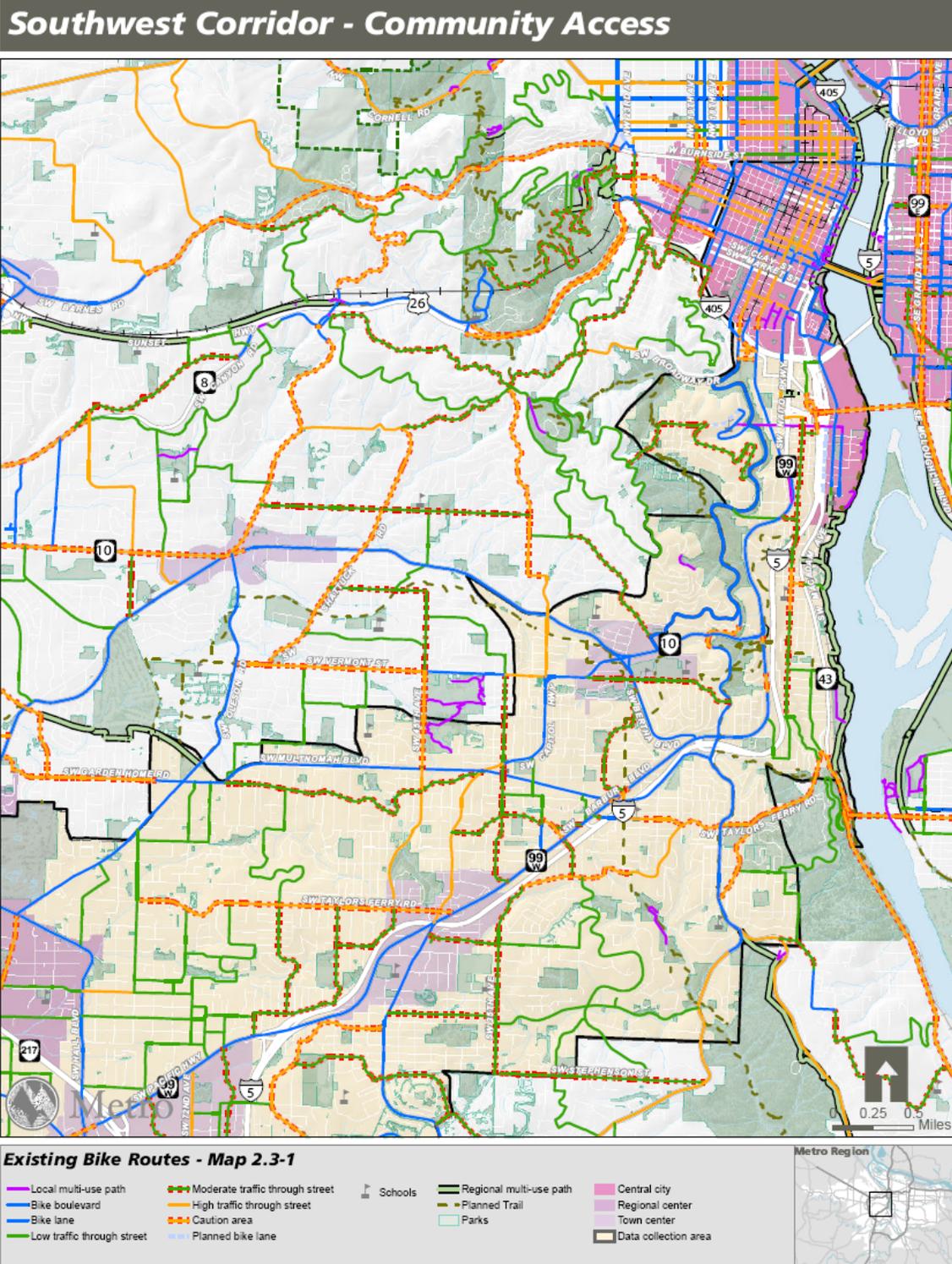


Figure 2.3.2: Existing bicycle facilities 2:3

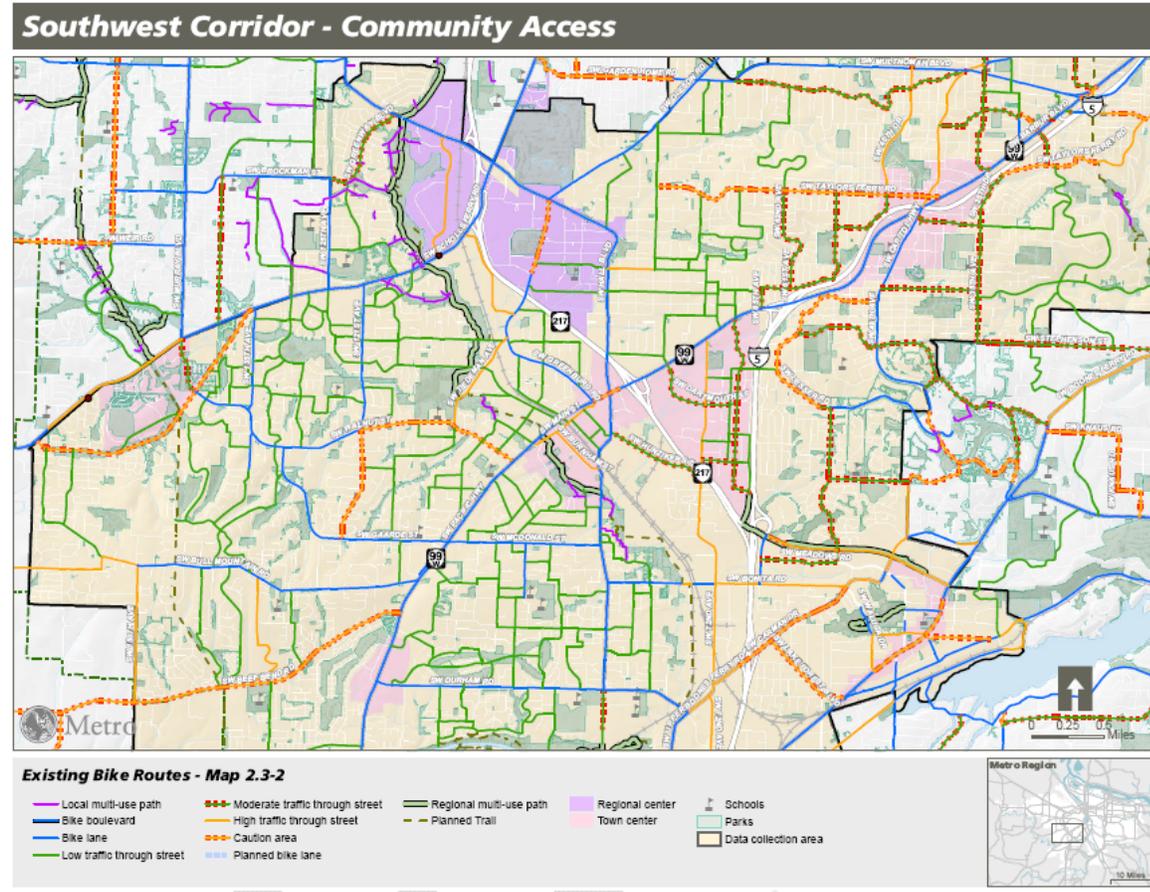


Figure 2.3.3: Existing bicycle facilities 3:3

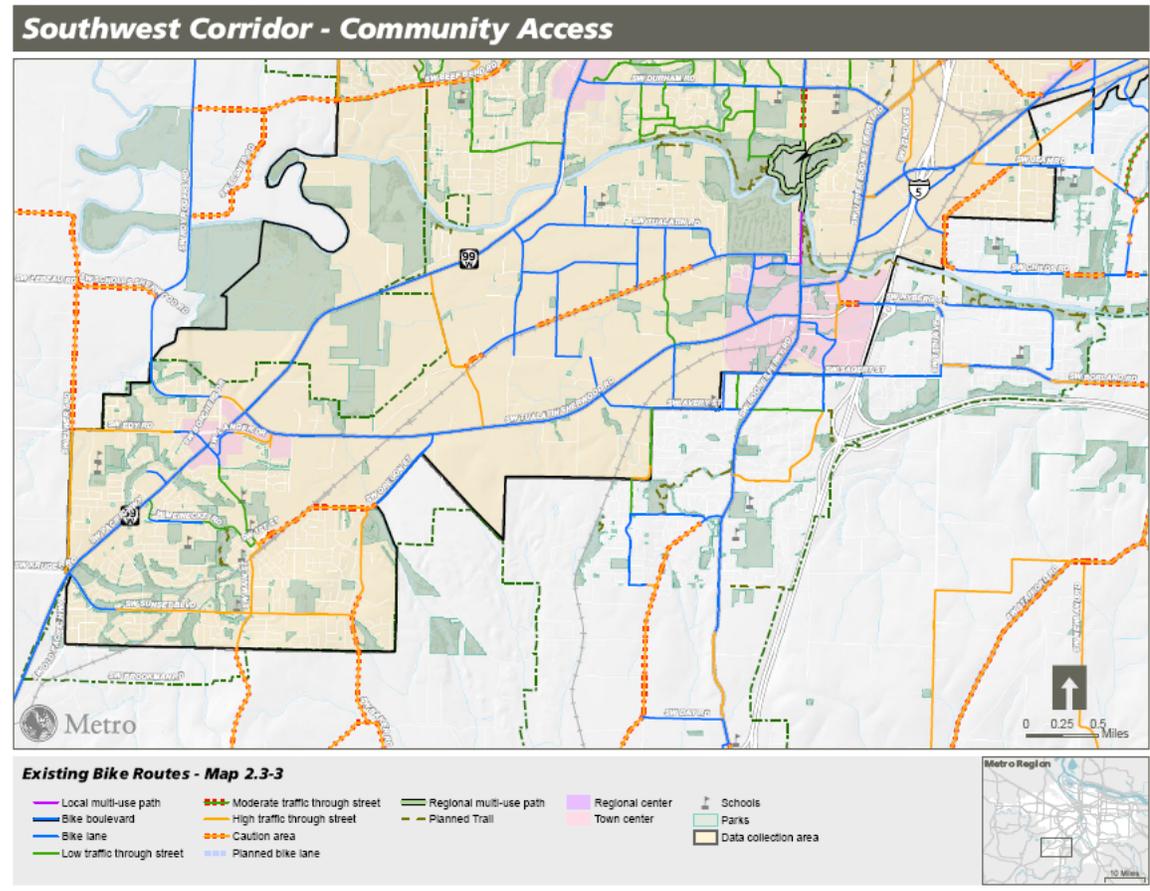
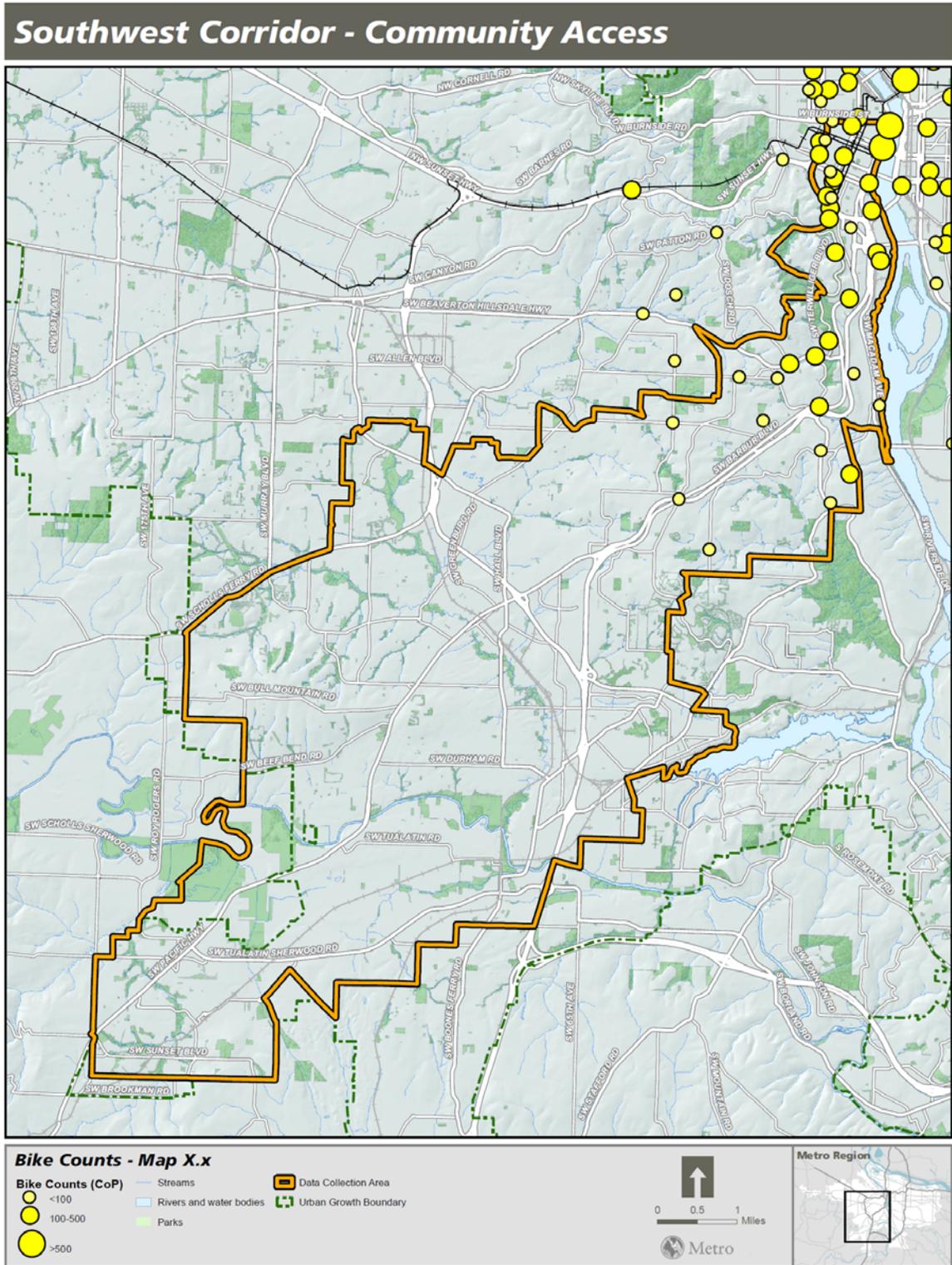


Table 2.3.1: Southwest Corridor 2010 bicycle counts; all locations are within existing bike route map 1:3

City of Portland 2010 one-day bicycle counts: Southwest Corridor					
Location	Year	Total men	Total women	Total cyclists	
SW Arnold & 35th	2010	3	1	4	
SW Arthur & 1st	2010	61	22	83	
SW Barbur & Hamilton	2010	111	39	150	
SW Barbur & Terwilliger	2010	160	44	204	
SW Barbur Blvd & Capitol Hwy	2010	50	5	55	
SW Bertha & Vermont	2010	36	13	49	
SW Bond & Curry	2010	72	36	108	
SW Capitol & Sunset	2010	108	17	125	
SW Capitol Hwy & Terwilliger	2010	126	39	165	
SW Capitol Hwy & Vermont St	2010	49	20	69	
SW Corbett Ave & Nebraska St	2010	16	7	23	
SW Illinois & 45th	2010	8	1	9	
SW Miles & Willamette Greenway	2010	60	14	74	
SW Moody & Gibbs	2010	221	127	348	
SW Multnomah & 45th	2010	56	17	73	
SW Palatine Hill & Riverview Cemetery	2010	82	30	112	

SW Terwilliger & 2nd	2010	46	11	57
SW Terwilliger & Campus Dr	2010	155	74	229
SW Terwilliger & Sheridan	2010	111	33	144
SW Terwilliger & Taylors Ferry Rd	2010	64	22	86
SW Terwilliger & Westwood	2010	137	44	181
SW Troy & Capitol Hill Rd	2010	10	5	15
SW Broadway & 6th (S of I405)	2010	230	51	281
SW Broadway & Jackson	2010	101	35	136
SW Broadway & Montgomery	2010	168	34	202
SW Broadway & Main	2010	112	47	159
SW Broadway & Mill	2010	90	34	124
SW Waterfront Park & Morrison Bridge	2010	504	263	767
SW Jackson & 6th	2010	52	20	72
SW Jefferson & 13th	2010	103	27	130
SW Moody & River Prkwy	2010	196	135	331
SW Park & Market	2010	40	25	65
SW Park & Oak	2010	90	39	129
SW Waterfront Park & Ankeny	2010	459	214	673
SW Waterfront Park & Harbor Way	2010	265	177	442
	AVG:	119	49	168
	TOTAL	4,152	1,722	5,874

Figure 2.3.4: Bicycle count locations



2.4 Community access to trails

Within the Southwest Corridor a network of trails exists that begin to link neighborhoods to parks, jobs and services. When completed, the planned network of trails will provide essential connections for transportation and recreation. These off-street non-motorized linkages are important threads that tie neighborhoods together. Trails offer access to nature, recreational opportunities and link important destinations. Many trails traverse green space that has been preserved in the study area.

Trails are of regional importance. Connecting neighborhoods, town and city centers to nature, they offer active transportation options on a personal, local and regional scale. Metro has teamed with local governments, businesses, nonprofits and citizens to create a system of parks, trails and natural areas called The Intertwine. The Intertwine is the result of ongoing partnerships between groups and municipalities committed to linking the region and to providing active transportation links to parks, recreation, services, schools and jobs.

There are two trails considered “regional” in the study area. According to Metro’s definition, a regional trail:

1. Must be primarily (at least 75 percent) off-street.
2. Must meet at least four of the following criteria:
 - a. Located along the Willamette Greenway
 - b. Multi-jurisdictional
 - c. Connected to other regionally significant trails
 - d. Connected to regional centers, town centers, industrial areas and/or high frequency transit service.
 - e. Connected to or through significant habitat areas, wildlife corridors or other Goal 5 resources
 - f. Likely that the trail will receive use.

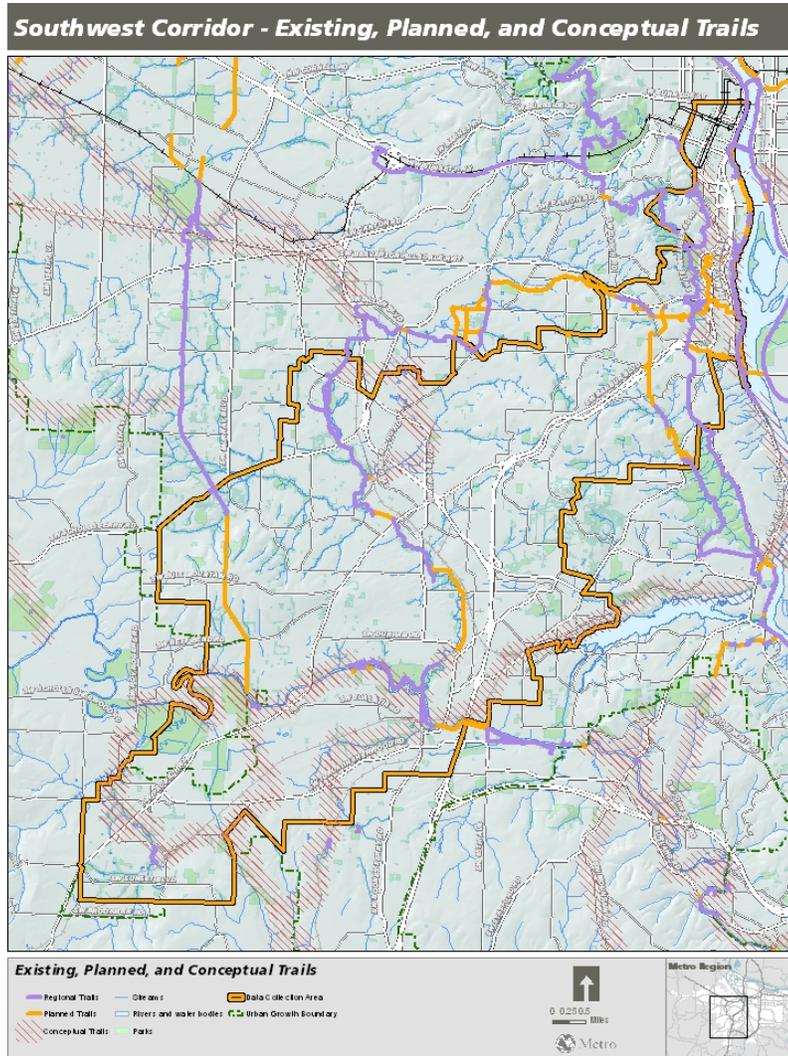
The two trails that meet these criteria in the Southwest Corridor are:

- **The Fanno Creek Greenway Trail:** This trail begins at Willamette Park on the Willamette River Greenway, just south of downtown Portland. It stretches 1.5 miles to the west and south through Beaverton, Tigard and Durham, ending at the Tualatin River in Tualatin. Approximately half of the trail is complete; additional sections are under construction.
- **The Terwilliger Trail and Parkway:** Running along Terwilliger Boulevard in Portland’s Southwest Hills from Duniway Park to Oregon Health & Sciences University

campus and George Himes Park, this trail heads south to Lake Oswego and ends at Highway 43 near the Willamette River Greenway.

Other trails that exist in the study area are considered local trails. These are composed of recognized trails maintained by the municipalities and a network of trails maintained by community groups such as Southwest Trails in Portland.

