CITY OF BEAVERTON

ACTIVE TRANSPORTATION PLAN

Making it easier to walk and bicycle in our community

NOVEMBER 2017

Beaverton
OREGON

ACKNOWLEDGMENTS

Preface

The development of this plan was guided by the Project Management Team (PMT), Technical Advisory Committee (TAC), Community Advisory Committee (CAC), Mayor Denny Doyle and the City Council. Each individual devoted their time/effort and their participation was instrumental in the development of the plan update.

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INTRODUCTION AND VISION

What is Active Transportation?

Active transportation refers to any form of human-powered transportation - walking, jogging, running, bicycling, using a wheelchair, in-line skating or skateboarding. There are many ways to engage in active transportation, whether it is walking to the bus stop, or bicycling to school/work.

The Need for an Active Transportation Plan

Historically, planning for bicycles and pedestrians has happened along with road improvement projects or when a particular connection has been identified as a need in the City's TSP, identified by the Mayor or City Council. The result has been mixed. While we have built a significant number of bike lanes, improved intersections, built and signalized mid-block crossings, in many instances large gaps remain in bike lanes and sidewalks. Also, the City has not traditionally focused on providing low stress neighborhood routes for a class of bicyclist commonly referred to as the "interested but concerned," or those citizens that are uncomfortable riding on roads with higher speeds and/or high volumes of traffic. In all, the City has not focused on: planning for a complete bicycle and pedestrian network that provides access to essential destinations, the provision of redundant routes for walkers and bikers of all abilities, and providing seamless connections to neighboring jurisdictions.

While these deficiencies have been apparent to staff, the plan was to address the issue with the next TSP update. However, the need for a comprehensive active transportation plan was designated as a priority for 2017 by Beaverton's City Council and during the City's 2017 Vision Plan update.

PROBLEM STATEMENT:

While the City of Beaverton has historically included a section on bicycles and pedestrians in our Transportation System Plan updates (TSP), these sections have not provided enough specificity or design guidance to effectively meet the needs of our bicycling and pedestrian community.

Under the sections titled "Improve Mobility," and "Vibrant Downtown," it was clear that providing for non-auto modes of transportation was a community priority. As a result of the Vision Plan, the following key words and actions related to bicycles and pedestrians were identified:

Goal Area: Improve Mobility

Key Words	Action Description	Partners
Expand paths and trails and connect to major destinations	Work with THPRD to expand local paths and trails, add amenities and build connections to key destinations including employment centers, retail areas, neighborhoods, parks and regional trail system.	City of Beaverton, THPRD
Install bikeways along commute routes	Continue to install safe and friendly bikeways along commuter routes and near schools as defined in local and regional active transportation plans. (Partner note: Develop Separate off-street bikeways or boulevards where feasible).	Bicycle Advisory Committee, City of Beaverton
Support creation of local transportation alternatives	Support efforts to develop local transportation options (bike-share; car-share; shuttle; trolley; street car) that connects neighborhoods, employment centers and major destinations.	City of Beaverton, Ride Connection, Westside Transportation Alliance
Install safe sidewalks and pedestrian lighting citywide	Continue to install safe and attractive sidewalks citywide, and partner with Washington County and ODOT to complete gaps.	City of Beaverton, ODOT
Use signals and traffic-calming to improve safety	Use signals and traffic-calming strategies to improve safety in pedestrian zones, and design future roadway updates with an emphasis on safe and friendly pedestrian access.	City of Beaverton, ODOT
Upgrade trails to include lighting and better connectivity	Upgrade existing off-road bike trails, add lighting and connect to the regional system over time	Bicycle Advisory Committee, City of Beaverton, THPRD

Goal Area: Vibrant Downtown

Key Words	Action Description	Partners
Add benches, restrooms, bike racks and fountains	Add benches, restrooms, bike racks and drinking fountains to key locations downtown as feasible.	Beaverton Downtown Association, Bicycle Advisory Committee, City of Beaverton
Create pedestrian friendly zones	Create pedestrian friendly zones downtown and produce and promote downtown walking maps	City of Beaverton, Westside Transportation Alliance

The Plan and Policy Review, included in **Attachment A**, and highlights elements of the existing plans, policies, and code that were relevant to the development of the plan. It includes a summary of conflicts, inconsistencies, and missing elements that influenced the development of this plan. This plan is consistent with and helps implement the Oregon Bicycle and Pedestrian Plan and the Metro Region Active Transportation Plan. Once adopted, it becomes an element of the City's Transportation System Plan.