Figure 2.4.1: Existing, planned and conceptual trails



Map 2.4.2: Southwest Trails Urban Trails Plan

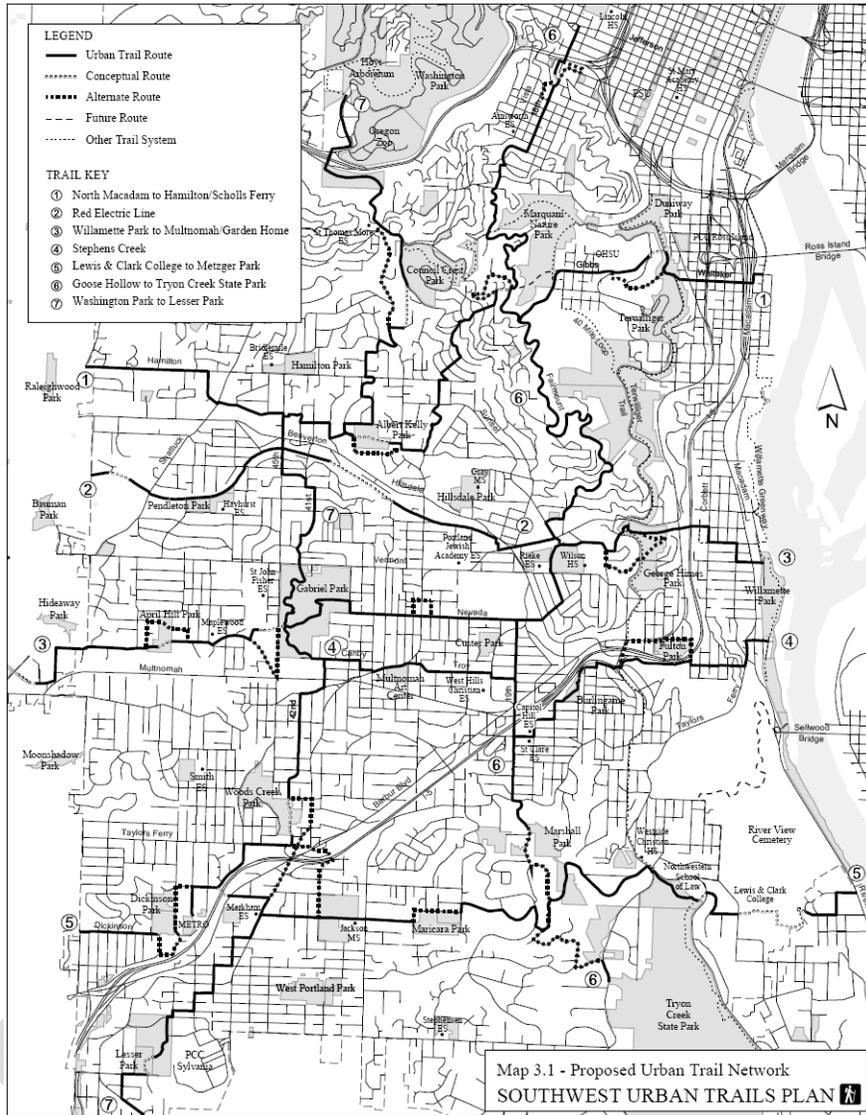
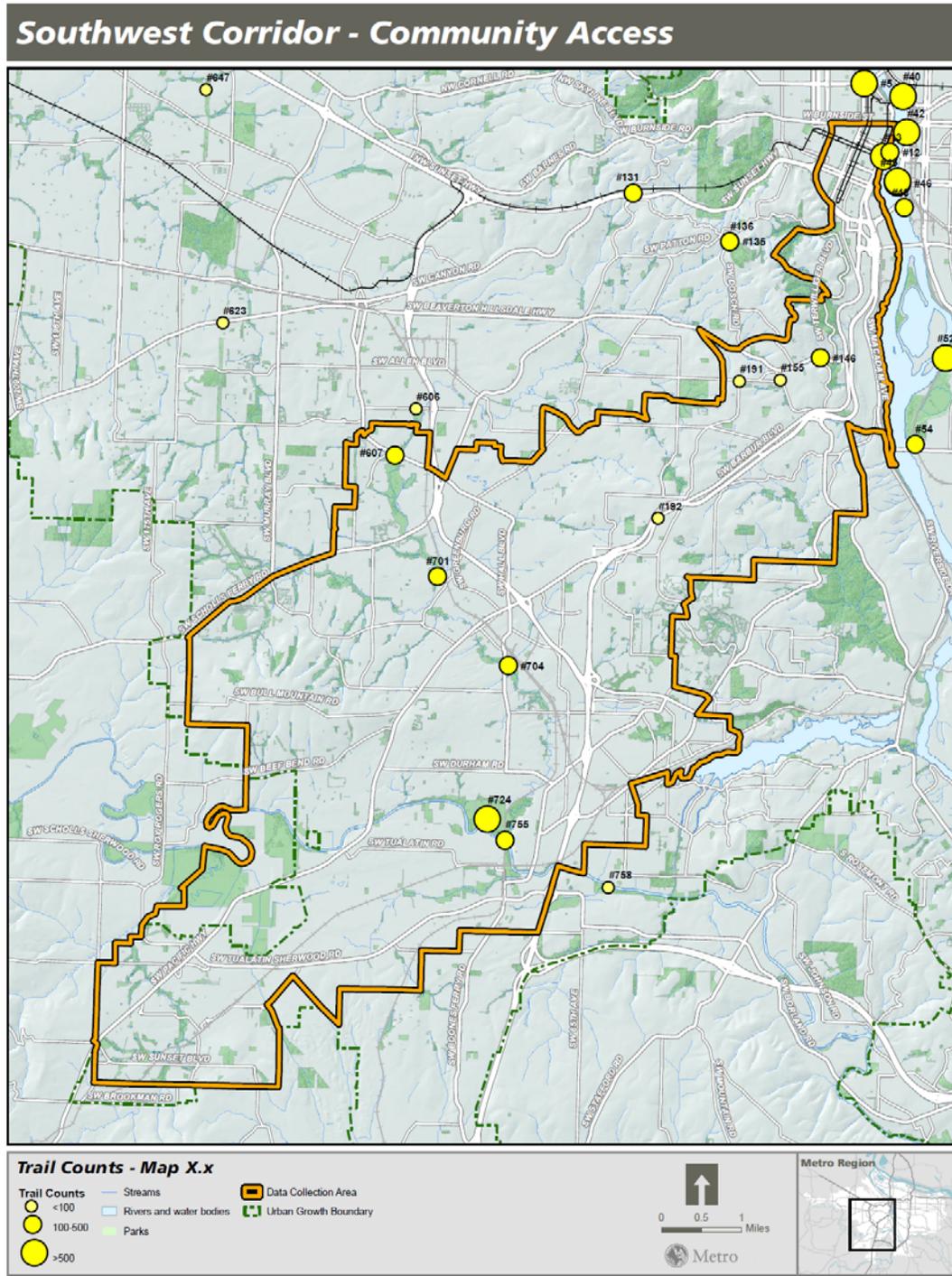


Figure 2.4.3: Trail counts

Appendix A represents the trail counts in the Southwest Corridor. The counts have been divided by trail, time of day, day of the week, and trail user type. Though not all trails were counted at the same time of day in the same weather, the user trends



present themselves through study of the number and type of users. The trail counts

show that the Tualatin River Greenway Trail remains busy throughout the day as do the Terwilliger Boulevard Path and the Fanno Creek Trail.

2.5 Metro's OptIn active transportation survey

In late fall 2011, Metro conducted a survey with its online opinion panel, focused on active transportation. The online panel, Opt In, consists of more than 9,500 volunteers who receive email invitations to participate in a variety of surveys related to the region's future planning efforts. The panel consists of people throughout the region, and Metro strives to form the panel as representative as possible. For this analysis, data from the active transportation survey was clipped to the study area's geography.

In the Southwest Corridor, a total of 373 respondents took the survey. The results found that in the past month 15 percent of the respondents biked and 37 percent walked for transportation, recreation, running errands or for fun. When prompted with the above question about transportation mode, 17 percent and 20 percent stated that they rode the bus and MAX, respectively. The top reasons for walking and biking were: It is good for your health (28 percent); good for the environment (18 percent); and it is enjoyable (17 percent).

When asked how often they ride a bike for transportation only to work, school, or for an errand 5 percent responded "daily"; 49 percent responded "never"; and 19 percent responded that they ride a bike only for recreation and exercise. When prompted about interest in using a bike more often for transportation, the responses were polarized, with the top responses being 35 percent not interested at all, and 26 percent very interested.

A number of barriers to cycling were identified by respondents. The top three reasons were "automobile and traffic speed," "don't feel safe," and a tie between "don't want to get wet or sweaty" and "hills" (14, 12, 10 and 10 percent, respectively). The most popular destinations for bicycle trips was not for work trips, rather for visiting friends, entertainment and to go to restaurants/ eating out. This may mean that people work at a distance perceived too far to ride but are able and willing to ride in their neighborhoods and for local trips or that commute travel was not perceived as safe, comfortable, or easy.

The panel in the study area also responded to questions specifically about walking. Nineteen percent responded that they walk to work, school, services or errands daily. There were a number of barriers perceived by the panel. The top response was that it takes too long (15 percent); other responses were concerns about the availability of sidewalks (13 percent) and that it was too far to shops and services (14 percent). A total of 10 percent of respondents stated that they were concerned about the sidewalks not being connected.

The Metro OptIn survey shows that while there is interest in walking and biking there are many perceived and real barriers present.

3. PLANNED SYSTEMS

3.1 Introduction to future conditions components

The planned active transportation network in the Southwest Corridor data collection area can be found through a summary of pedestrian projects planned in transportation system plans, the Metropolitan Transportation Improvement Program (MTIP), the Regional Transportation Plan (RTP), Oregon Department of Transportation (ODOT) projects and Active Transportation Corridor proposals. Additional information about planned and funded improvements comes from local Capital Improvement Program lists and from the STIP.

3.2 Active transportation projects: pedestrian, bicycle and trail

The MTIP is the federally required documentation of transportation investments scheduled for the Portland Metro region during a four-year cycle. The MTIP comprises projects and programs administered by Metro, ODOT, TriMet and SMART (South Metro Regional Transit). The current MTIP obligates spending from 2010-2013. The 2012-2015 MTIP is currently awaiting adoption.

A list of the 2010-2013 MTIP projects in the data collection area can be seen in Appendix B below.

The MTIP project list below shows the funded projects for near-term active transportation improvements. These projects are detailed in Appendix C. These projects represent the planned regional projects to be built through the year 2035 in the data collection area. The projects will improve connections, safety and access throughout the Southwest Corridor.

A large number of active transportation projects are included in the 2035 RTP project list. The 2035 RTP is the region's plan for safe and reliable transportation for the 21st century. The RTP presents the overarching policies and goals, system concepts for all modes of travel, funding strategies and local implementation requirements. One of the desired outcomes of the RTP is to promote healthy, active living by making walking and bicycling safe and convenient; promotion of this goal is done through provision of improved community access throughout the region.

Within the Southwest Corridor data collection area, 90 identified RTP projects directly relate to improved community access. Because of the size of the data set, these projects are included as Appendix A, giving a comprehensive look at planned regional projects that will guide the region toward its 2035 Regional Transportation Plan and 2040 Growth Concept goals.

Capital Improvement Programs include the Statewide Transportation Improvement Program (STIP). While the STIP includes many projects within the study area, most projects will provide increased mobility and convenience for motor vehicles. The STIP includes projects related to community access, these include the Red Electric Trail: Southwest 30th

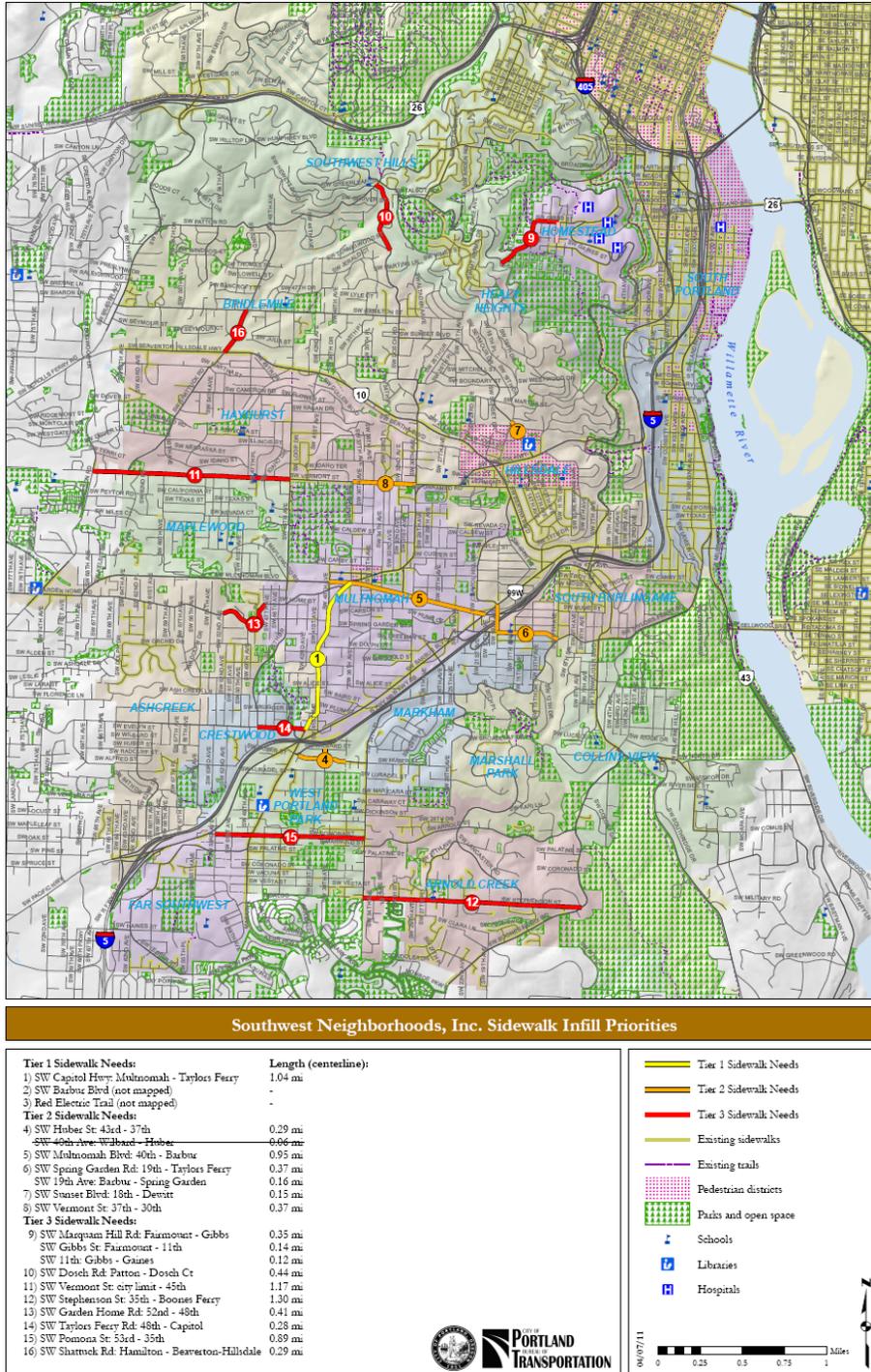
Avenue – Southwest Vermont Street for the construction of off-street trail and a bike boulevard with sidewalks (17268); intersections improvements on OR99W at Gaarde Street/McDonald Street (16968); Portland citywide Safe Routes to School pedestrian safety enhancements (17041); the Westside Trail project (17460); the Fanno Creek Trail Hall Boulevard Crossing (15588); Fanno Creek (Oleson Road) Bridge replacement (17414); and a green street retrofit with pedestrian amenities along Tigard’s Main Street, 99W Rail Corridor (15600). Project key 13759 provides additional funds to various ongoing bicycle and pedestrian projects in Regional 1. Funds are reserved and allocated for ongoing safety needs and improvements, including project key 15584, the Livable Streets Program.

If implemented, the many plans and policies of the jurisdictions will move the Southwest Corridor toward a greatly improved environment for walking and biking. Increasing network density and connectivity will allow easier connections. These improved connections may result in more people choosing to walk and bike to transit and services and for recreation.

Community-led planning and active transportation

Certain citizen’s groups in collaboration with local jurisdictions have aided the creation of project prioritization. The Southwest Neighborhoods, Inc., a non-profit coalition that promotes citizen participation in the Southwest neighborhoods of Portland, and the City of Portland Bureau of Transportation have a prioritized list of sidewalk infill projects for the coming years. This project has identified places where residents believe sidewalk investments will make the greatest impact. Proposed sidewalk infill candidacy projects will cost \$8 million and will address Tier 2 priorities as seen in Figure 3.2.1 below. The candidacy project will spread sidewalk infill to many roads in need of improvement. The identified sidewalk infill priorities can be seen on Figure 3.2.1 below.

Figure 3.2.1 : Southwest Neighborhoods, Inc. sidewalk infill priorities



Planned trails

Throughout the region, trails have been prioritized as important off-street non-motorized vehicle connections between neighborhoods, throughout the city and to access natural areas. Future connections to existing trails and new trails are proposed in the study area. Additional land may be added to these natural areas through willing seller programs that offer public purchase of properties that are flood risks.

In the Southwest Corridor, the trails identified for future funding in the MTIP are:

- The **Westside Trail** extension south of Scholls Ferry Road will connect Beaverton, Bull Mountain, King City and Tigard.
- The **Tualatin River Greenway Trail** will provide access throughout to the Tualatin River, the Tualatin National Wildlife Refuge and neighborhoods in the area.
- The **Tonquin Trail** will provide safe, convenient non-motorized connection between Wilsonville, Sherwood and Tualatin.
- The **Hillsdale to Lake Oswego Trail** will create a pedestrian trail north-south through the Corridor, linking Hillsdale to Lake Oswego, parallel to the Terwilliger Bike Path.
- The **Fanno Creek Trail** will create a crescent of linkages along the Fanno Creek, providing transportation and residential access and protecting the at-risk creek from further environmental degradation.
- The **Washington Square Loop Trail** will connect the Fanno Creek Trail in Tigard to planned trails in Beaverton and Portland, providing a pedestrian connection over Highway 217 and link Washington Square, Metzger Park and the Tigard city limits.
- The **Red Electric Trail** is an east-west connection that generally follows the old Red Electric rail corridor from downtown Portland to South Waterfront and to points in Washington County.

See the tables below for more detailed descriptions of the planned trails in the Corridor.

Table 3.2.1: Proposed trails in and through the Southwest Corridor

Westside Trail

Provide a north/south travel option connecting people to parks and employment centers in Washington County

Proposed trail length	21.4+ miles
-----------------------	-------------

Benefits

- Provide Washington County’s first complete north/south non-motorized route
- Enable bicycling and walking in an area of large, high capacity roads and small, discontinuous streets
- Provide the first significant non-motorized option for Beaverton

residents

- Create a recreational tour of important Westside parks and natural areas
 - Connect major regional facilities including Forest Park, Tualatin hills Nature Park, Tualatin River Greenway and the National Wildlife Refuge
 - Connect Westside residents with the Willamette Valley State Scenic Bikeway
 - Create non-motorized travel options to schools, shopping and employment centers
-

Tualatin River Greenway

Provides residents north and south of the river with the nature experience as they travel for recreation and jobs via a continuous trail along the Tualatin River in Tualatin

Proposed trail length 6+miles

Benefits

- Provide easy access to the river and a series of parks including Brown’s Ferry Park, Tualatin Community Park, Cook Park, Durham Park, Jurgen’s Park and Tualatin River National Wildlife Refuge.
 - Bring the north and south communities together with access to the trail via pedestrian bridges over the Tualatin River
 - Reduce the barrier that Interstate5 poses for pedestrians and cyclists
-

Tonquin Trail

Connect the major cities in the southwestern portion of the region

Proposed trail length 18.1+ miles

Benefits

- Provide active transportation to schools and jobs for the cities of Wilsonville, Tualatin, Durham, King City and Sherwood with connections north to Tigard and Beaverton
 - Connect Westside communities with the Willamette Scenic Bikeway and the future Graham Oaks Nature Park
-

-
- Create active transportation options in an area where there are few
 - Connect to the Tualatin River National Wildlife Refuge

Very little of the proposed trail has been built; important crossings occur at 99W and Tualatin-Sherwood Road inside the data collection area.

Hillsdale to Lake Oswego Trail

Create a pedestrian trail between Lake Oswego and Southwest Portland

Proposed trail length	4.7+ miles
-----------------------	------------

Benefits

- Create a pedestrian corridor between Lake Oswego and Southwest Portland
- Reduce congestion on Highway 43, a heavily used travel corridor
- Provide pedestrian access to Tryon Creek State Natural Area from the north and south

Inside the data collection area are key crossings at Interstate 5 and 99W.

Fanno Creek Greenway

Create a rare urban streamside experience that doubles as a significant commuting corridor between Tualatin, Durham, Tigard, Beaverton and the central city; includes the Red Electric Trail in Southwest Portland

Proposed trail length	18.6+ miles
-----------------------	-------------

Benefits

- Increase mode split and decrease vehicle miles traveled by creating a non-motorized corridor between several suburban cities and Portland
 - Create a streamside recreational experience for people
 - Provide pedestrian infrastructure in a portion of the region where there are few safe bicycle and pedestrian options
 - Create a larger recreational experience with connections to Fanno Creek Park and the Tualatin River Greenway
-

-
- Set a new precedent for bicycle and pedestrian facilities on small streets with the Red Electric segment

The greenway will provide important north-south connections throughout the data collection area.

4. SMART

4.1 Introduction to the SMART concept

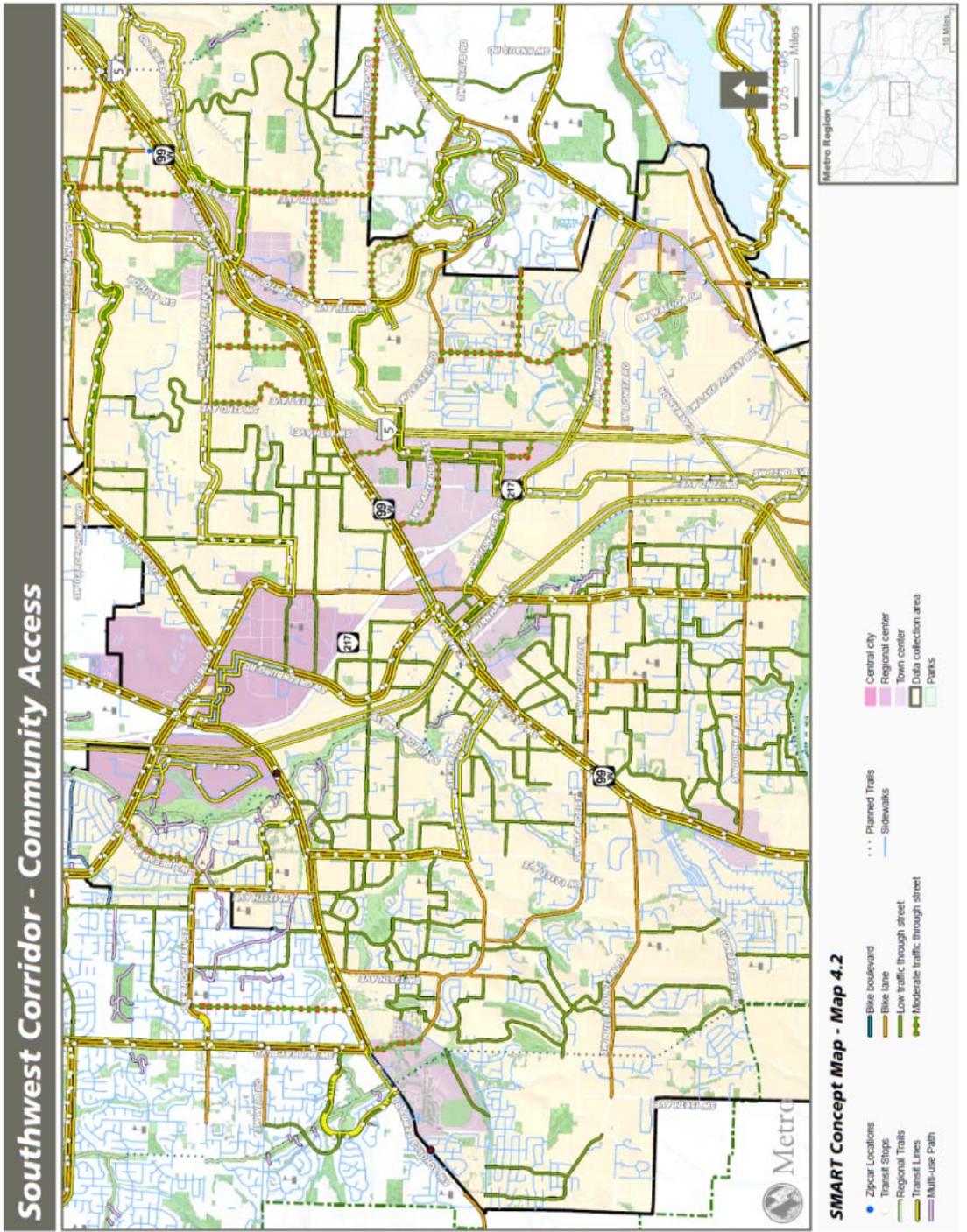
Active transportation plays a key role in making inter- and multimodal connections. Linking various means of transportation to technological wayfinding aids allows for improved regional mobility and access to local destinations. The University of Michigan’s Sustainable Mobility & Accessibility Research & Transformation (SMART) program is an initiative to uncover sets of solutions that guide mobility/accessibility systems toward environmental, social and economic sustainability. By “connecting the transportation dots” through the use of advancing technology, the SMART concept would create seamless modal connections at transportation nodes. Using a systems approach to the interdependent problems of sustainable accessibility aims to address “not only technology, but also human and social dynamics, economics, government policy, and environmental issues in an integrated, balanced, and objective way.”

The SMART concept utilizes a variety of tools and approaches to analyze and model complex transportation systems. The analyses are used to create an understanding of “new mobility hubs.” These new mobility hubs are considered door-to-door solutions that support personalized and customized connections for customers. New mobility hub networks are the transfer points around a city where connections between modes can be made quickly and seamlessly. Telecommunications technology allows users to identify the quickest and most affordable option. Maps 4.1 and 4.2 present the existing pedestrian, bicycle, transit, trail and car share facilities in the study area. Nodes are created where these facilities intersect; by applied SMART systems, future development in the Southwest Corridor may allow for further nodal developments integrated through emergent technologies.

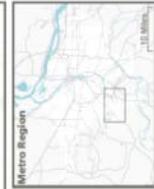
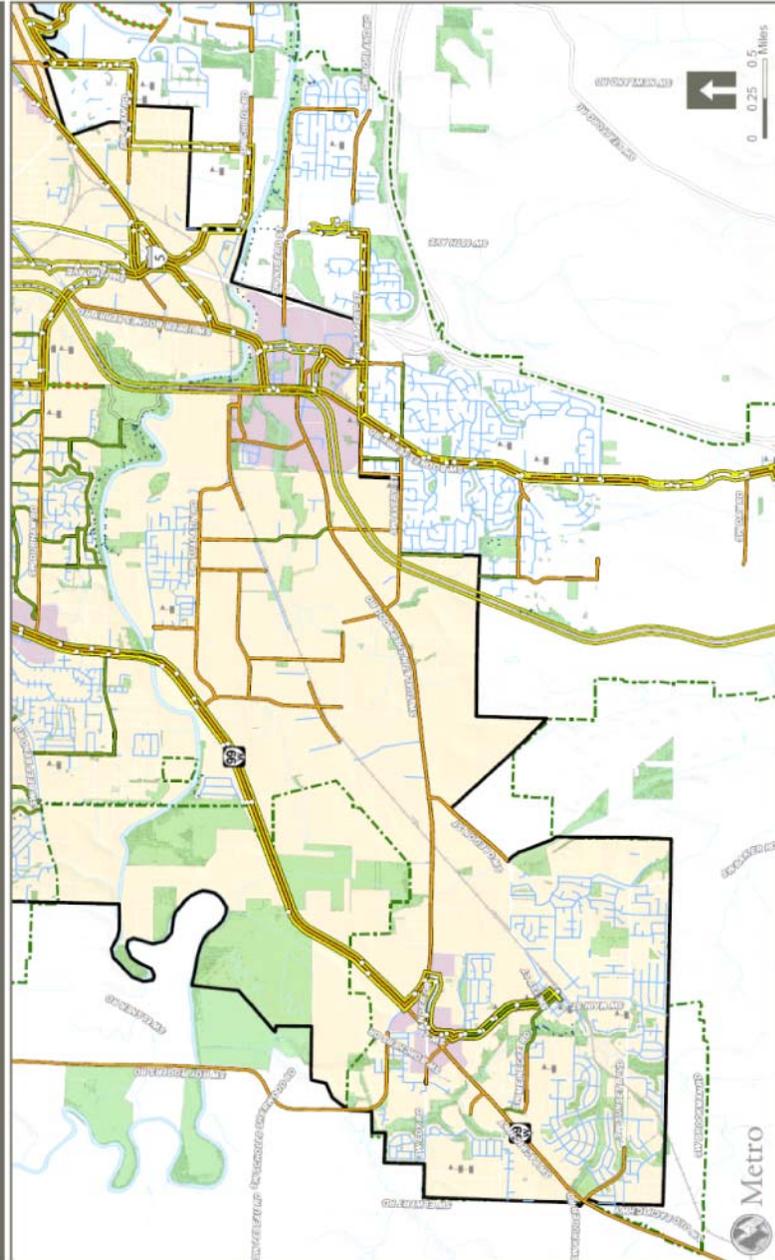
4.2 Southwest Corridor transfer hubs

New mobility transfer hubs locations may provide increased community access to jobs, services and recreation. The increased efficiency and ease of use may allow residents to access services without reliance on single-occupancy vehicles.

Current nodal points would be concentrated in the downtown area of Portland because of network density of walking and biking routes, availability of car share vehicles and transit proximity. Through develop in the Southwest Corridor, nodal prioritization is possible. The SMART methodology may provide opportunities to model improvements in order to ensure community accessibility and seamless modal connections.



Southwest Corridor - Community Access



- SMART Concept Map - Map 4.2**
- Transit Locations
 - Transit Stops
 - Regional Trails
 - Transit Lines
 - Multi-Use Path
 - Bike boulevard
 - Bike lane
 - Low traffic through street
 - Moderate traffic through street
 - Planned Trails
 - Sidewalks
 - Central city
 - Original center town center
 - Data collection area
 - Parks

5. ACTIVE TRANSPORTATION KEY FINDINGS

5.1 Problems

Improved community access to work, homes, services, schools, transit stops and recreation faces geographic and financial constraints. Review of existing conditions reveals that within the study area there are many sidewalk gaps, unsafe walking environments, lack of street connectivity, lack of bicycle facilities, prevalence of auto-oriented businesses, dangerous intersections and crossings and high-speed vehicles. Throughout the Corridor, there are long distances between marked pedestrian crossings. The environment is not built to the human scale; it is built for automobile movement instead of human movement. Throughout the study area, there are topographic limitations such as steep hills and ravines. These barriers limit street connectivity and impose substantial expense to new transportation infrastructure projects. Without facilities that provide options for active transportation, there is little encouragement and limited opportunity to walk, bike or take transit to everyday destinations. By addressing these problems and planning for solutions, encouragement and opportunities, the area will be able to provide greater pedestrian, bicycle and transit user access.

5.2 Opportunities

Active transportation provides cost-effective mobility through the investment in safe and convenient places to walk and bicycle. The creation of active transportation networks provides the opportunity to create quality jobs, encourage more active lifestyles, make communities more livable and improve the environmental health of the area. Active transportation offers the opportunity to improve communities through sustainable development.

Throughout the study area, there is a mix of residential, commercial, institutional, industrial and recreational land uses. The role that active transportation plays in weaving these uses together is an opportunity to build safer, healthier, more convenient and livable communities. Projects, ongoing and planned, in the study area address the above listed problems. Additionally, these projects provide the occasion to address air quality and vehicle miles traveled standards. Throughout the study area, there are many calm neighborhood streets with little traffic and close proximity to basic services that lack sidewalks, street connectivity and friendly access to destinations. Keeping neighborhood speeds low and reducing automobile reliance holds the possibility to make neighborhoods safer and more livable.

The community's access to everyday destinations can be greatly improved through funding and implementation of planned projects and the development of new transit opportunities, application of SMART concepts, new trails, growth in neighborhood centers and increased green space.

Small improvements can wield great changes. Examples of projects that would make it safer and more comfortable to walk and bike in the Corridor include addressing: the lack of safe crossings for bicycles and pedestrians where the Fanno Creek Trail meets Hall Boulevard, long distances between crossings along 99W and other major roads throughout the Corridor, and a general lack of pedestrian and bicycle network connectivity. Many retail areas are orientated toward parking lots, at times fencing-off access from adjacent neighborhoods. Prioritizing small changes such as providing access through these fenced areas may reduce auto trips. Fewer crashes, better health, excellent return on investment and greater economic sustainability will all bolster communities and diminish identified constraints.

There is great economic and environmental opportunity to be found in the provision of active transportation access. The benefits are found in the areas of transportation, environmental degradation, public health, energy independence, air quality and business opportunity. The Rails-to-Trail Conservancy issued the Active Transportation for America study in 2008. In this study, they analyzed the monetary benefits of the above listed areas and found that nationally, at the status quo level of walking and biking (9.6 percent) active transportation offers a monetary benefit of \$4.1 billion per year, a mode increase to 25 percent would offer a \$65.9 billion benefit. At the regional and local scale these influences would not only be monetary they would also increase the livability of neighborhoods.

For city residents, there is economic opportunity to building livable communities with great access to active transportation. The American Lives study found that homebuyers ranked walking and biking paths third out of 39 attributes used to select a home (National Bicycle and Pedestrian Clearinghouse, 1995). Residential property values also increase in communities with lower speed roadways, quieter streets and better active transportation options. A Victoria Transport Policy Institute study found that a 5 to 10 miles per hour reduction in traffic speed increased property values along those streets by almost 20 percent (T Litman, Victoria Transport Policy Institute, 1999).

Active transportation projects offer an excellent return on investment in the construction phase. The construction costs are substantially lower, and designs can be incorporated to slow motor vehicle traffic speeds, creating safer streets. Many studies have found that slowing motor vehicle speeds does not have a negative impact on congestion; often congestion is improved. Active transportation projects also create more jobs per given investment than roads-only projects. A recent study performed by the Political Economy Research Institute at the University of Massachusetts, Amherst (2011) found that bicycle infrastructure creates the most jobs for a given level of spending: "For each \$1 million, the cycling projects in this study create a total of 11.4 jobs within the state where the project is located. Pedestrian-only projects create an average 10 jobs per \$1-million... [R]oads-only projects create the least, with a total of 7.8 jobs per \$1 million," (Garrett-Peltier, 2011). There is great community, economic and environmental opportunity in the investment and development of active transportation projects.

5.3 Constraints

Financial constraints prioritize the maintenance of built infrastructure over the development of new facilities that would aid community access. Much of the existing infrastructure lacks connectivity, walkability, bikeability and access to transit. Improvements are financially and physically difficult to build. Careful prioritization and analysis may show that through the provision of improved community access, less maintenance is necessary for existing, auto-oriented infrastructure. The topography of the study area adds cost to new infrastructure and requires additional design and engineering costs.

Appendix B: 3.X: 2010-2013 Metropolitan Transportation Improvement Program (MTIP) projects

Agency or Jurisdiction	Project	Description
Portland	Red Electric Trail: SW 30th - SW Vermont	Provide east-west route for pedestrians and cyclists in SW Portland with an off-street trail an on-street bike boulevard with sidewalks and potentially a widened off-street sidewalk around SW Bertha Blvd.
Portland	SW & E Portland Sidewalk Infill	Construct sidewalks and corner curb ramps/ plant trees
Portland	SW Capitol Highway: Multnomah to Taylors Ferry	PE for a project to improve Capitol Hwy from SW Multnomah Blvd to SW Taylors Ferry to provide storm water drainage bike lanes and sidewalks
Tigard	Tigard: Main Street: Rail Corridor to 99W	Comprehensive street redesign to retrofit the 1400 lineal feet of the southern half of Main Street in downtown Tigard.
Tigard	SW Walnut Street: Tiedeman to 116th	Add sidewalks, ped crossings, bike lanes and turn pockets within existing ROW
Tigard	Fanno Creek trail: Main – Hall	Construct a multi-use path.
Tualatin Hills PRD	Fanno Creek Trail: Hall Boulevard crossing	This project will include completion of a planning level study of alternative bicycle and pedestrian crossing options at the intersection of the regional Fanno Creek Greenway Trail and Hall Boulevard.
Tualatin Hills PRD	Westside Trail: Rock Creek Trail -Bronson Creek Trail	The proposed project is to design and construct a ten-foot wide paved multiple-use trail

Washington County	OR99W: Pacific Hwy West Intersection @ Hall Blvd	Widen intersection & improve access management to enhance safety
Metro	Metro Regional Trails Program	Trails in comprehensive regional system - local earmark proposed
Metro	Next Priority Corridor Study	The project will result in the completion of planning work for improvements to a priority corridor reviewed in the Corridor Initiatives Process
Metro	Regional TOD Implementation Program	Funding for Metro to meet Metropolitan Planning Organization mandates established through the federal regulations. Metro's program to work with developers landowners and jurisdictions to influence development projects that forge strong land use-transportation connections to increase transit ridership and help realize the 2040 Growth Concept
TriMet	Pedestrian Network Analysis	This project would include a study or program that would review the regional sidewalk and crosswalk
TriMet	Bus stop Development and Streamline Program	Sidewalk crosswalk and bus stop improvements to provide better access safety and security to the transit system
TriMet	TriMet Job Access/ Reverse Commute 2010-2013	Program to improve transit access for low/moderate income households in the metro area.
TriMet	New Freedom Program 2010-2013	Services and facility improvements in excess of ADA requirements
ODOT	OR99W: Gaarde/McDonald intersection improvements	Intersection improvement.
ODOT	OR99W: I-5 SB Off Ramp To	Add an additional lane NB from

	99W (Tigard_	68th to 64th.
ODOT	OR99W: I-5 NB Off Ramp (Tigard)	Add an additional lane off I-5 onto NB 99W from 60th Ave- Barbur.

DRAFT

Appendix C: Metro Regional Transportation Plan (RTP) Technical Appendix 1.1: Final 2035 RTP Project List

Project/Program Name	Nominating Agency	Project Start location	Project end location	Project description
Lower Boones Ferry Rd.	Lake Oswego	Madrona St	Kruse Way	Widen to include bike lanes, sidewalks, and turn lanes.
Tonquin Trail	Washington Clackamas County line	Boones Ferry Landing	Other	Shared use path with some on-street portions
Capitol Hwy, SW	Portland	SW Multnomah Blvd	SW Taylors Ferry	Improve SW Capitol Hwy from SW Multnomah Blvd to SW Taylors Ferry Road per the 1996 Capitol Hwy Plan
Garden Home Rd., SW (Capitol Hwy-Multnomah): multi-modal improvements	Portland	SW Capitol Hwy	SW Multnomah Blvd	Improve and signalize the intersection at SW Garden Home and SW Multnomah Blvd.
Smart Trips Portland: a city-wide individualized marketing strategy	Portland			Smart Trips is a comprehensive approach to reduce drive-alone trips and increase biking, walking and public transit in targeted geographic areas or key transportation corridors of the city.
Fanno Creek Greenway (Red Electric) Trail	Portland	SW Dover near Multnomah County line	Willamette Park	Provide east-west route for pedestrians and cyclists in SW Portland that connects and extends the existing Fanno Creek Greenway Trail to Willamette Park.
Tualatin-Sherwood Rd. improvements	Washington County	Hwy 99W	Teton Ave	Widen from three to five lanes with bike lanes and sidewalks
Scholls Ferry Rd. improvements	Washington Co.	Hwy 217	121st Ave	Widen to seven lanes with bike lanes and sidewalks. Local TSPS and the TV Hwy Corridor Refinement Plan will need to re-evaluate the need for this project that exceeds the policy

				of five lane arterials.
Scholls Ferry ATMS	Washington Co.	Hall Blvd.	Murray Blvd.	install integrated surveillance and management equipment
Tualatin-Sherwood Rd. ATMS	Washington Co.	I-5	Teton Ave	install integrated surveillance and management equipment
Washington Square Regional Center Pedestrian Improvements	Washington Co.	Washington Sq RC		Complete 7400 feet of sidewalk improvements.
Greenburg Rd. bike	Washington Co.	Hall Blvd.	Hwy 217	Completes 3400 feet of bike lanes in regional center
Locust Ave. bike	Washington Co.	Hall Blvd.	80th Ave.	Completes 1650 feet of bike lanes in regional center
Oregon-Tonquin Intersection & Street Improvements	Sherwood	Oregon St.	at Tonquin	Intersection improvements (consider roundabout) on Oregon at Tonquin Road; sidewalks and bike access through the intersection.
Adams Ave Phase 1	Sherwood	Oregon/Ash	T-S Rd.	construct 3 lane road, landscaping and multi-use path
Adams Ave Phase 2	Sherwood	T-S Rd.	99W	construct 3 lane road, landscaping and multi-use path to connect TC to 99W & National Wildlife Refuge
Elwert Rd & 99W Intersection Improvements	Sherwood	99W	Kruger Rd.	Intersection safety improvements
Elwert Rd.	Sherwood	99W	Eddy Rd	upgrade road to arterial standards; add sidewalks
Edy Rd/ Sherwood Blvd	Sherwood	Borcher Dr.	3rd St.	reconstruct road to collector standards; add sidewalks
Edy Rd.	Sherwood	Borcher Dr.	City Limits	Reconstruct road to collector standards; add sidewalks and bike lanes
Ladd Hill Rd.	Sherwood	Sunset Blvd	UGB	upgrade road to arterial standards
Murdock	Sherwood	UGB	Oregon St.	Add bike lanes
Meinecke	Sherwood	99W	1st	Add bike lanes
Oregon St.	Sherwood	Murdock	Rail crossing	construct road to 3 lane collector standards
Arrow St (Herman	Sherwood	Adams Ave	Gerda Ln/	construct road to collector

Rd)			Herman Rd Extension	standards
Regional Trail System/ west fork of Tonquin Trail	Sherwood	West fork of Tonquin Trail	Wildlife Refuge	Construct regional trail along the Cedar Creek corridor to connect existing trail at Stella Olson Park & old Town to Wildlife Refuge Trail on Roy Rogers Rd. Possible over or undercrossing at 99W
Town Center Signal & Intersection Improvements	Sherwood	Borcher Dr.	Century	Improve 3-leg Intersection at Edy & Borchers; remove traffic signal at Baler; remove traffic signal at Langer; add traffic signal at Century
Pedestrian Links to Schools & Town Center	Sherwood			Pedestrian upgrades; new sidewalks, sidewalk infill at Sunset, Division, Edy, Elwert, Meinecke, Pine, Roy, Ladd Hill, Timbrel, Washington, Willamette, Old Pacific Hwy
Roy Rogers Rd.	Sherwood	99W	Borchers Dr.	Construct road to 5 lane collector standards
Sagert	Tualatin	Martinazzi	N/A	Signalize intersection and change grades to provide better sign distance
105th Ave/ Avery St	Tualatin	Blake	105th	Realign curves, signalize intersection of Avery/ 105th, sidewalks on 105th from Avery to 108th
Herman	Tualatin	Teton	Tualatin	Reconstruct and widen to 3 lanes from Teton to Tualatin
Herman	Tualatin	Cipole	124th Ave	Reconstruction from Cipole to 124th
Boones Ferry	Tualatin	T-S Rd.	Ibach	Widen to 5 lanes from T-S to Ibach
Boones Ferry	Tualatin	N/A	N/A	Interconnect signals on Boones ferry Rd from T-S Rd to Ibach
Loop Rd.	Tualatin	Martinazzi	Boones Ferry	Construct street from Tualatin-Sherwood to Boones Ferry Rd to Martinazz
Central Design	Tualatin			Pedestrian improvements &

District Pedestrian Improvements				bike lanes
Teton	Tualatin	Herman	T-S Rd.	Add bike lanes to Teton from Avery to Tualatin Rd.
Tualatin River Pathway	Tualatin			
Washington Square Connectivity Improvements	Tigard	Washington Sq local street connections	Washington Sq local street connections	Increase local street connections at Washington Sq. based on recommendations in regional center plan
Hwy 217 Overcrossing-Cascade Plaza	Tigard	Nimbus	Locust	Provide congestion relief.
Greenburg Rd. improvements, South	Tigard	Shady Lane	North Dakota	Widen to 5 lanes with bikeways and sidewalks. Includes bridge replacements
Washington Square Regional Center Pedestrian Improvements	Tigard			Improve sidewalks, lighting, crossings, bus shelters, and benches at Washington Square.
Durham Rd. Improvements	Tigard	Upper Boones Ferry Rd	Hall Blvd	Widen to 5 lanes.
Walnut Street Extension	Tigard	99W	Ash	Extend street east of 99W to connect to Downtown Tigard (PE Phase only)
72nd Ave. Improvements	Tigard	99W	Hunziker	Widen to 5 lanes with bikeways and sidewalks
Dartmouth Street Improvements	Tigard	72nd Ave.	68th Ave	Widen to 4 lanes with turn lanes and sidewalks
Tigard Town Center Pedestrian Improvements	Tigard	Tigard TC	Tigard TC	Improve sidewalks, lighting, crossings, bus shelters, and benches throughout the TC including: Hwy 99W, Hall Blvd, Main St. Hunziker, Walnut and neighborhood streets
Nimbus Ave. Extension	Tigard	Nimbus Ave	Greenburg Rd.	2 lane extension with sidewalks and bike lanes
Washington Sq. Regional Center Greenbelt Shared	Tigard	Hall Blvd.	Hwy 217	Complete shared use path construction

Use Path				
Durham Road Improvements	Tigard	Hall Blvd.	99W	Widen to 5 lanes with bikeways and sidewalk
Regional Trail Gap Closure	Tigard	multiple sections on Fanno, Wash Sq Loop, and Westside Trails	multiple sections on Fanno, Wash Sq Loop, and Westside Trails	Infill gaps in regional trail network. Affected trails include Fanno Creek, Washington Sq loop and Westside Trails.
Upper Boones Ferry Intersection Improvements	Tigard	Durham Rd	I-5	Reconfigure intersection of Durham & Upper Boones Ferry to create a through route between Durham & I-5/Carmen Interchange; 2nd Northbound Turn Lane at 72nd/Carmen; 72nd/Boones Ferry assuming Boones Ferry/72nd widened to 5 lanes; eastbound right turn lane at Carman/I-5 southbound.
Improvements	Tigard	Hall Blvd.	Tiedeman Ave	2nd Northbound turn lane, modify signal timing at Greenburg/Oleson/Hall; install boulevard treatment at Greenburg/Washington Square Road; improve geometry/alignment and extend cycle length at intersection of Greenburg/Tiedeman
Hwy. 99W Intersection Improvements	Tigard	64th Ave	Durham Rd.	Provide increased capacity at priority intersections including bus queue bypass lanes in some locations, improved sidewalks, priority pedestrian crossings, and an access management plan, while retaining existing 4/5-lane facility from I-5 to Durham Road.