Vision, Goals and Objectives

Our Active Transportation Plan will promote walking and bicycling in Beaverton and set the foundation for developing well-connected, attractive bicycle and pedestrian networks that are safe, convenient and user-friendly for people of all ages and abilities, whatever mode of transportation they choose. The Plan's focus is on creating active transportation opportunities to get people where they need to go—work, school, appointments, shopping, and activities.

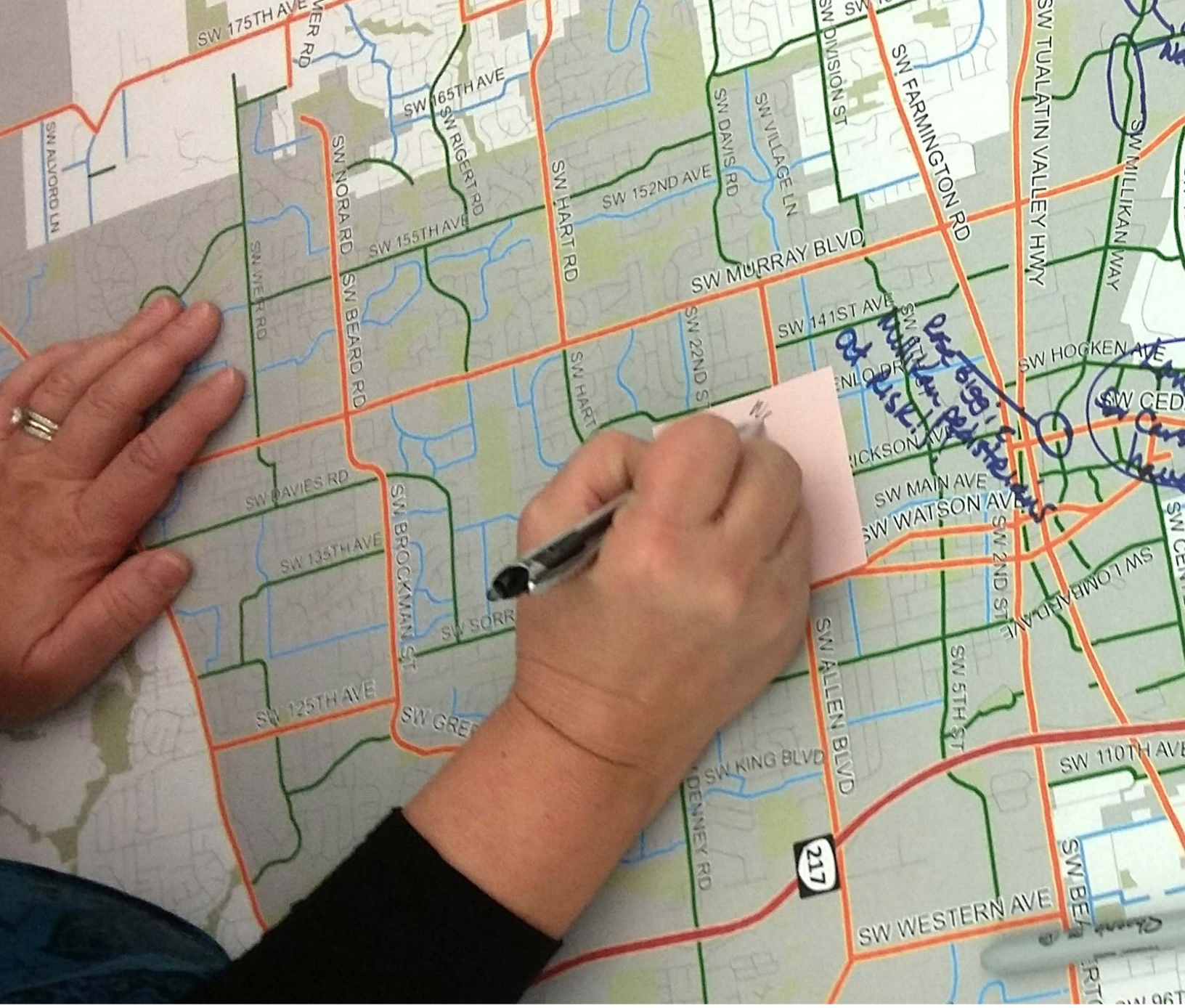
VISION

Safe, comfortable, and connected systems make walking and bicycling the most enjoyable option for trips up to three miles.