Fanno Creek Trail (Regional)	THPRD	Greenwood Inn	Scholls Ferry Rd.	To design and construct a regional trail multi-use segment in a utility corridor, 10'- 12' wide paved.
Westside Trail (Regional)	THPRD			To design and construct a regional trail multi-use segment in a utility corridor, 10'- 12' wide paved.
Pedestrian access improvements	TriMet			Sidewalks, crosswalks and ADA improvements to transit
SW and E Portland Sidewalk Infill	Portland			Infill several missing sidewalk segments on SW Barbur Blvd, 82nd Ave and NE Glisan east of 122nd Ave. Target locations where curbs currently exist and include ADA corner curb ramp
Bridge crossing of Scholls Ferry Road by the Westside Trail	THPRD			Would avoid out-of-direction bike/ped trips on a major regional trail that is otherwise complete in this area.
McDonald Street Improvements	Tigard	Hall Blvd.	99W	Construct turn lanes & intersection improvements; add bike lanes & sidewalks in gaps
Hall Blvd. Improvements	ODOT/Tigard	Locust	Durham Rd.	Widen to 3 lanes; build sidewalks & bike lanes; safety improvement
Downtown Circulation Plan Implementation	Tigard	Downtown Tigard	between Hwy 99W, Hall & Fanno Creek	Acquire ROW, construct streets and streetscape improvements in downtown Tigard
Pedestrian Improvements	Tigard	Multiple location		Fill gaps in sidewalk & pedestrian network
Neighborhood Trails & Regional Trail Connections	Tigard	Multiple location		Construct high priority neighborhood trails to regional trails, sidewalks & transit
Walnut Street Improvements	Tigard	99W	116th Ave	Widen to 3 lanes; build sidewalks & bike lanes; safety improvement

Active Transportation Program	Metro			
SW Stephenson(Boones Ferry - 35th): Multi-modal improvements	Portland	SW Boones Ferry	SW 35th	Install bikeway and pedestrian facilities from SW Boones Ferry Road to 35th Ave
South Portland Improvements: SW	Portland/ODOT	SW Naito Pkwy	SW Barbur	Reconstruct Naito Pkwy as two-lane road w/bike lanes, sidewalks, left turn pockets & on-street parking. Includes realignment/re-grading at intersecting streets; removal of Barbur tunnel, Ross Is Br ramps, Arthur/Kelly viaduct & Grover ped bridge
South Waterfront District, SW: Bicycle and Pedestrian Improvements	Portland			Implement pedestrian and bicycle district access improvements identified in the North Macadam Framework Plan
Bertha, SW (B-H Hwy - Barbur): multi-modal improvements	Portland	B-H Hwy	Barbur Blvd	Design and implement bike lanes on missing piece of Bertha Blvd (Vermont-B-H Hwy), construct walkway for pedestrian travel and access to schools (Barbur-B-H Hwy); and improve street to City standards (Vermont-Capitol).
Beaverton-Hillsdale Hwy, SW (Capitol Hwy - 65th): Multi-modal Improvements	Portland	SW Capitol Hwy	SW 65th	Retrofit existing street to include better sidewalks and crossings, bike lanes and other improvements to enhance access to transit. Install median refuge to improve
Barbur/ Capitol/ Huber/ Taylors Ferry, SW: Intersection Improvements	Portland/ODOT	Intersection of Barbur/ Capitol/ Huber/ Taylors ferry		Construct safety improvements, including traffic signals, at the intersection of Capitol Hwy, Taylors Ferry, Huber, and Barbur. Provide

Barbur Blvd, SW (Terwilliger - City Limits): Multi-modal improvements	Portland/ODOT	SW Terwilliger	City Limits	better sidewalks and crossings Complete boulevard design improvements including sidewalks and street trees safe pedestrian crossings, enhance transit access and stop locations, traffic signal at Barbur/30th, and bike lanes (Bertha - City Limits).
Capitol Hwy, SW (West Portland Town Center - 49th): Pedestrian Improvements	Portland	West Portland Town Center	SW 49th	Complete curb extensions and medians recommended in the Capitol Hwy Plan
West Portland Town Center, SW: Pedestrian Improvements	Portland/ODOT			Improve sidewalks, lighting, crossings, bus shelters & benches on Barbur, Capitol Hwy & neighborhood streets
Boones Ferry Rd., SW (Terwilliger - City Limits): Bikeway	Portland	SW Terwilliger	City Limits	Retrofit bike lanes to existing street
Hall Blvd. Improvements	Wash Co/ODOT	Scholls Ferry Rd.	Durham Rd.	Widen to five lanes with bike lanes and sidewalk

I-5/99W Southern Arterial ROW	Wash Co.	Hwy 99W	I-5	Purchase right-of-way when all project conditions are met: including integration with and use plans for UGB expansion areas and Urban Reserves, Conducting the I-5 South Corridor Refinement Plan including Mobility Corridors 2 3 and 20 and 10598 Washington Co. I-5/99W Southern Arterial ROW Hwy. 99W I-5 Arterial South Corridor Refinement Plan, including Mobility Corridors 2, 3, and 20 and resolution of access between I-5 and southern arterial with no negative impacts to I-5 and I-205 beyond the forecasted No-Build condition, addressing NEPA to determine the preferred alignment and addressing any conditions associated with land use goal exception for southern arterial
Hwy. 217/72nd Ave. Interchange Improvements	Wash Co/ ODOT			Complete interchange reconstruction with additional ramps and overcrossing
99W - Sherwood TC Bicycle/Ped Bridges	Sherwood/ ODOT	Sunset Blvd	Edy Rd.	Ped/bike bridges over 99W at Sunset, Meinecke, Edy
99W	Tualatin/ ODOT	City Limits	City Limits	Install sidewalks from Cipole to Tualatin Rive
High Capacity Transit: Barbur / 99W Corridor (Portland to Tigard or Sherwood)	TriMet			Portland to Tigard/King City HCT Line Assumes expansion of existing bases or 3rd LRT operating base as part of project. Continue work as part of the HCT System Expansion Policy. Priority for next

				corridor to enter project development will be determined as part of the RTP this fall
SW Garden Home Road	Portland	SW Capitol Hwy	SW Multnomah Blvd	Pedestrian and bicycle safety improvements, including drainage designed for constrained right-of-way
I-5/OR 217 Interchange Phase 2	ODOT	I5/OR 217 Interchange		
I-5/99W Connector Southern Arterial/I-5 Interface	Washington Co.	Hwy 99W @ I-5		Connect the Southern Arterial to I-5 or other surface arterials in the vicinity of the N. Wilsonville interchange when all project conditions are met: including integration with land use plans for UGB expansion areas and Urban Reserves, Conducting the I-5 South Corridor Refinement Plan, including Mobility Corridors 2, 3, and 20 and resolution of access between I-5 and southern arterial with no negative impacts to I-5 and I-205 beyond the forecasted No-Build condition, addressing NEPA to determine the preferred alignment and addressing any conditions associated with land use goal exception for southern arterial.
SW Multnomah Blvd. (Barbur Blvd. to 45th Ave)	Portland	Barbur Blvd.	45th Ave.	Reconstruct street to urban standards, including curbs, sidewalks, storm sewers and upgraded street lights.
OR 217: Improvements	ODOT	US 26	I-5	Metro, ODOT, Washington County, City of Tigard and City of Beaverton participated in a joint study to explore

improvements for OR 217 that improve safety and produce substantial operational and reliability improvements at a relatively low cost. This project would be for consistent with the OR 217 Management Study.

Appendix D: City Bicycle, Pedestrian and Functional Plans

Washington County Transportation System Plan: Pedestrian and Bike Plan

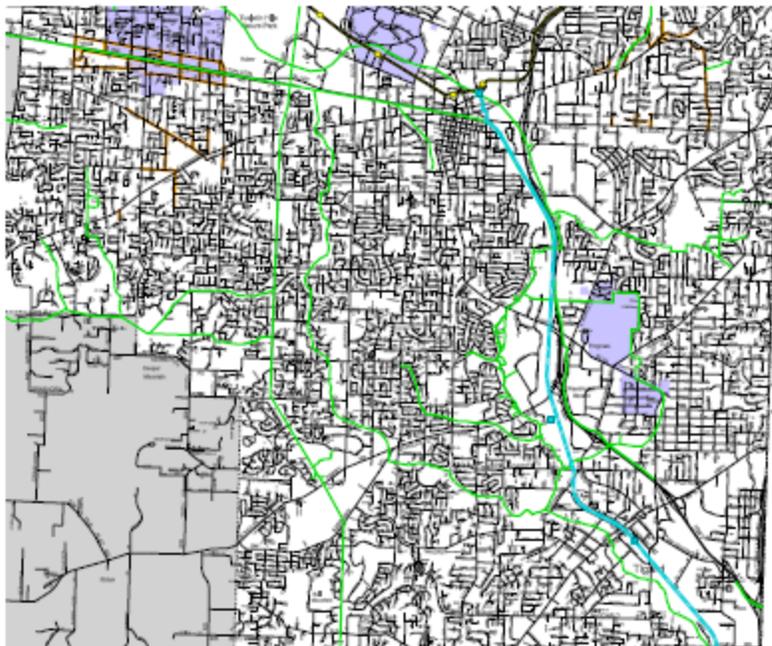
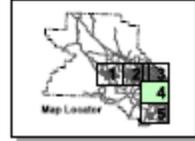


Figure 1.1E



Trails and Pedestrian System

- MAX Line
- MAX Station
- Proposed Commuter Rail Line
- Proposed Commuter Rail Station
- Off Street Tr
- Streetcar Improvement Area
- Pedestrian District
- Rural Pedestrian Activity Areas
- Street System
- Urban Growth Boundary
- Area outside the Urban Growth Boundary



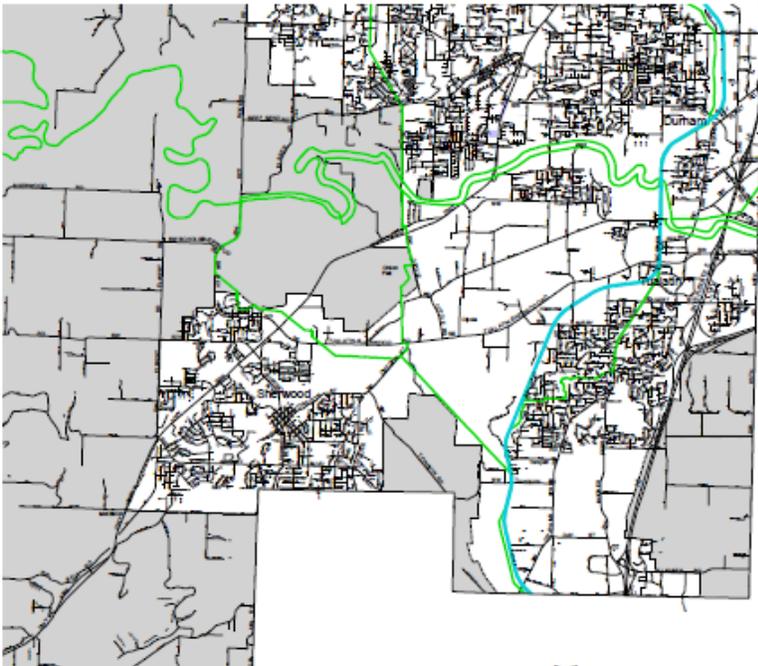
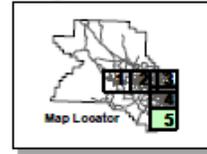


Figure 1.1F



Trails and Pedestrian System

- MAX Line
- MAX Station
- Proposed Commuter Rail Line
- Proposed Commuter Rail Station
- Off Street Trails (existing and planned)
- Streetscape Improvement Areas
- Pedestrian District
- Rural Pedestrian Activity Areas
- Street System
- Urban Growth Boundary
- Area outside the Urban Growth Boundary

NOTE:
Designations applied to roads or other facilities not under County jurisdiction should be considered recommendations to the state, city or other jurisdiction with primary responsibility for the facility.



Updated: 5/5/09

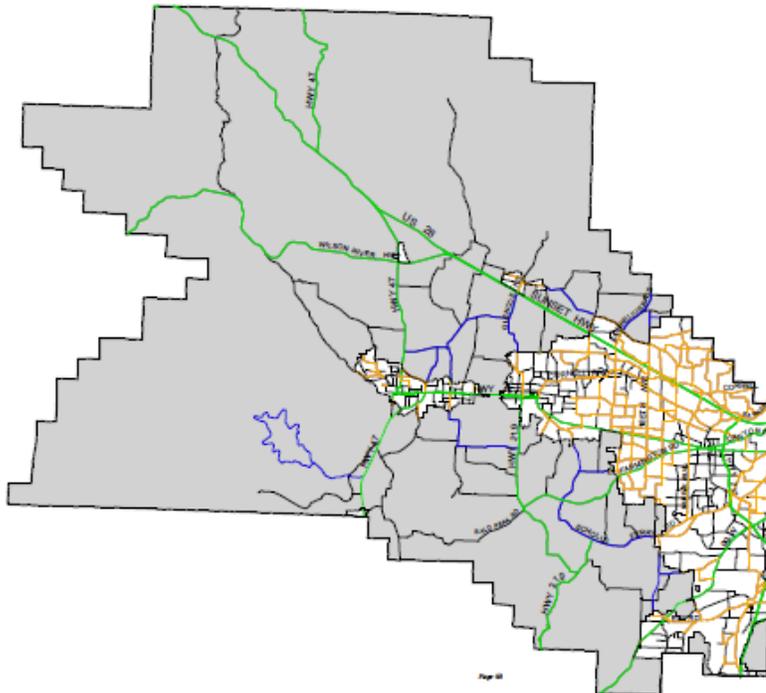
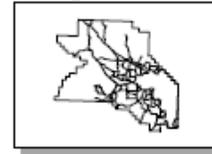


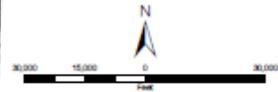
Figure 2.1



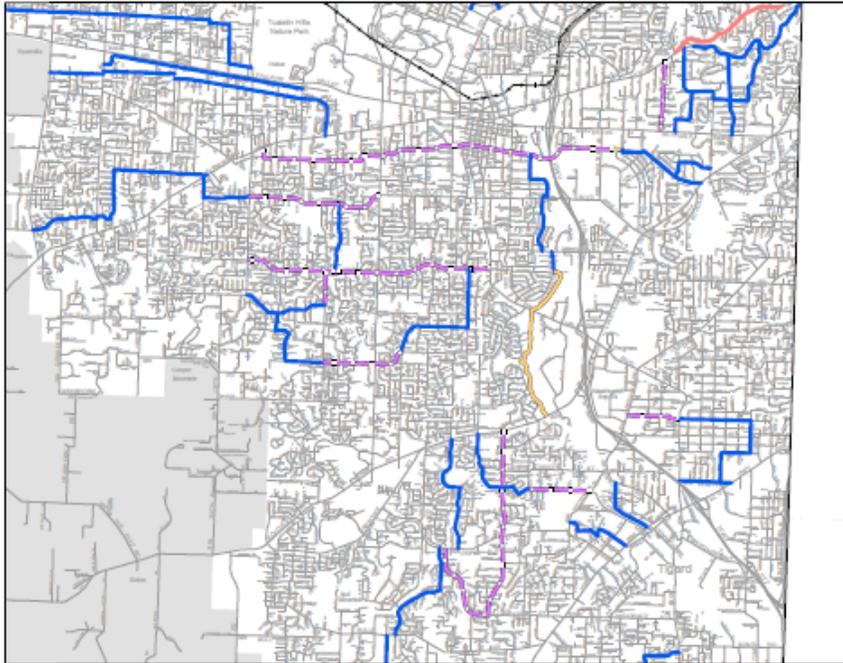
Bicycle System

- Urban Bikeway
- Rural Bikeway
- State Facility
- Urban Area
- Rural Area
- Urban Growth Boundary

NOTE:
This map shows existing and planned bicycle facilities on County and State roads only. Consider city plans for planned bicycle facilities on city roads. Construction of bicycle facilities and other improvements on State roads are



Updated: December 2009



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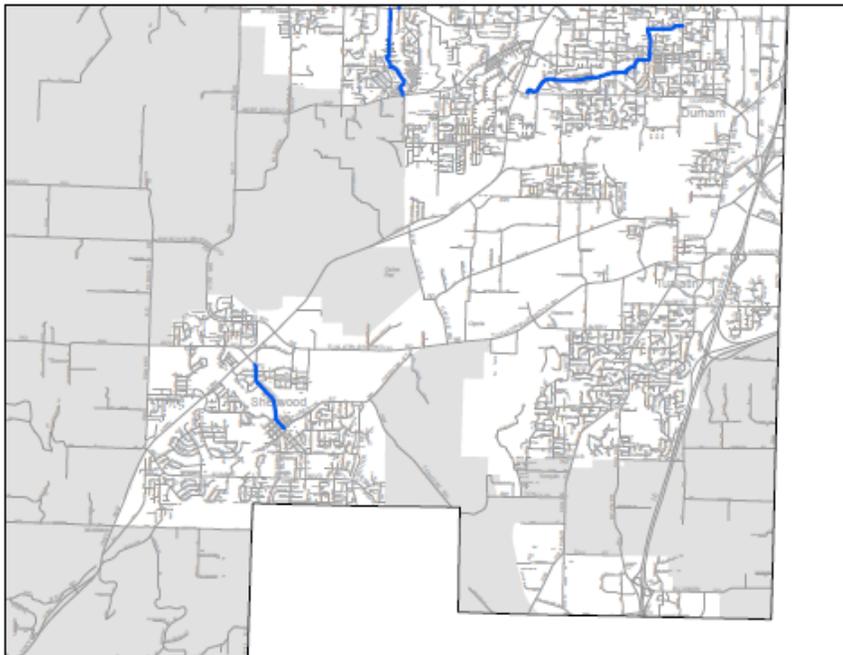
Figure 2.2C



*Washington County
Secondary Bicycle Routes*

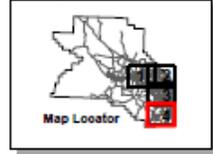
Legend

- Connecting Bike Facility
Higher volume low/moderate speed street
(25-35 mph / includes wide shoulders)
- Connecting Low Speed Street
- Low Speed, Moderate Volume Street
No Bike Lanes
- Narrow Roads-Low Volume, Higher Speed
No Bike Lanes
- Connecting Trail Facility - Paved
(May be < 10' wide)
- MAX
- Rural Washington County
(Land outside the Urban Growth Boundary
(UGB))



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Figure 2.2D



*Washington County
Secondary Bicycle Routes*

Legend

- Connecting Bike Facility
Higher volume low/moderate speed street
(25-35 mph / includes wide shoulders)
- Connecting Low Speed Street
- Low Speed, Moderate Volume Street
No Bike Lanes
- Narrow Roads-Low Volume, Higher Speed
No Bike Lanes
- Connecting Trail Facility - Paved
(May be < 10' wide)
- MAX
- Rural Washington County
(Land outside the Urban Growth Boundary
(UGB))



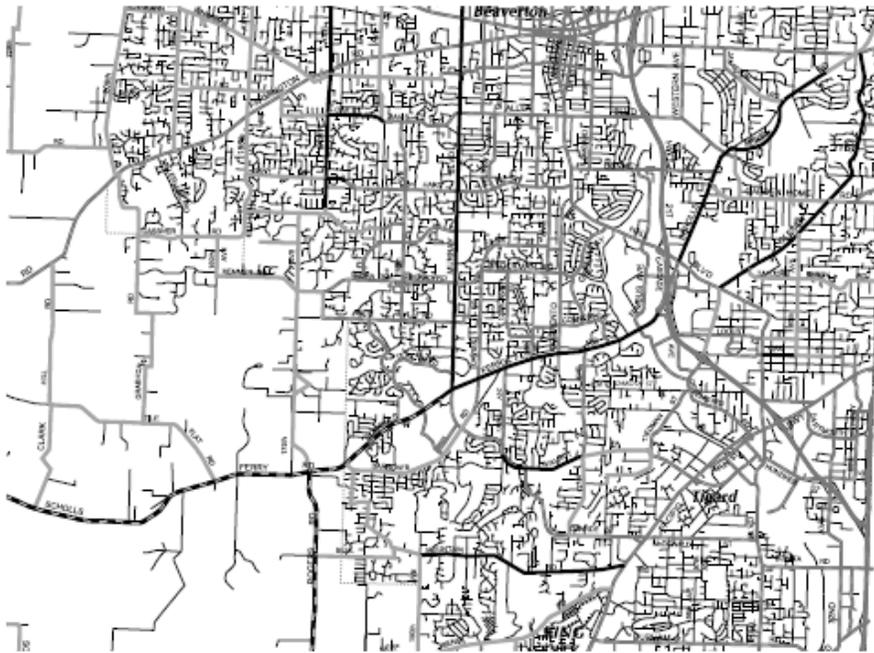


Figure 2.3G
Bicycle Facility
Gap Analysis

- No Bike Facility
Collector or Arterial under
Washington County Jurisdiction
- Shoulder suitable for bikes
• Minimum 4 feet
- Bike Lane 4 to 6 feet
- Other Jurisdiction
• Bike facility status unknown
or not shown
- Urban Growth Boundary
- Local Streets
- County Line



NOTE:
Bicycle facilities are shown for roads under county
jurisdiction only. These include roads with paved
shoulders at least 4 feet in width or 4 to 6 feet paved
striped & marked bike lanes where such facilities
are present on both sides of the road. The
bike facilities shown are existing or committed
facilities (indicated and to be constructed by 2020).

Map # 6

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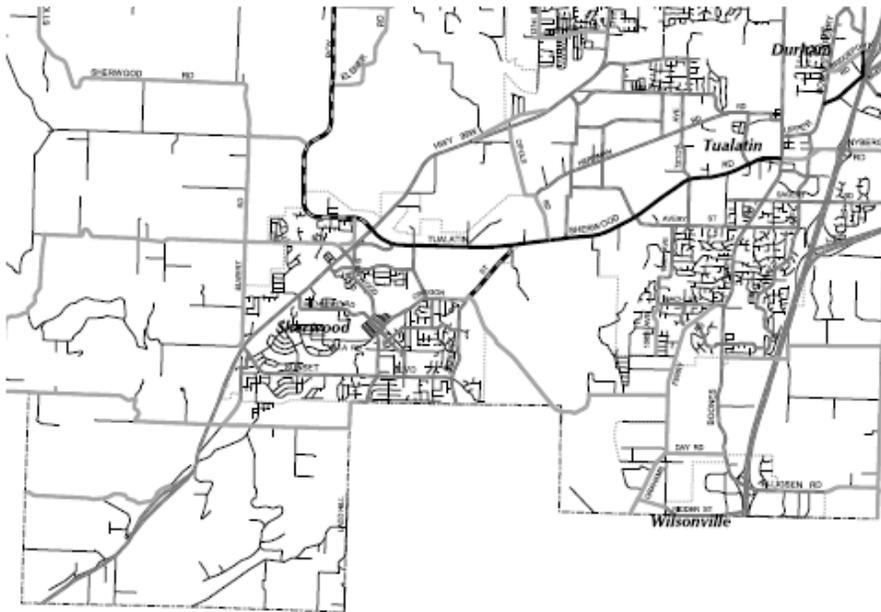


Figure 2.3H
Bicycle Facility
Gap Analysis

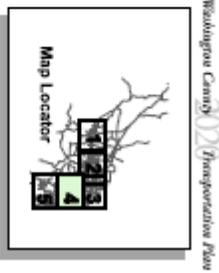
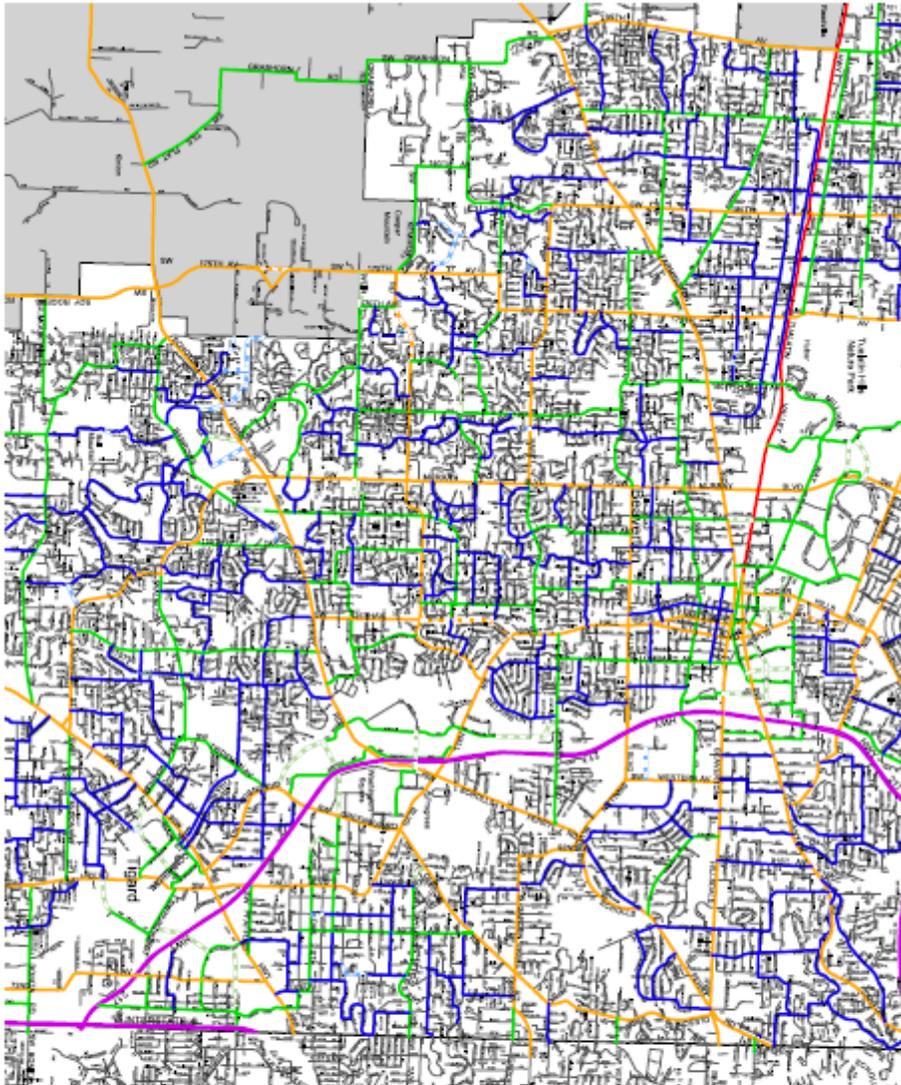
- No Bike Facility
Collector or Arterial under
Washington County Jurisdiction
- Shoulder suitable for bikes
• Minimum 4 feet
- Bike Lane 4 to 6 feet
- Other Jurisdiction
• Bike facility status unknown
or not shown
- Urban Growth Boundary
- Local Streets
- County Line



NOTE:
Bicycle facilities are shown for roads under county
jurisdiction only. These include roads with paved
shoulders at least 4 feet in width or 4 to 6 feet paved
striped & marked bike lanes where such facilities
are present on both sides of the road. The
bike facilities shown are existing or committed
facilities (indicated and to be constructed by 2020).