GOAL 1 ACCESS TO DESTINATIONS	Enhance safe opportunities for walking, bicycling, and accessing transit, in ways that **connect people to destinations**: schools, employment centers, transit, stores, and other community destinations
GOAL 2 EQUITY AND COMPLETENESS	Ensure that **all neighborhoods** in Beaverton have options for walking, bicycling, and transit
GOAL 3 COMFORTABLE FOR ALL	Create a network of low-stress neighborhood bikeways to provide **comfortable routes for all users.**
GOAL 4 SAFETY	Improve safety for all modes
GOAL 5 FUNDING AND IMPLEMENTATION	Position Beaverton active transportation projects to be **competitive for grants** and **regional funding** opportunities

OBJECTIVES

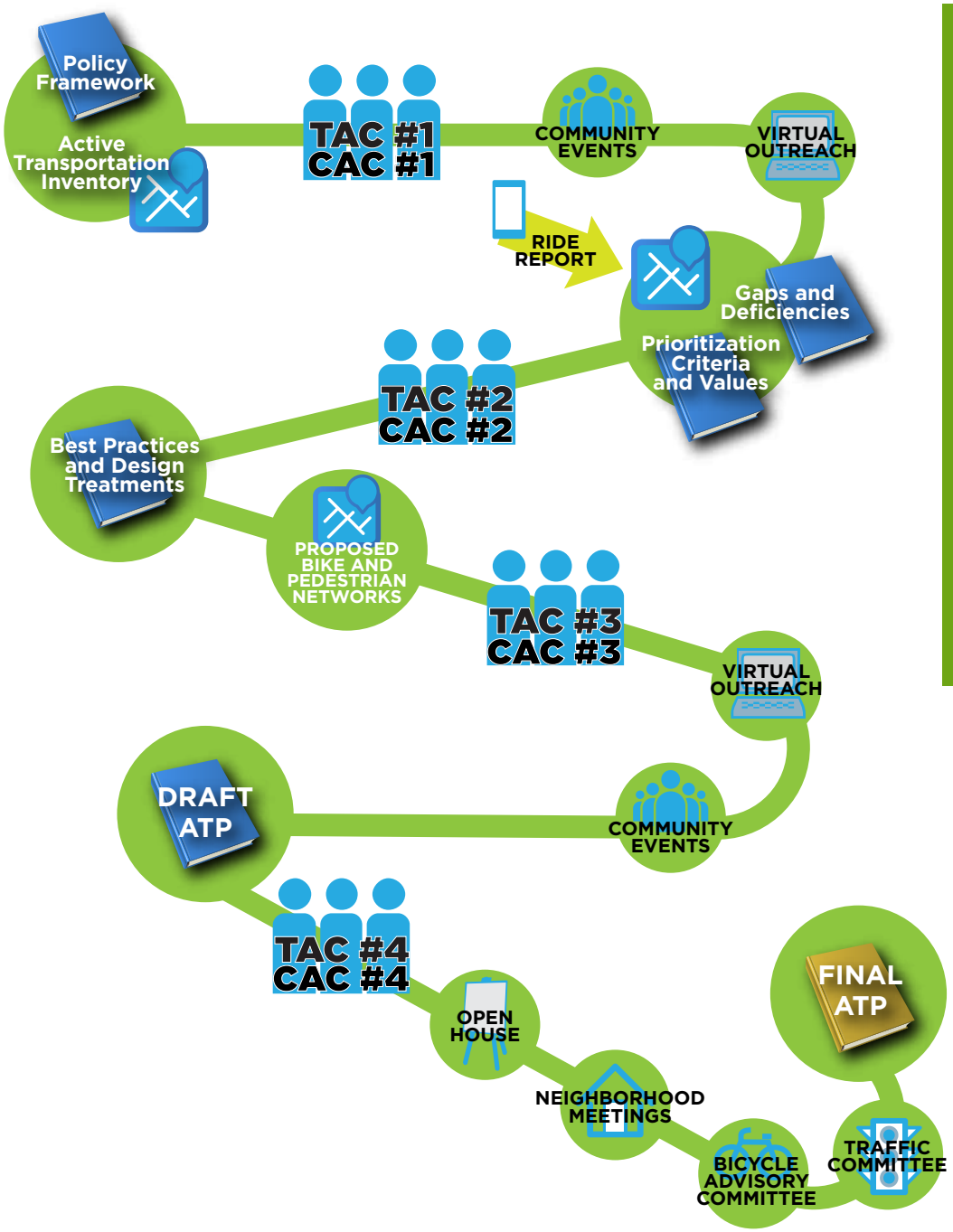
1	Prioritize investments that connect to destinations and transit stops
2	Design and construct bike facilities that are low-stress, level of traffic stress 2 or 1
3	Design and construct sidewalks and trails with grades and widths to allow for comfortable walking and rolling
4	Improve crossing opportunities to enhance walking and bicycling access
5	Fill gaps in the networks between neighborhoods and destinations
6	Manage vehicle volumes, speeds, and potential conflicts in pedestrian and bicycle districts and on low-stress routes
7	Submit grant applications for high priority projects across the City.
8	Construct 10 miles of neighborhood bikeways annually.
9	Construct 5,000 linear feet of new sidewalks annually.
10	Secure additional funding sources for active transportation
11	Encourage and promote safe walking and biking through Safe Routes to Schools and other regular programming.