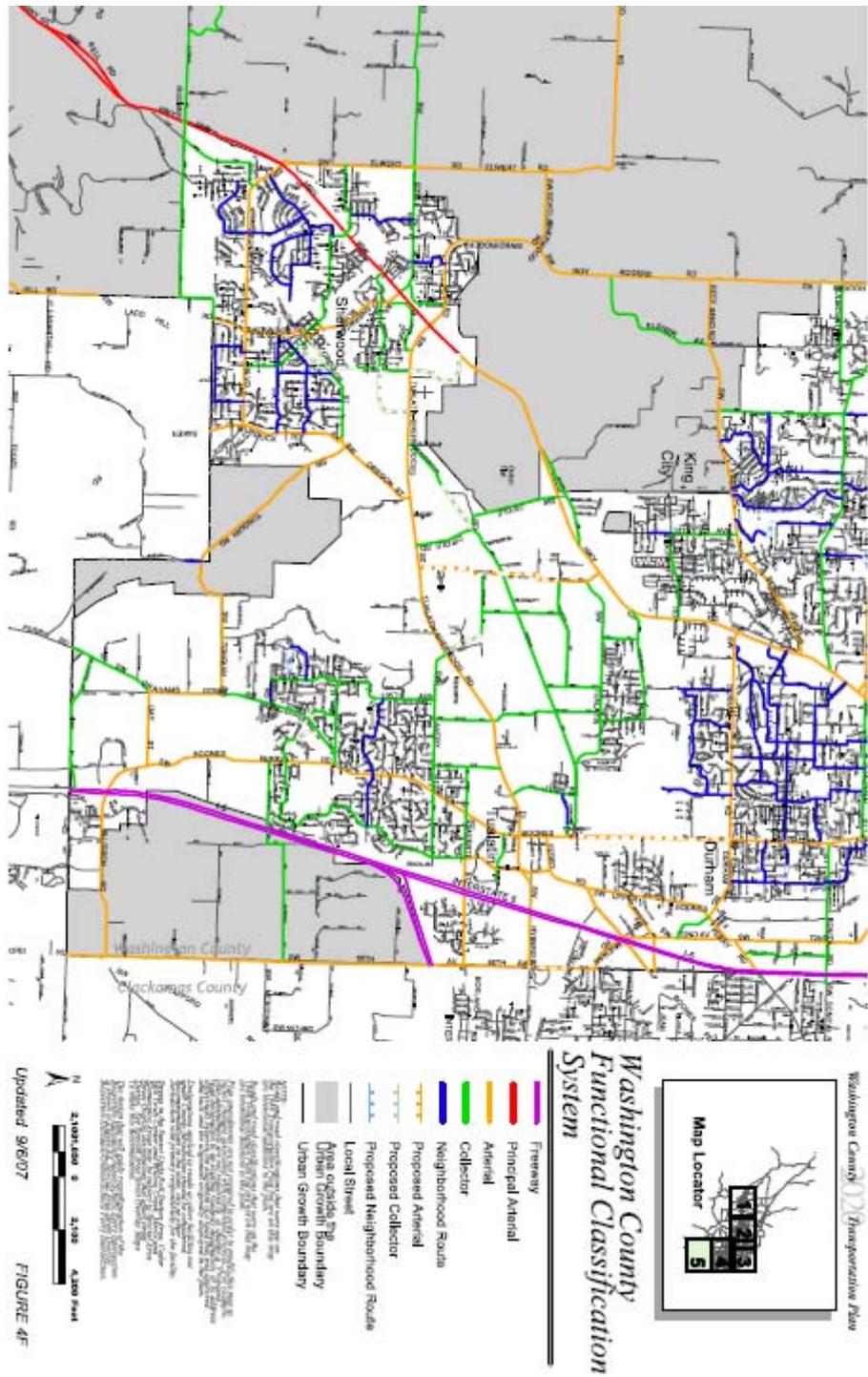
Map # 7

Page 72



**Washington County
Functional Classification
System**

- Freeway
 - Principal Arterial
 - Arterial
 - Collector
 - Neighborhood Route
 - Proposed Arterial
 - Proposed Collector
 - Proposed Neighborhood Route
 - Local Street
 - Area outside the Urban Growth Boundary
 - Urban Growth Boundary
- Washington County, Oregon
2011
Map of Washington County, Oregon, showing the functional classification system for roads. The map is based on the Oregon Department of Transportation (ODOT) Functional Classification System. The map is intended for informational purposes only and does not constitute a contract or warranty of any kind. The map is subject to change without notice. The map is not to be used for any purpose other than that for which it was intended. The map is not to be used for any purpose other than that for which it was intended. The map is not to be used for any purpose other than that for which it was intended.
- Updated 9/8/07** **FIGURE 4E**



Beaverton Transportation System Plan: Functional Classification, Pedestrian and Bike Plans

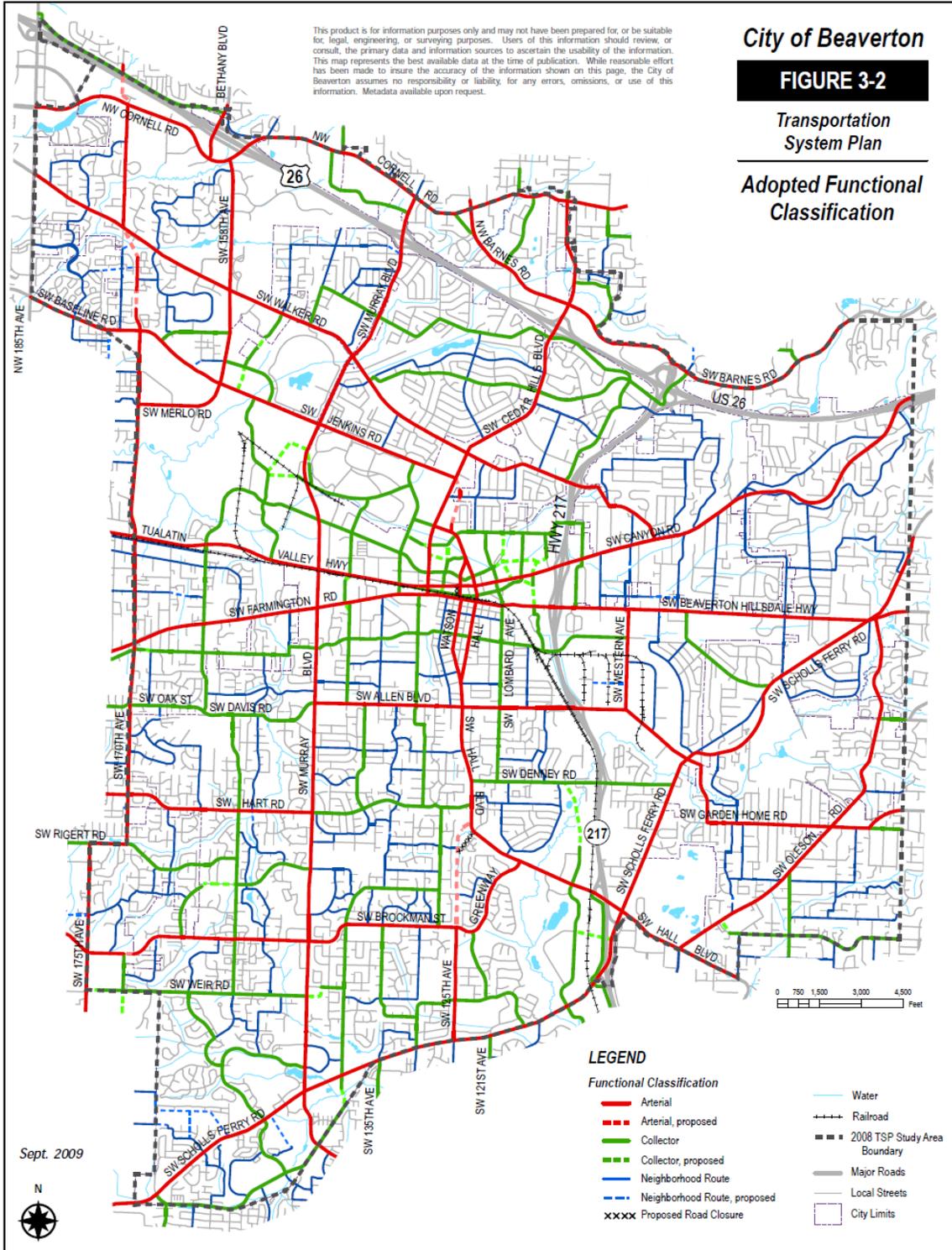
This product is for information purposes only and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review, or consult, the primary data and information sources to ascertain the usability of the information. This map represents the best available data at the time of publication. While reasonable effort has been made to insure the accuracy of the information shown on this page, the City of Beaverton assumes no responsibility or liability for any errors, omissions, or use of this information. Metadata available upon request.