SW 175TH AVE
SW 165TH AVE
SW RIGERT RD
SW ALVORD LN
SW NORA RD
SW WEER RD
SW BEARD RD
SW 155TH AVE
SW HART RD
SW 152ND AVE
SW DAVIS RD
SW VILLAGE LN
SW DIVISION ST
SW FARMINGTON RD
SW TUALATIN VALLEY HWY
SW MILLIKAN WAY
SW MURRAY BLVD
SW 141ST AVE
SW 22ND ST
SW HOGKEN AVE
SW DAVIES RD
SW 135TH AVE
SW BROCKMAN ST
SW MAIN AVE
SW WATSON AVE
SW 2ND ST
SW 125TH AVE
SW ALLEN BLVD
SW 5TH ST
SW KING BLVD
SW 110TH AVE
SW DENNEY RD
217
SW WESTERN AVE

DEVELOPING THE PLAN

Developing a Community-Driven Active Transportation Plan

Development of the Beaverton Active Transportation Plan has relied on input and feedback from the Beaverton community at various points throughout the process. A Technical Advisory Committee (TAC) and a Community Advisory Committee (CAC) provided input and asked guiding questions at four meetings during the planning process. The TAC was made up of technical stakeholders from other public agencies and helped ensure that this plan is in alignment with other local, regional, and state efforts related to Active Transportation. The CAC included representatives from a variety of neighborhoods, community groups, and business organizations within Beaverton and helped ensure that the plan reflects the needs and desires of the Beaverton Community.



OUTREACH ACTIVITIES

- Technical Advisory Committee
- Community Advisory Committee
- Virtual Open Houses
- Picnics in the Park
- Neighborhood Group Presentations
- Open Houses
- City Council Briefings
- Ride Report

In addition to these groups, the plan development process was informed by public input through multiple online and in-person outreach activities as shown here.

The committees and members of the public provided overarching guidance that has impacted all sections of this plan. Some key guidance included:

- **The need for continued focus** on developing complete, connected networks throughout the City for walking and biking.
- **A need for improvements to crossing opportunities** throughout the City to improve walking.
- **A clear desire to provide protected bicycle facilities** in the form of multi-use trails and protected bicycle lanes.
- **A desire to focus on making walking and biking viable modes for transportation uses** – not just for recreation. For these modes to serve as transportation, people need to be able to comfortably walk and bike to and from schools, key destinations, and transit stops.
- **A need for an update to the existing Transportation System Plan** in order to be in alignment with Metro's regional active transportation networks and policies

Additional detail on the public events, outreach strategies, and input are described in the Public Involvement Summary in **Attachment B.**

Planning the Walking and Bicycling Networks

Developing safe, comfortable, and connected systems that make walking and bicycling the most enjoyable option for trips less than three miles is a key goal for the City of Beaverton and the Metro Region. The development, refinement, and evaluation of the walking and biking networks considered a wide variety of existing data sources, given the overarching guidance from the community. The project team reviewed, mapped, and analyzed information on the following:

- Existing sidewalks, crossings, bike lanes, and trails in Beaverton
- Current planned networks from Beaverton, Washington County, Metro, and the Tualatin Hills Parks and Recreation District
- Locations of essential destinations (e.g. schools, grocery stores, parks, medical facilities)
- Locations of employment
- Transit service, stop locations, and ridership
- Existing level of traffic stress for bicyclists
- Crash history for bicycle- and pedestrian-involved crashes
- Sociodemographic characteristics

Two of these key maps are included herein. All other maps and analysis used to inform the development of the planned networks and projects are included in **Attachment C.**

The Essential Destinations Map (Figure 1) shows where there are key destinations that serve daily needs of Beaverton residents. The map shows where there are higher concentrations of essential destinations (density) along with specific locations of some of the more prominent destinations within the City.