City of Beaverton

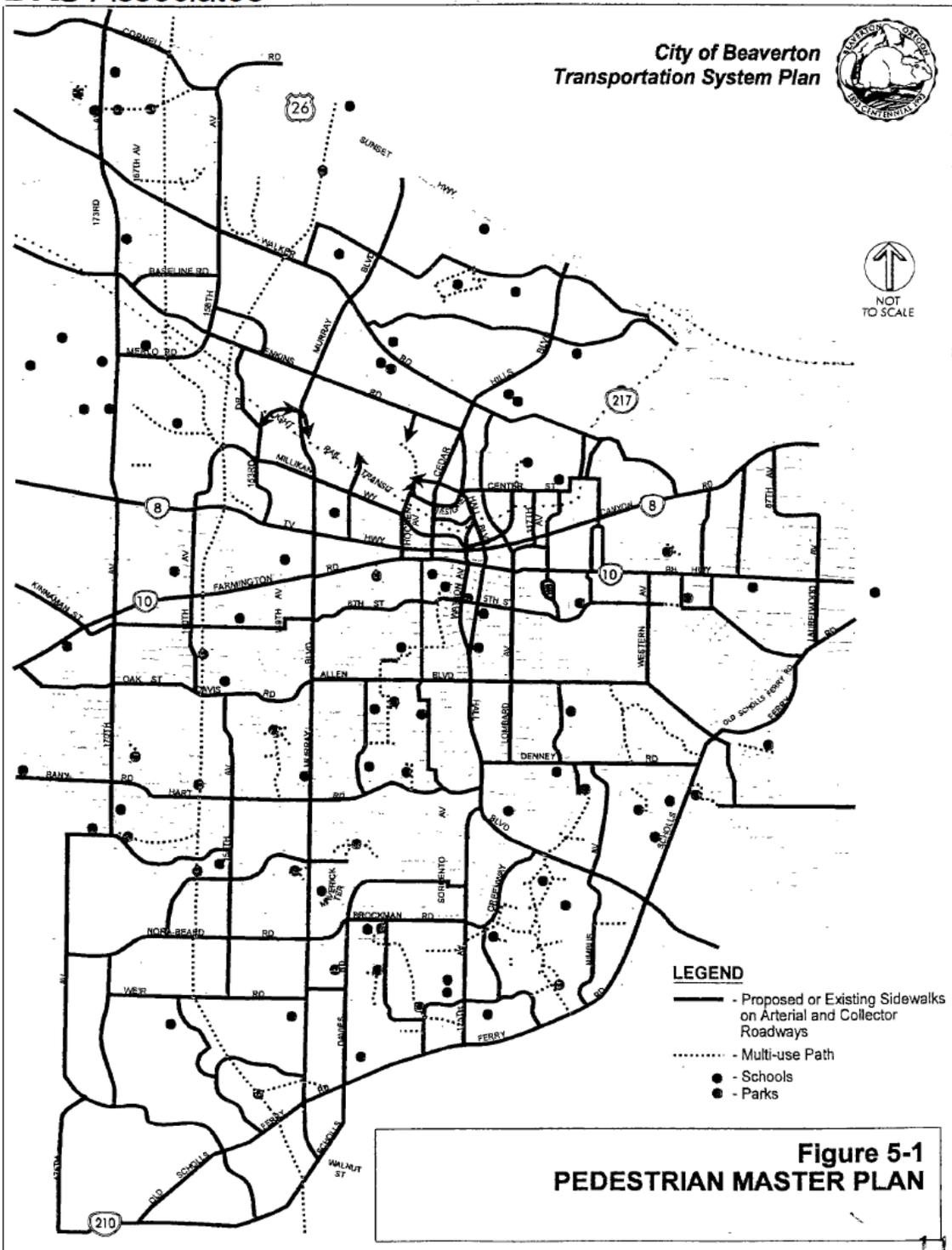
FIGURE 3-2

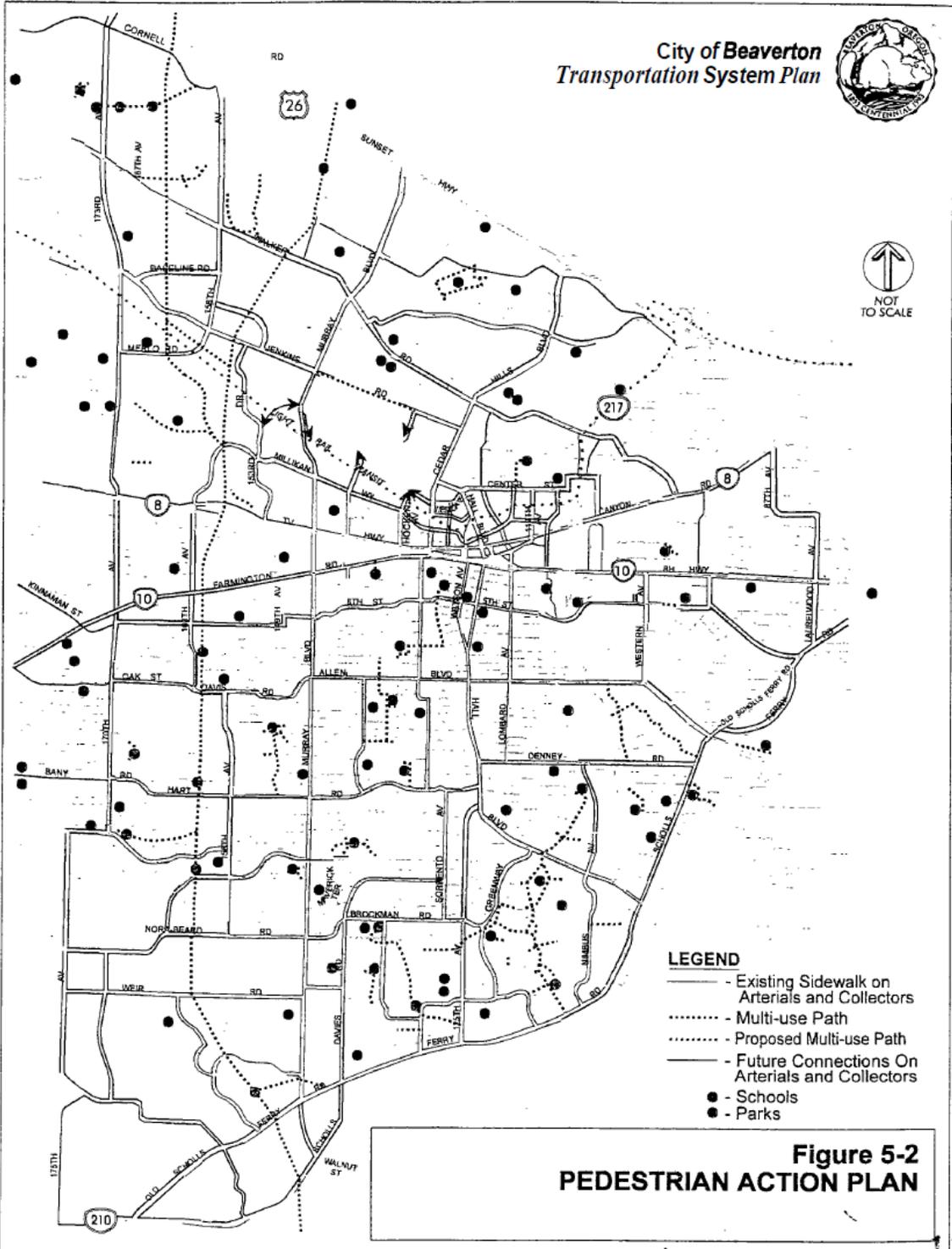
Transportation System Plan

Adopted Functional Classification

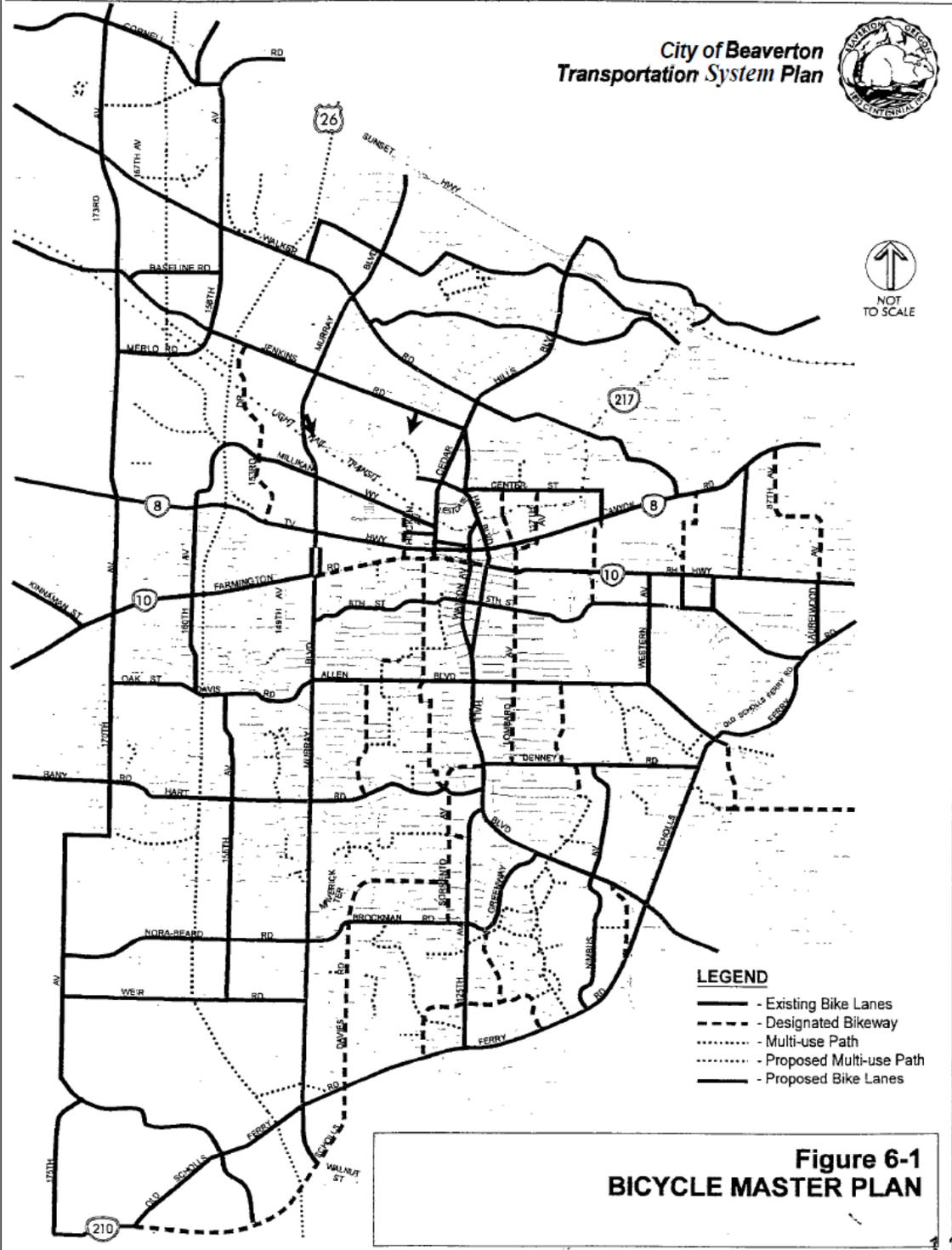


City of Beaverton
Transportation System Plan



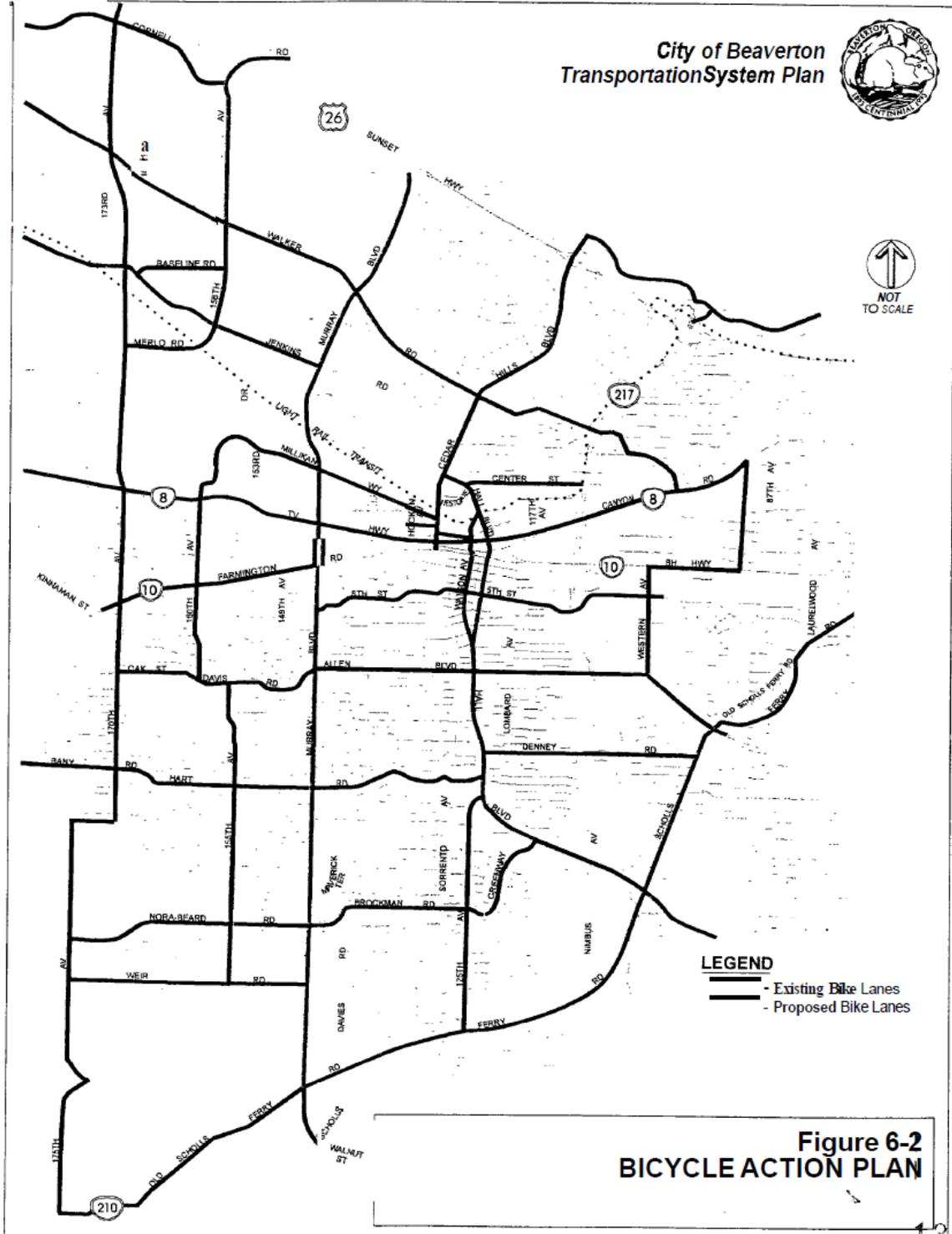


City of Beaverton
Transportation System Plan

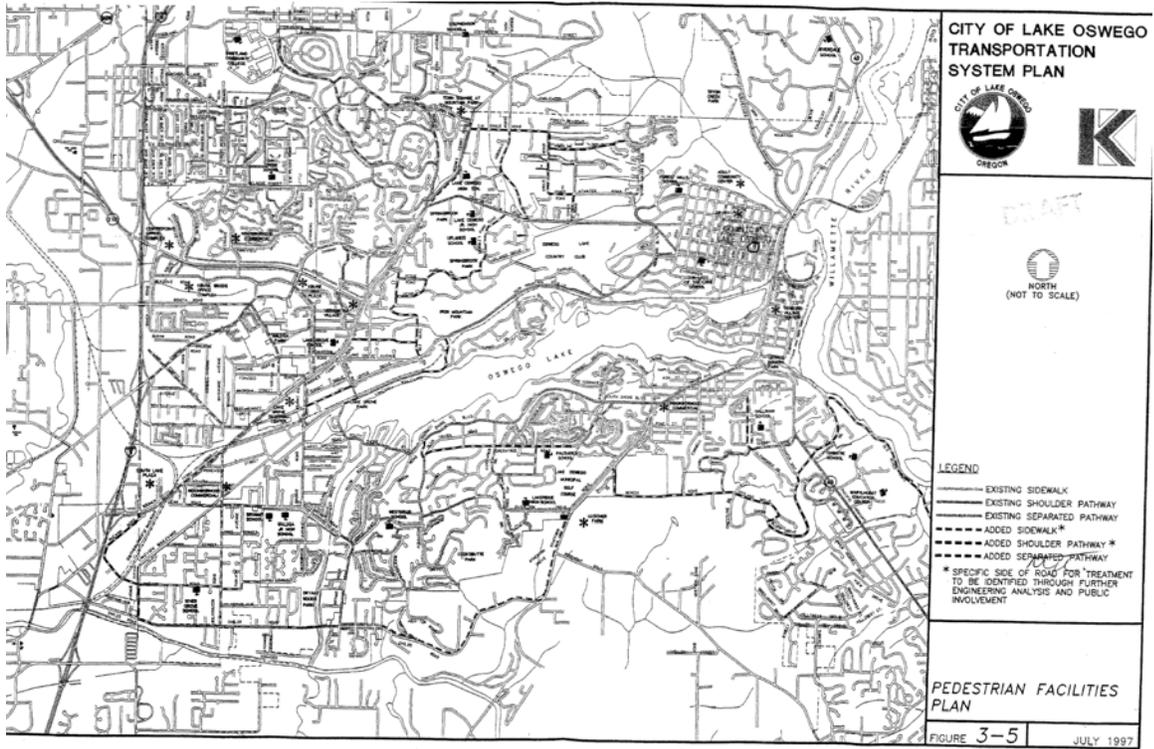


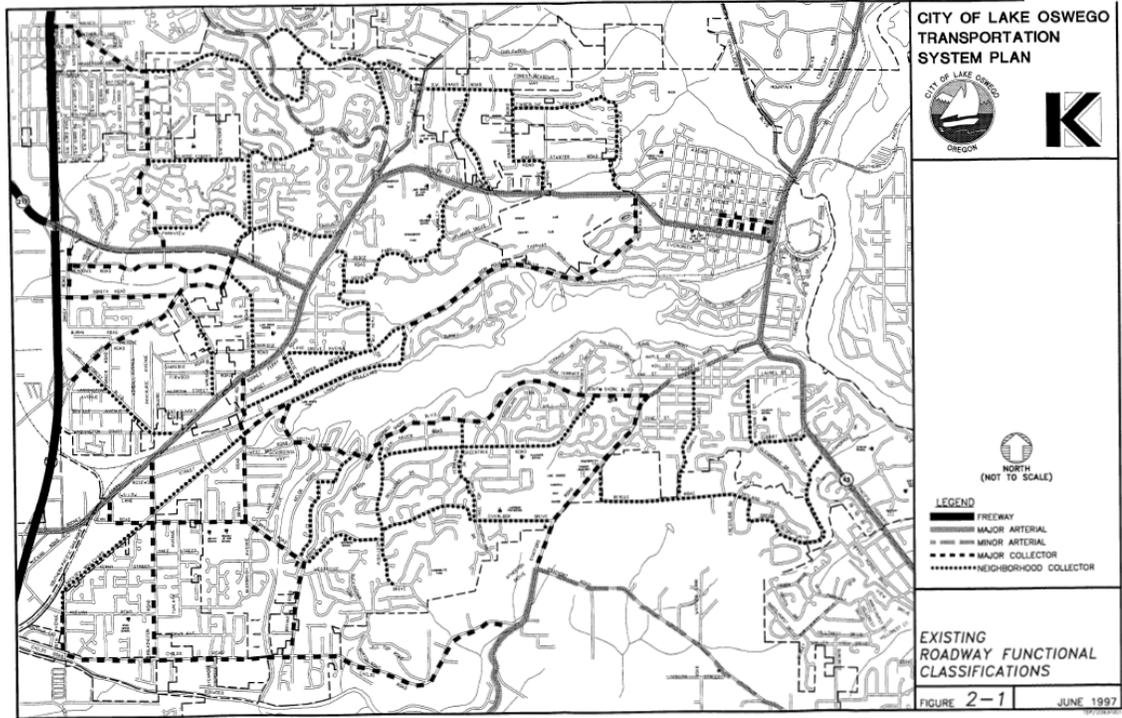
- LEGEND**
- Existing Bike Lanes
 - - - Designated Bikeway
 - Multi-use Path
 - Proposed Multi-use Path
 - Proposed Bike Lanes

**Figure 6-1
BICYCLE MASTER PLAN**

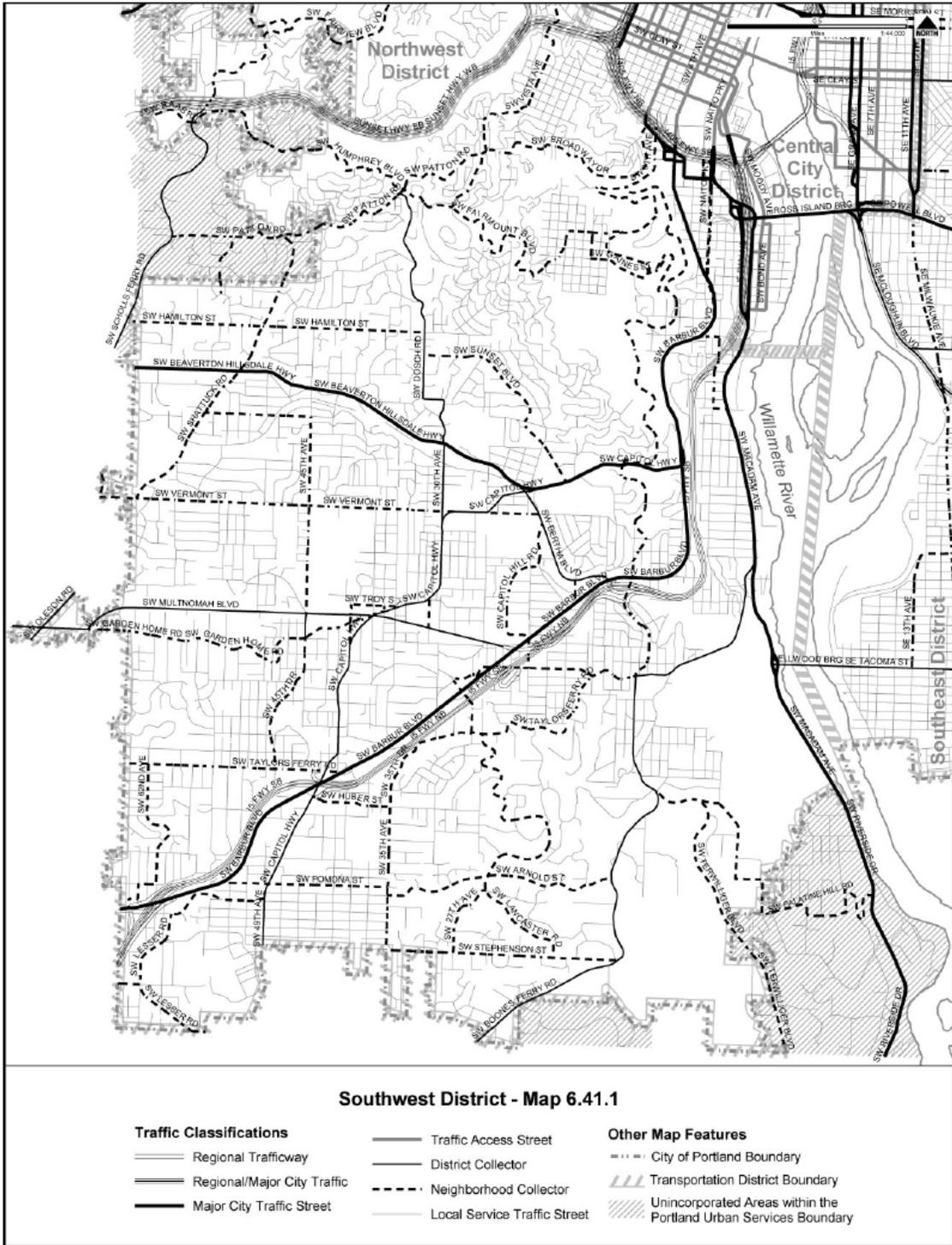


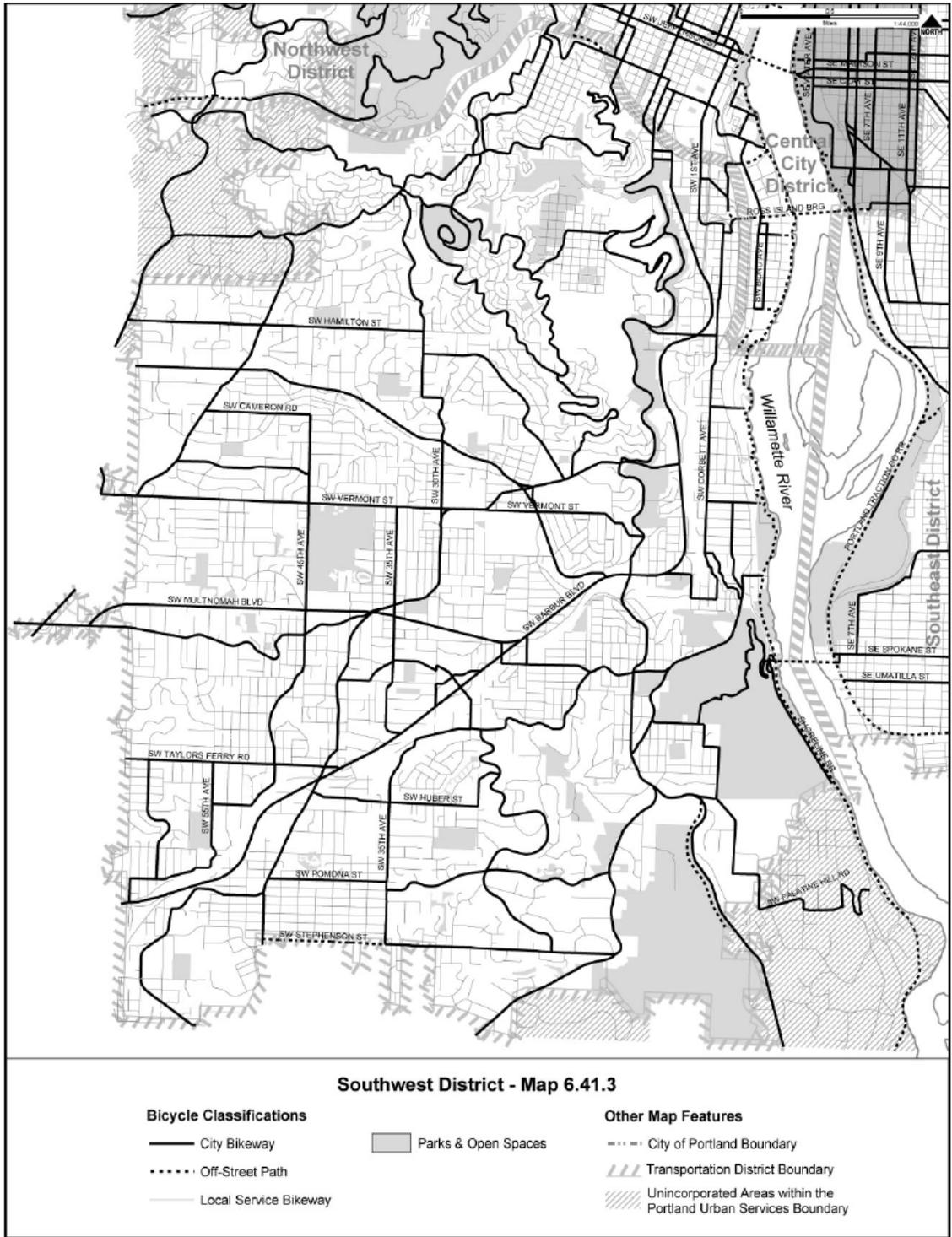
Lake Oswego Transportation System Plan: Functional Classification, Pedestrian and Bike Plans

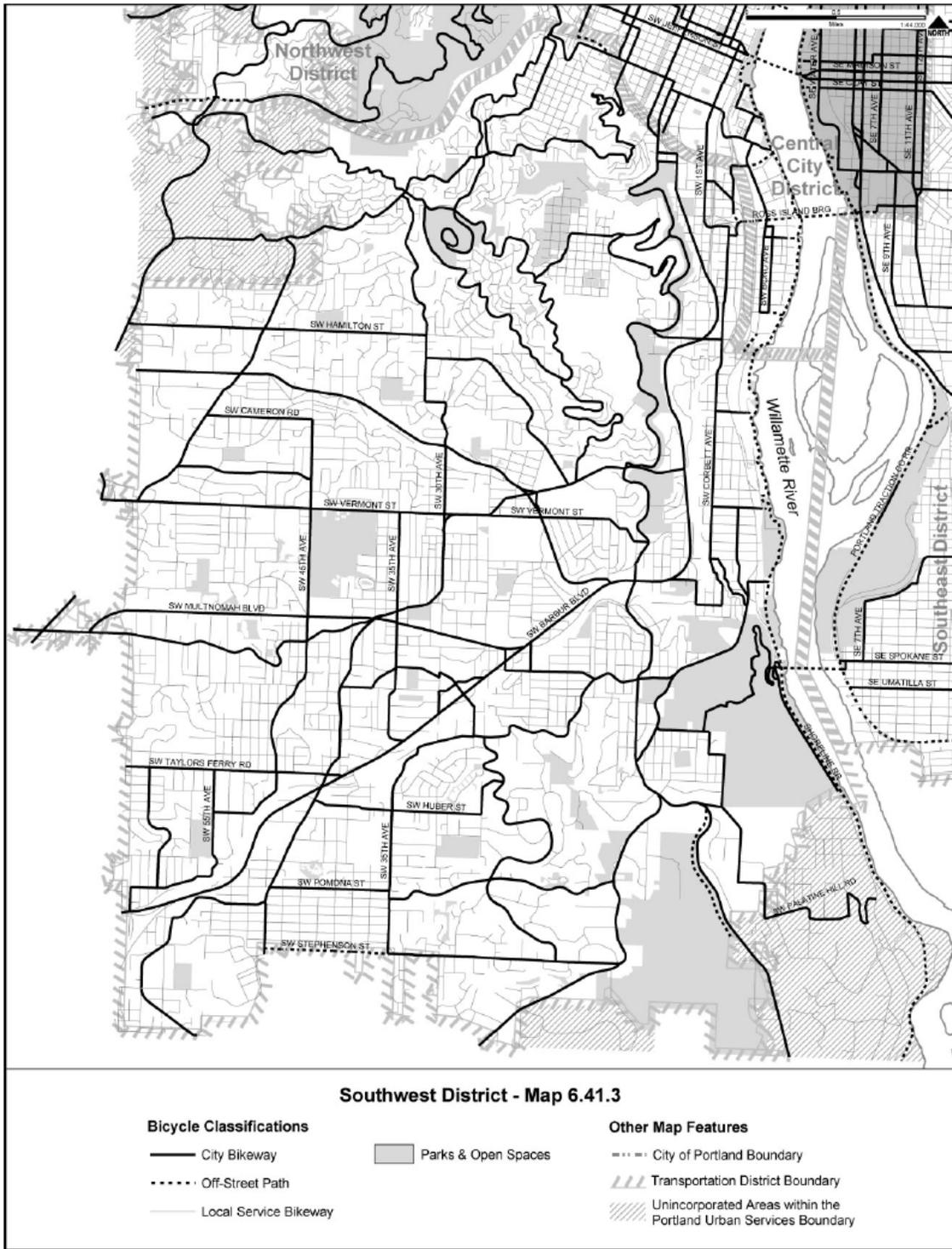


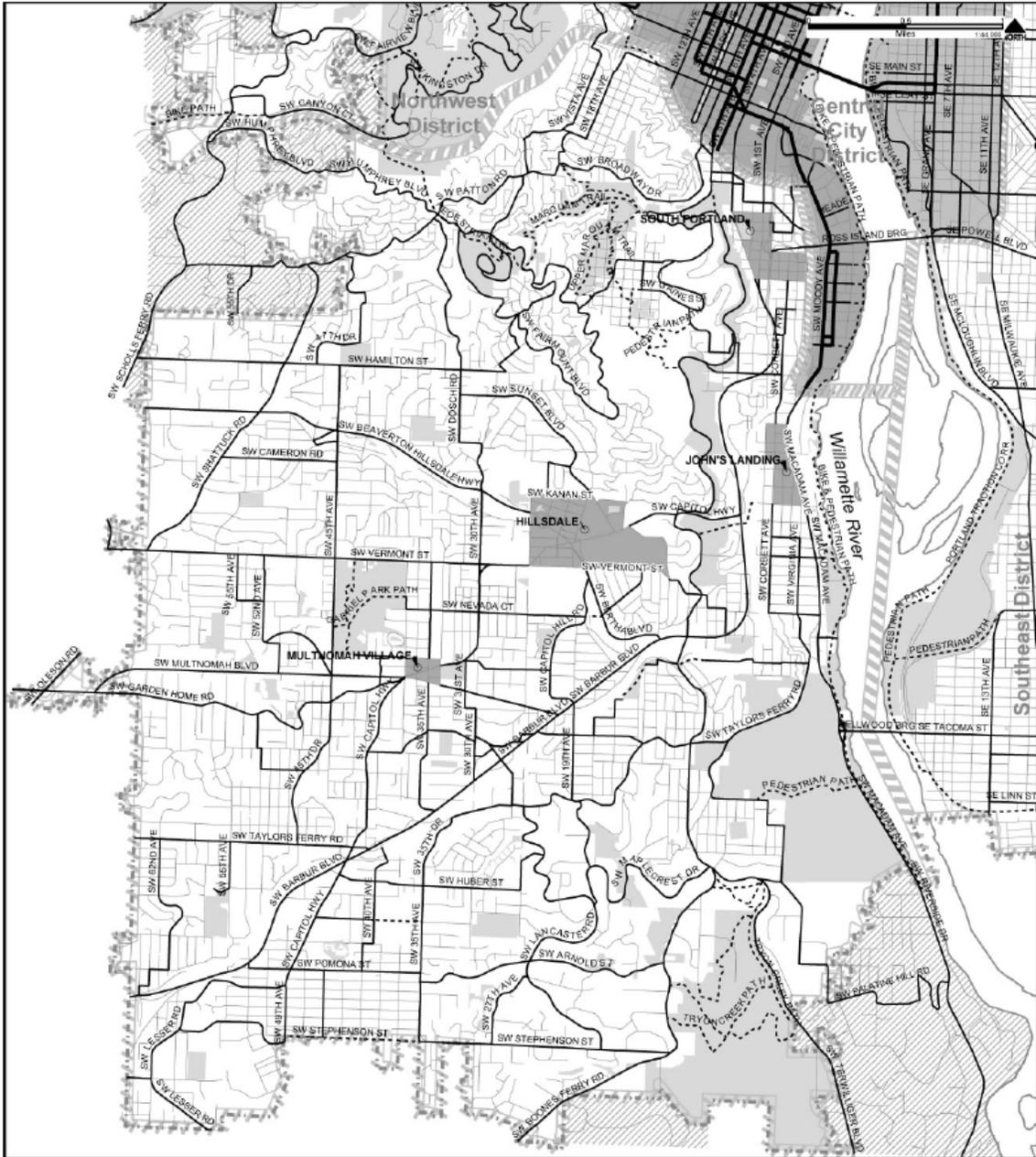


Portland Transportation System Plan: Functional Classification, Pedestrian and Bicycle Plan









Southwest District - Map 6.41.4

Pedestrian Classifications

- Central City Transit/Pedestrian Street
- City Walkway
- - - Off-Street Path
- Local Service Walkway

- Pedestrian Districts (See Policy 6.8)
- Parks & Open Spaces

Other Map Features

- - - City of Portland Boundary
- /// Transportation District Boundary
- /// Unincorporated Areas within the Portland Urban Services Boundary

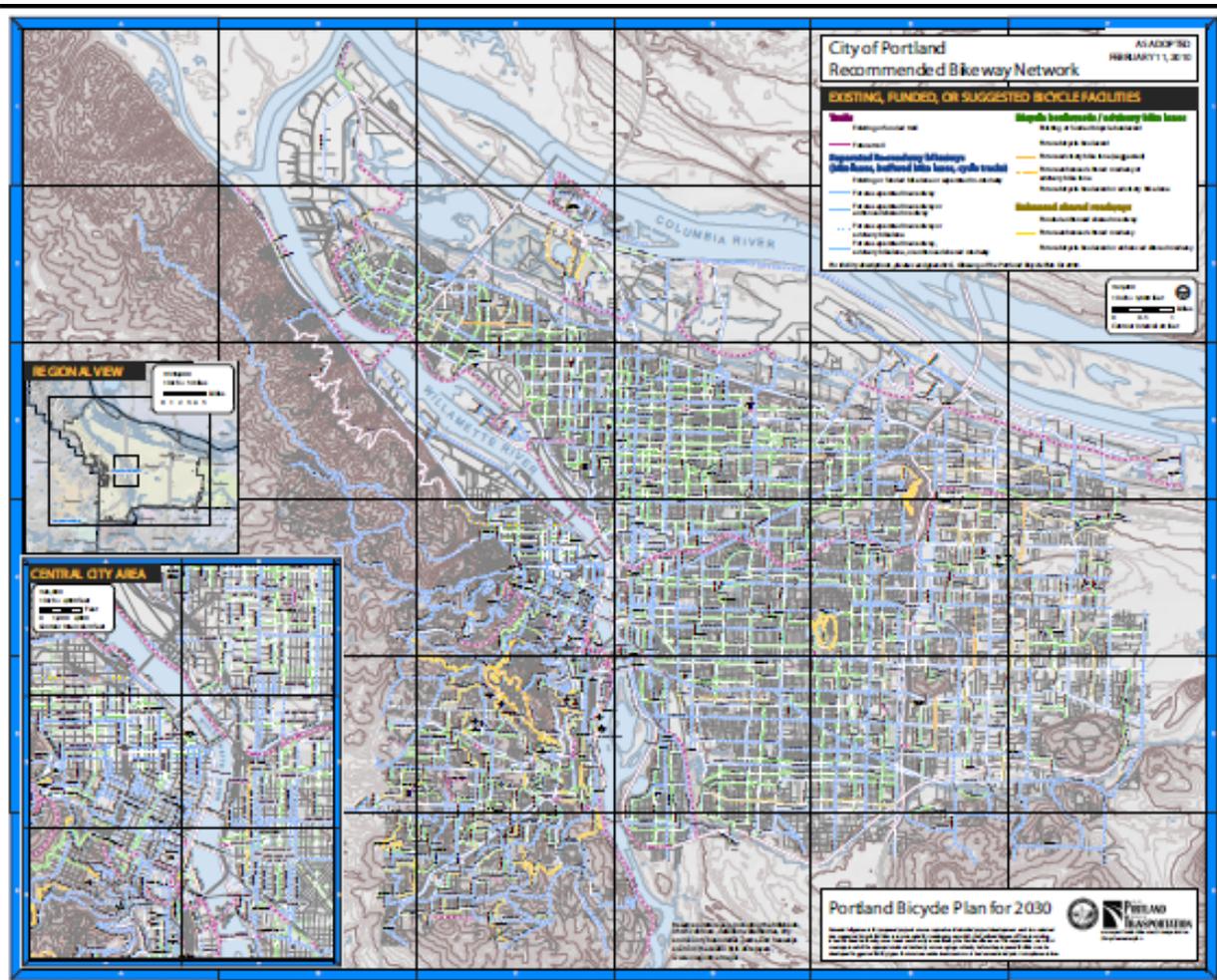


Figure 4-4 Map of the Pedestrian Potential Index

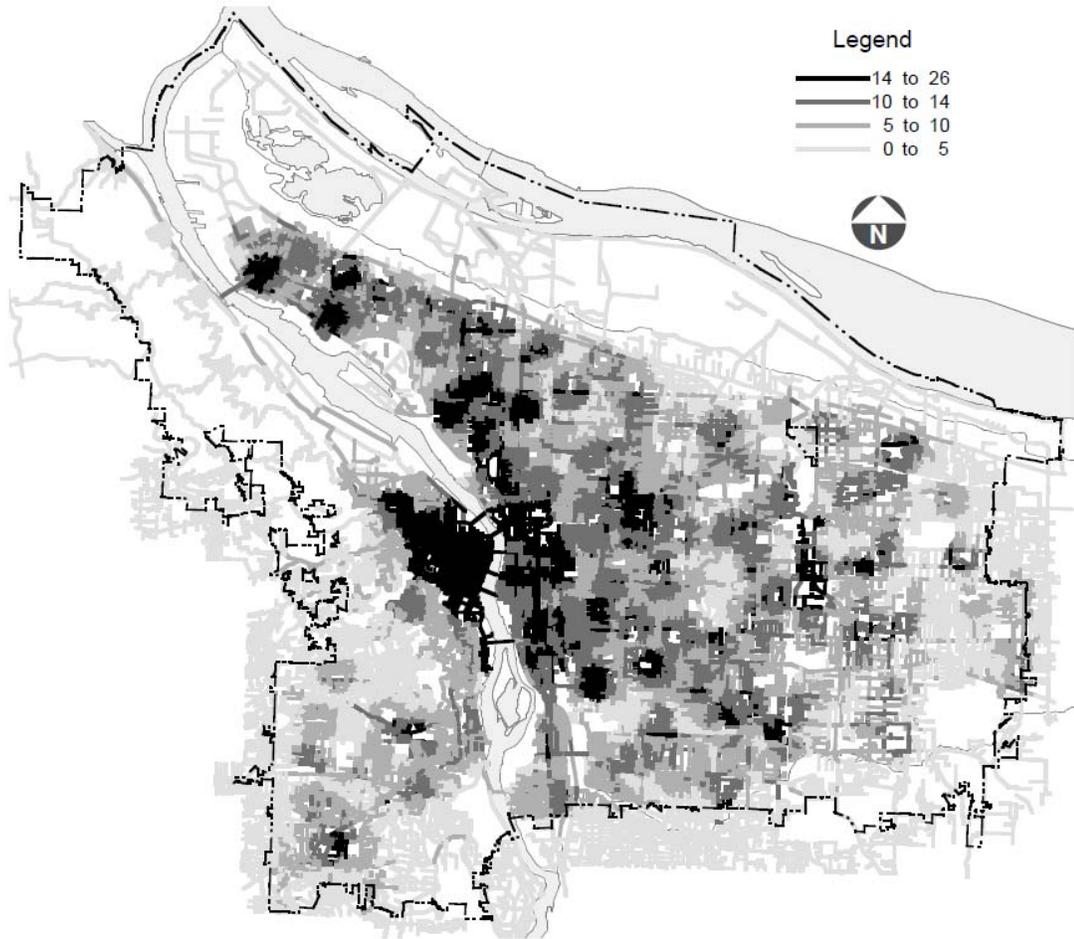


Figure 4-5 Map of the Deficiency Index

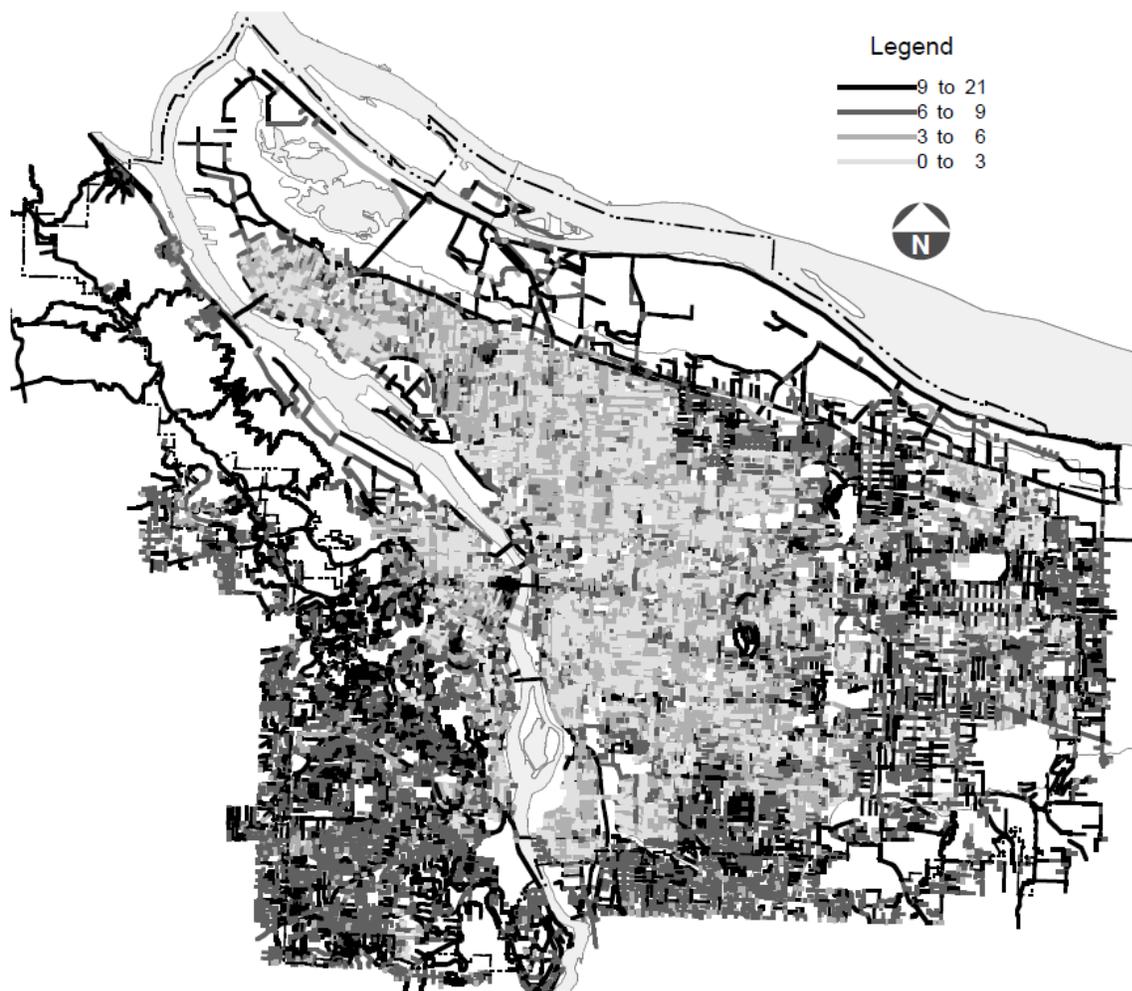
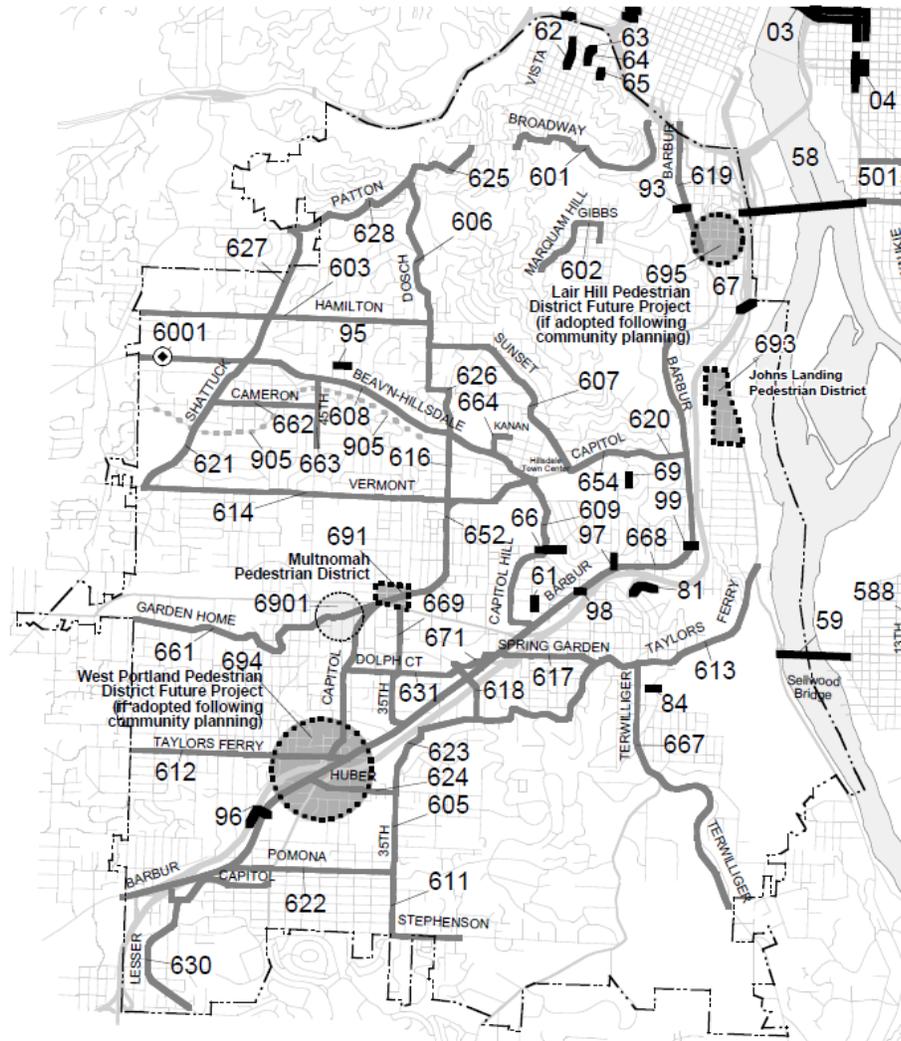


Figure 5-7 Projects for Southwest Portland



LEGEND

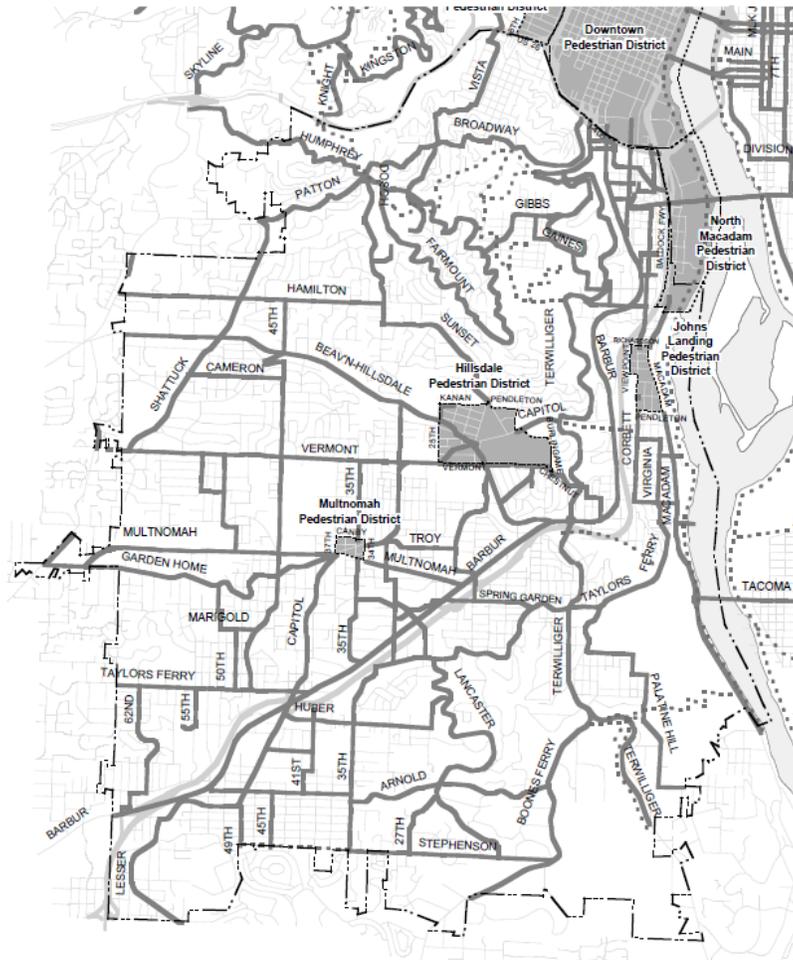
-  Pedestrian District Plan Area
-  Main Street Pedestrian Design Area
-  Pedestrian Corridor Project
-  Pedestrian Access to Transit Project
-  Major Crossing Improvement Project
-  Pedestrian Connection Project
-  Greenstreet Project
-  Transportation District Boundary

Scale = 1:60,000



Note: Pedestrian Districts are shown only where projects are planned. For a complete list of Pedestrian Districts, see Appendix C.

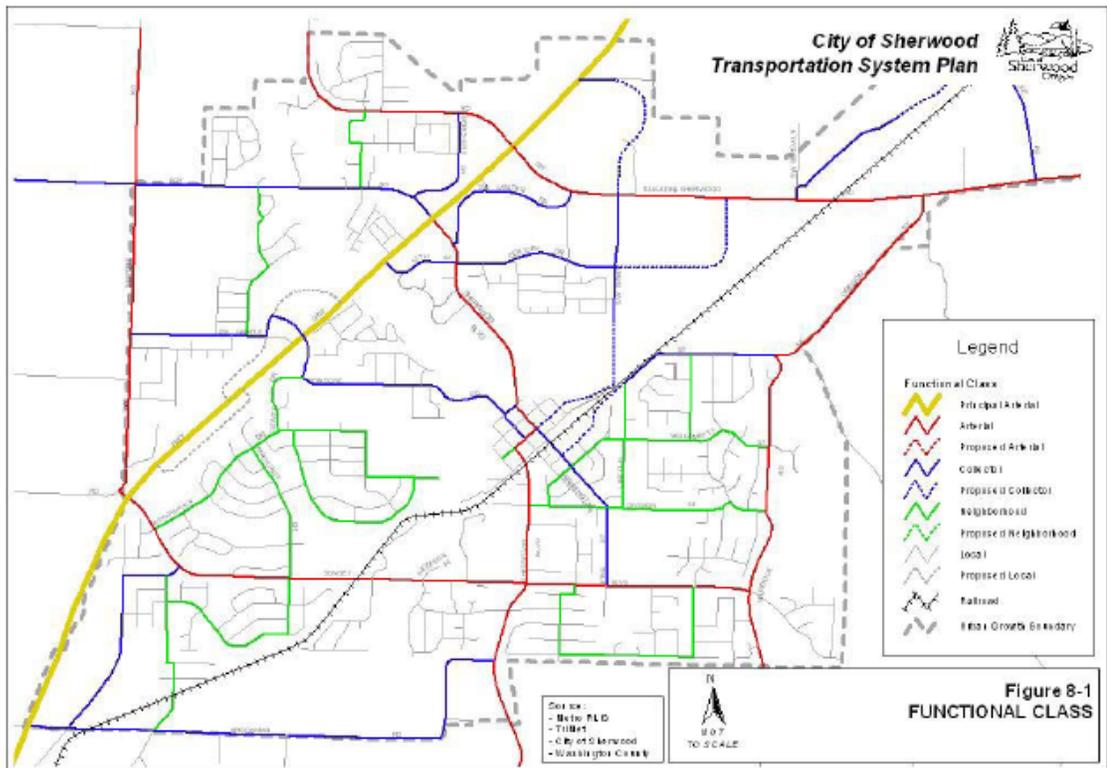
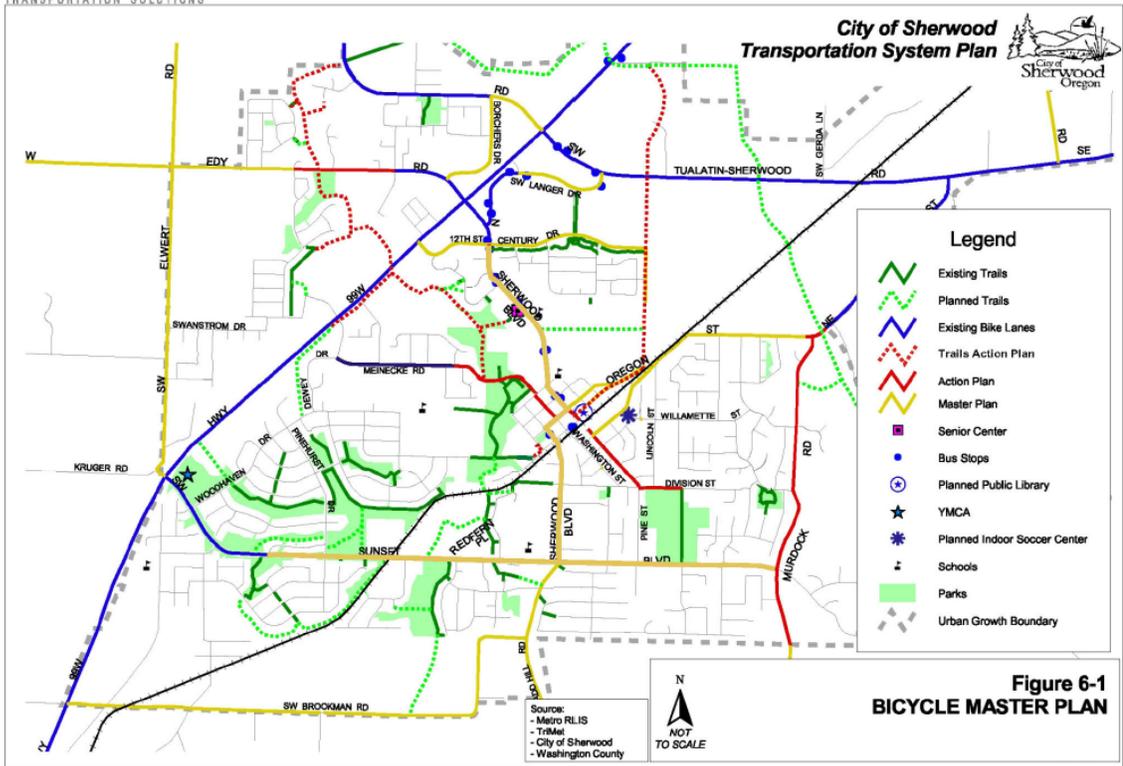
**Pedestrianways
Southwest Portland**



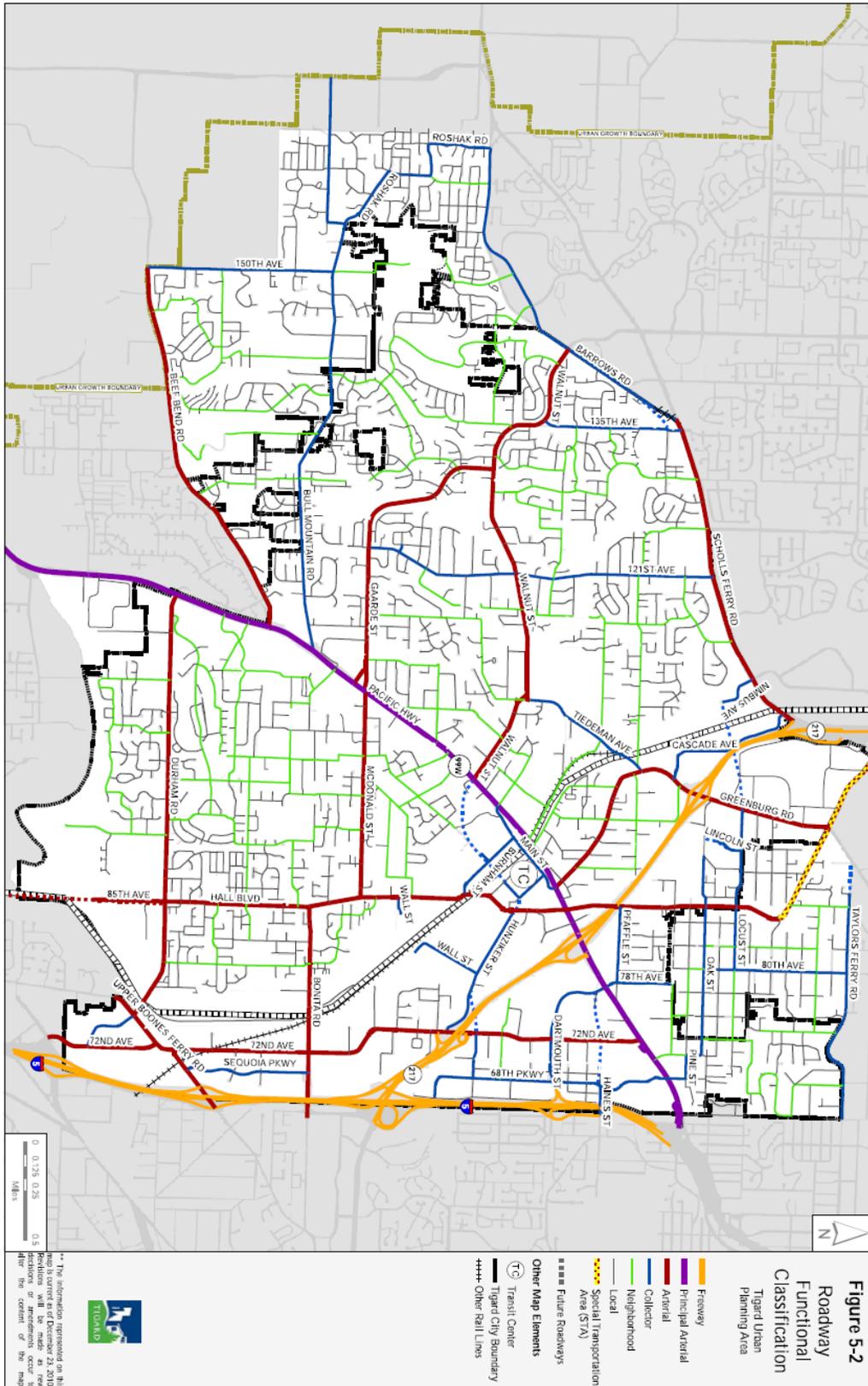
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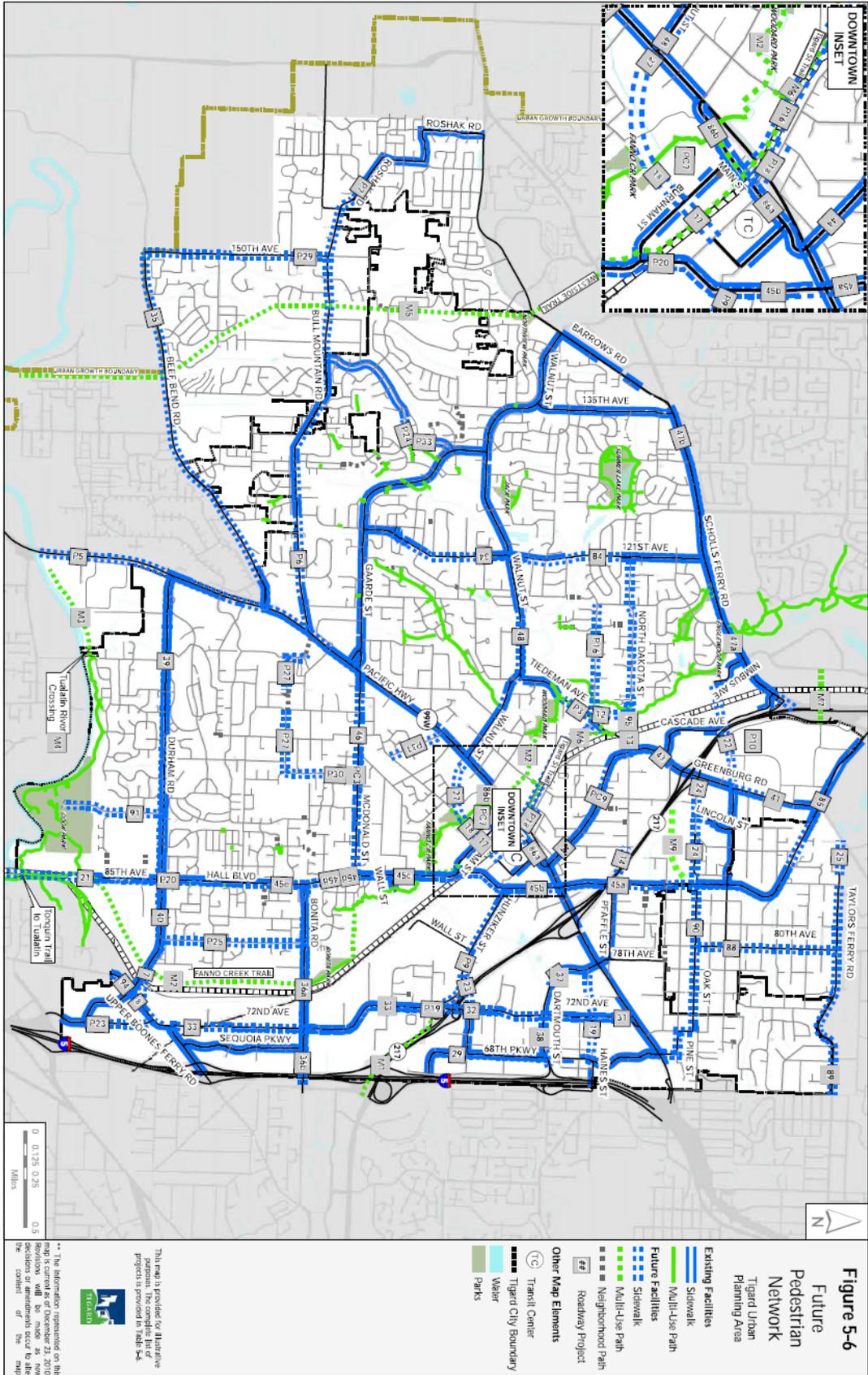
- LEGEND**
-  Pedestrian District
 -  Main Street Pedestrian Design Area (not a TE classification)
 -  City Walkway
 -  Local Service Walkway
 -  Off-Street Path
 -  Transportation District Boundary

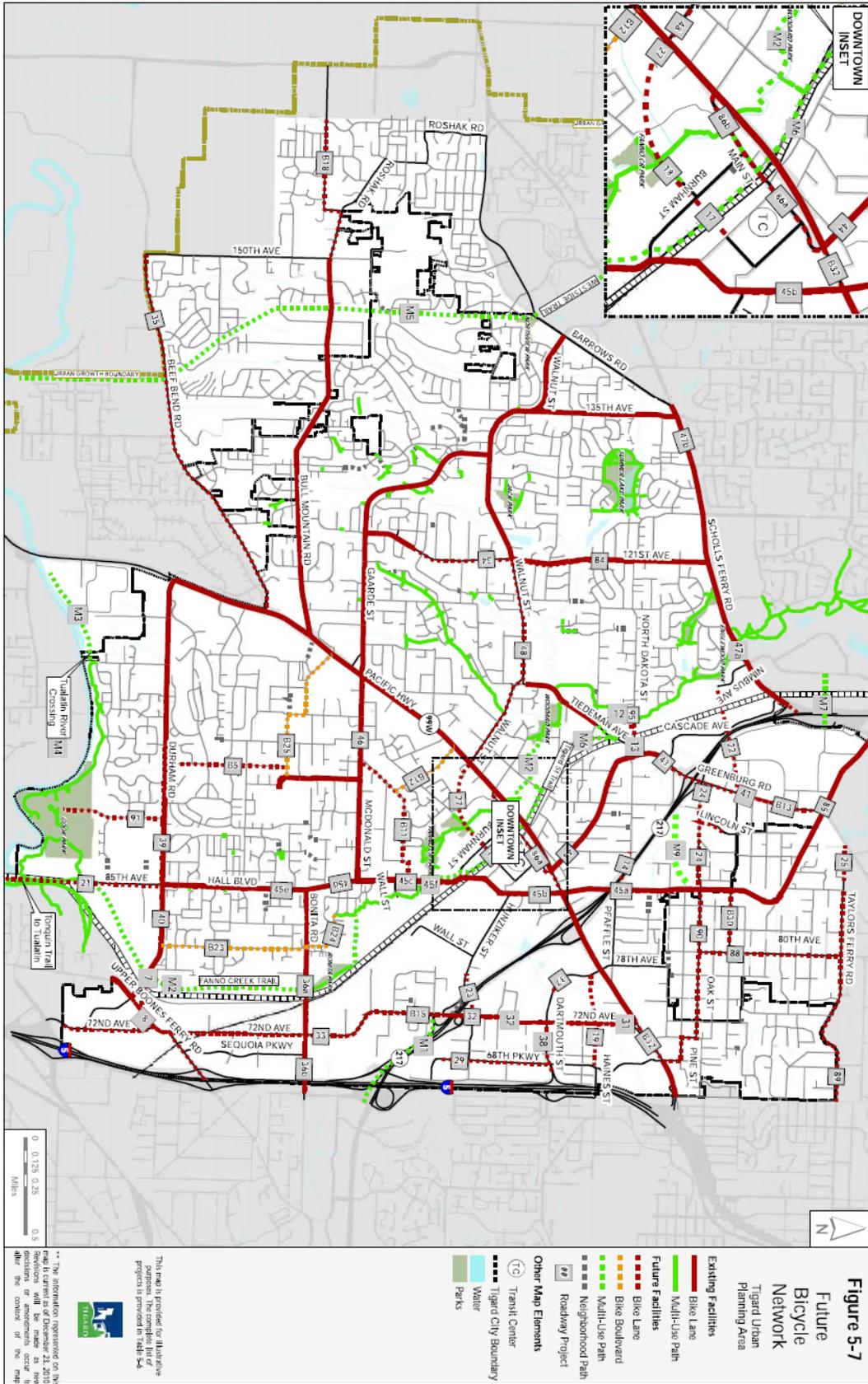
Sherwood Transportation System Plan: Functional Classification, Pedestrian and Bike Plan

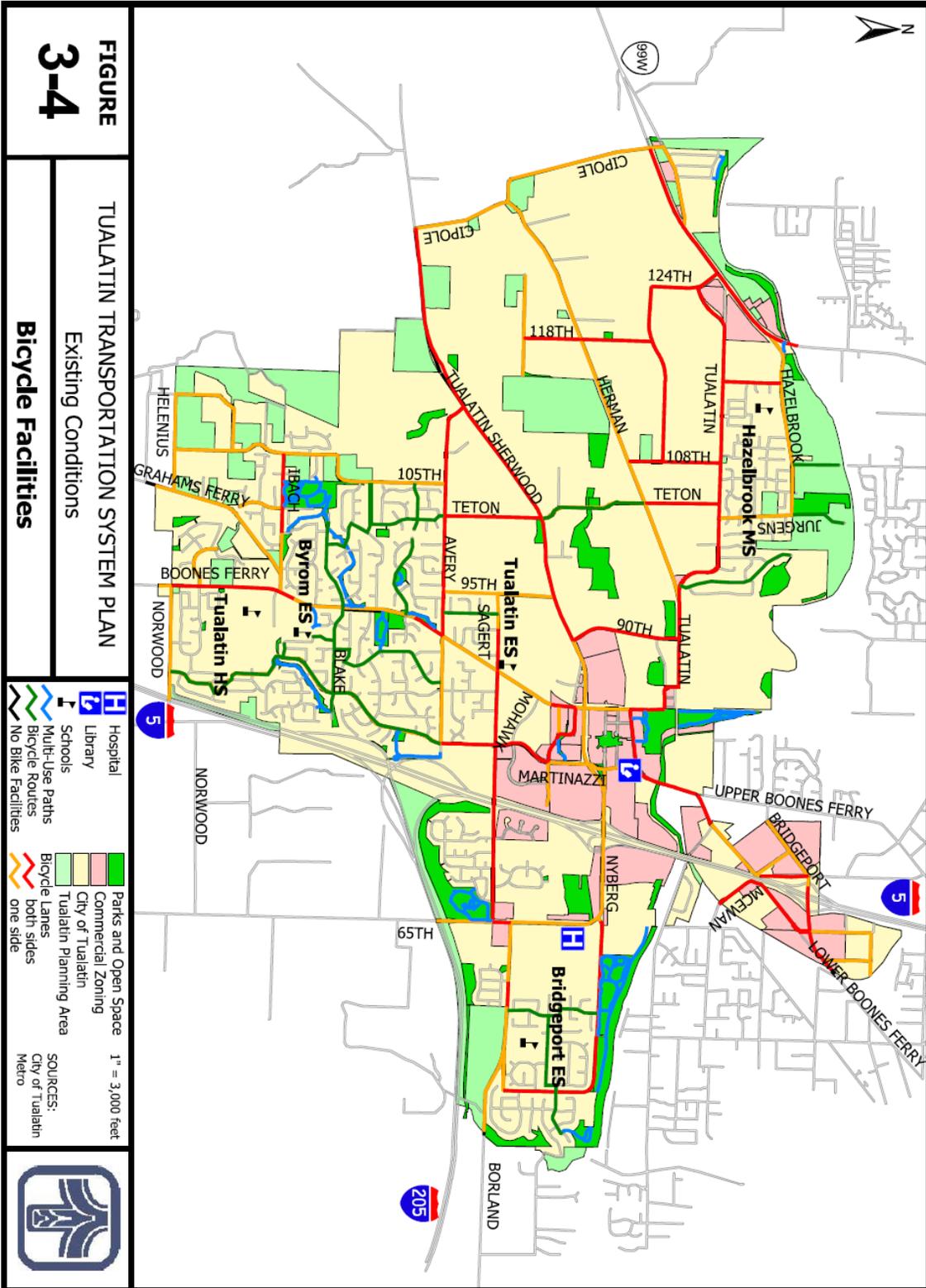


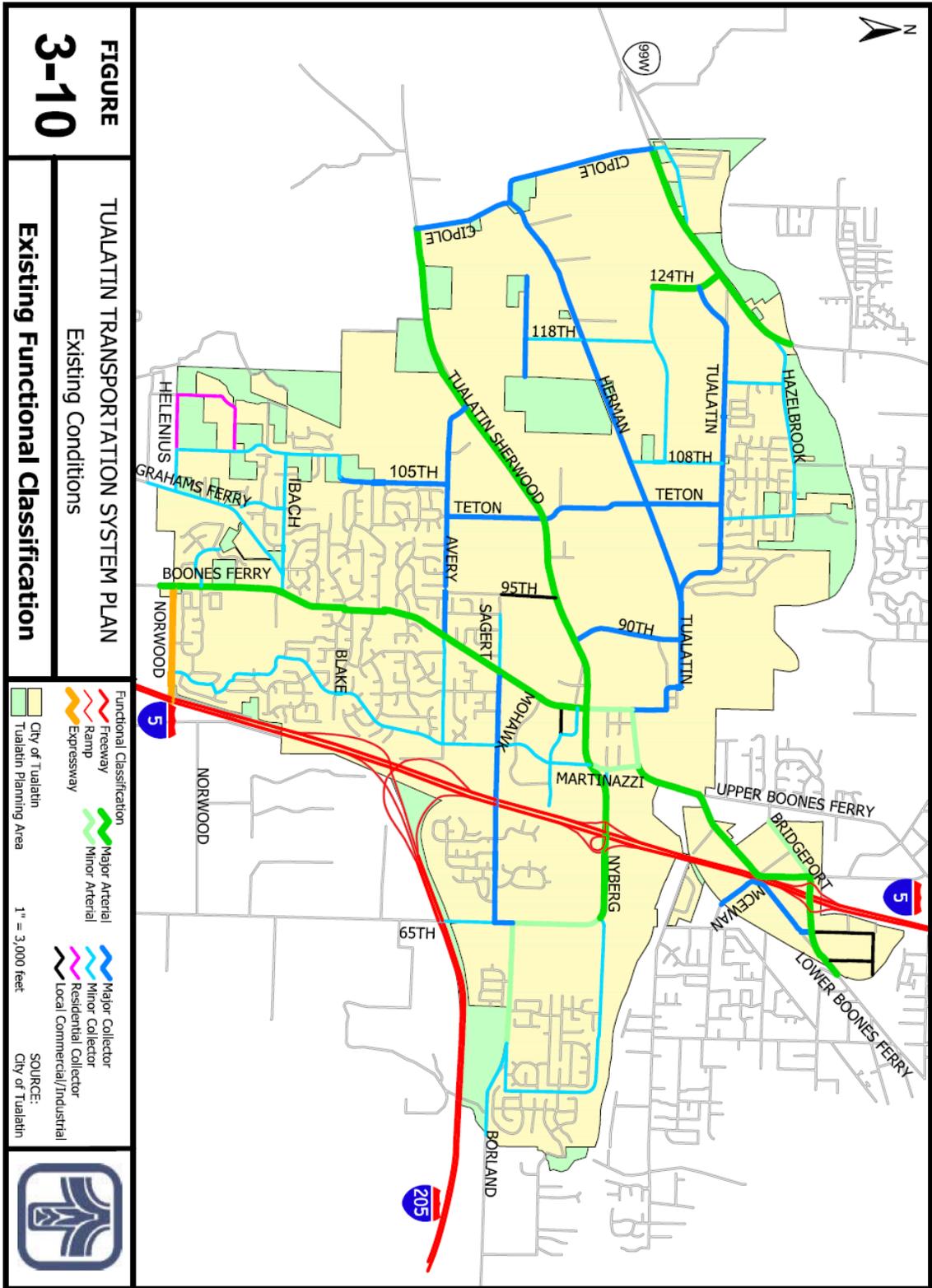
Tigard Transportation System Plan: Pedestrian and Bike Plan











Appendix E: City of Portland Barbur Boulevard High Crash Corridor plan

DRAFT

Plan for SW Barbur Blvd from SW Natio Pkwy to SW Capitol Hwy



Key Findings

- Driveway crashes are about 50% higher than the citywide average. Crashes at driveways are generally classified as 'turning' or 'angle' crashes, which typically result in more injuries and deaths.
- The incidence of crashes caused by drivers disregarding traffic signals is about 50% higher than the citywide average.
- Approximately 50% of the corridor lacks sidewalks.
- The bike network is incomplete on many structures along Barbur.
- Generally, bus stops are located near pedestrian crossing improvements. Four outbound bus stops are greater than a 1/4 mile from any crossing improvement.

SW Whitaker St & Naito Pkwy

- "Hawk" signal to aid pedestrian and bicycle crossings, *completed by spring 2012*

SW Barbur & Whitaker St

- Two-stage crossing pedestrian island, *complete*

4900 block of SW Barbur/Rasmussen Apts

- Rapid flash beacons & marked crosswalk to increase compliance of vehicles yielding to pedestrians at the crosswalk (ODOT), *completed November 2011*

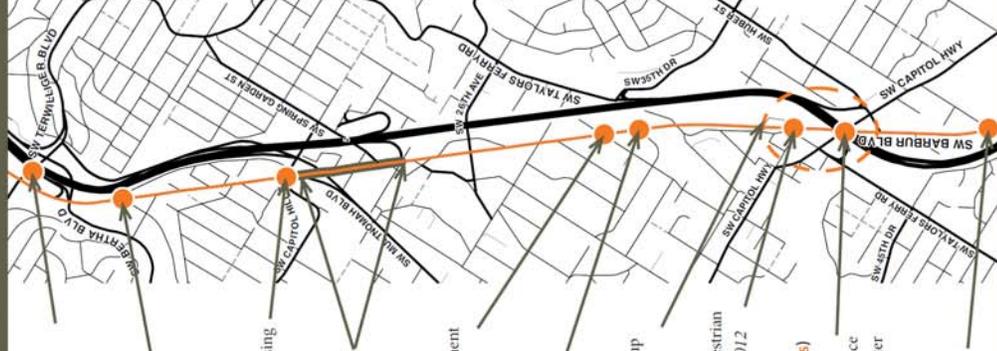
SW Barbur & Capitol Hwy ramp

- Green bike lane for southbound bicyclists (ODOT), *completed by spring 2012*

Enforcement & Education Activities

- Targeted enforcement of 20 MPH school zone speed limit in September 2011. Encourage violators to attend "Share the Road" safety classes.
- Consider installation of red-light cameras at high crash intersections.
- Targeted police patrol along Barbur Blvd resulted in 194 citations in July 2011.
- Distracted driving enforcement at Barbur Blvd & Capitol Hwy in July resulted in 21 citations and 8 warnings.
- Place transportation safety ads in local high school newspapers.

Plan for SW Barbur Blvd from SW Terwilliger Blvd to SW Luradel St



SW Terwilliger Blvd (High Crash Location)

- 41 crashes (one pedestrian) in 2006 – 2009

SW Barbur Blvd & Custer St

- Construct curb extension on south side of Custer St to prohibit eastbound traffic at Barbur as part of Fred Meyer remodel, *complete*

SW Barbur & Capitol Hill Rd

- Provide bus pullout, striped bike lane and shorter pedestrian crossing as part of Safeway redevelopment, *completed by December 2012*

SW Barbur from 19th Ave to 26th Ave

- Sidewalk infill and two pedestrian crossings as part of an ODOT Regional Flex Fund grant request, *completed by 2014*

Corridor-Wide Improvements

- Pedestrian countdown signals installed at all traffic signals.
- Construct or upgrade pedestrian ramps to meet Americans with Disabilities Act (ADA) standards.
- Plan to install new and larger street name signs along Barbur corridor.

SW Barbur & Alice St

- Future pedestrian improvement (Unfunded at this time)

SW Barbur & 35th Ave

- "Hang Up and Drive" billboard, *complete*

SW Barbur, Taylors Ferry Rd, Capitol Hwy & Huber St

- Conduct study to determine future improvements to this group of coordinated intersections (Unfunded at this time)

SW Barbur & Taylors Ferry Rd

- Construct curb extension to enhance pedestrian environment, shorten pedestrian crossing and keep automobiles out of bike lanes, *completed by December 2012*
- "Hang Up and Drive" billboard, *complete*

SW Barbur & Capitol Hwy (Top 5% of ODOT's High Crash Locations)

- 71 crashes (two pedestrian) in 2006 – 2009
- Constructed curb extension, new ADA ramp, better sight distance for pedestrians, pedestrian push buttons, new signal heads for better signal visibility, *complete*

SW Barbur Blvd & Luradel St

- Pedestrian improvement planned, *completed by December 2012*