The Employment Density and Transit Map (Figure 2) shows employment density in all industries across the City of Beaverton – a calculation that looks at the number of jobs at all locations of employment in the City and surrounding areas. Areas of higher employment density have more people working there. This map also shows existing transit service, with the goal of being able to identify locations where investments in sidewalks or bicycle facilities could serve a high number of employees between transit and their job location.

Figure 1 - Essential Destinations Map

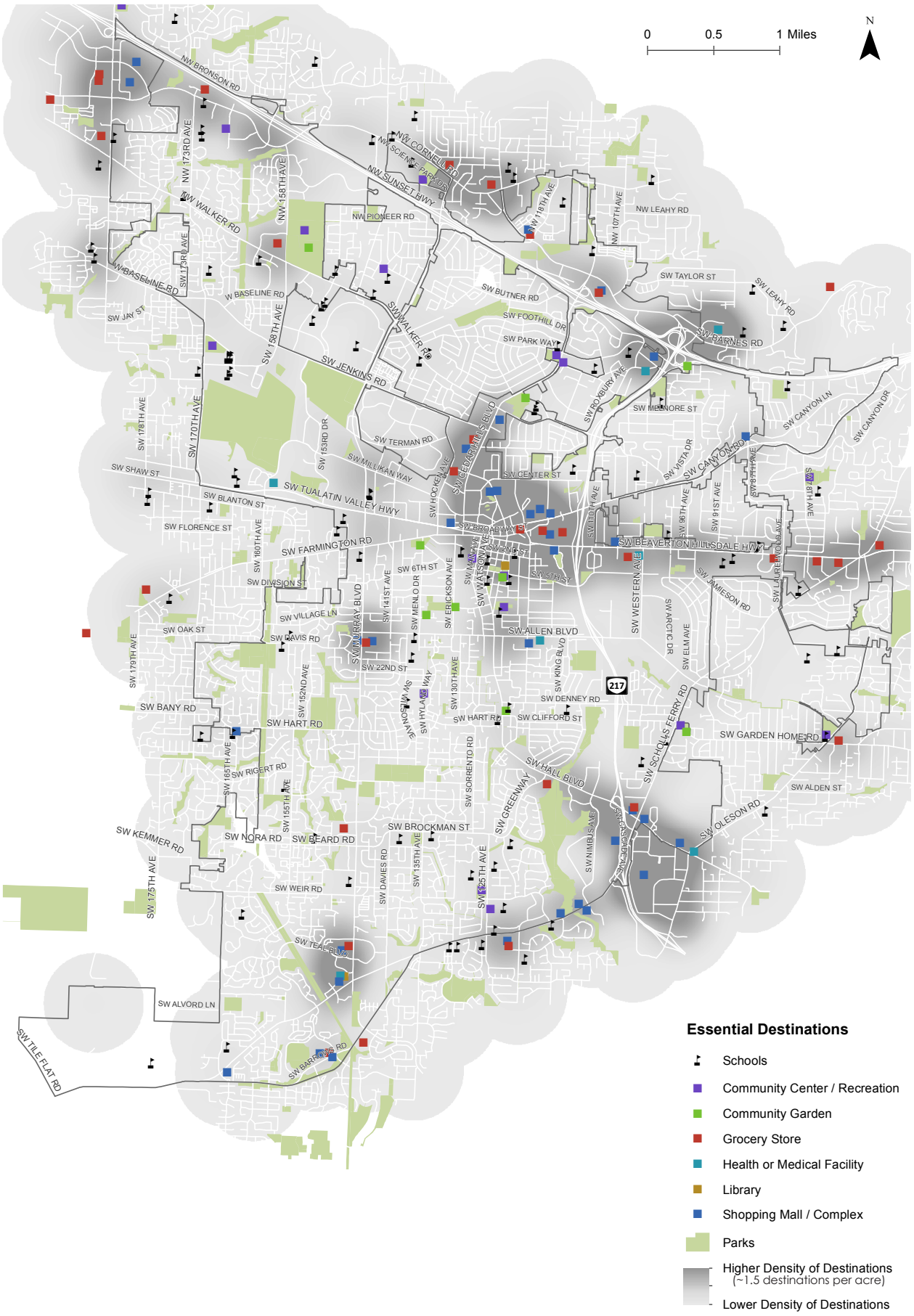
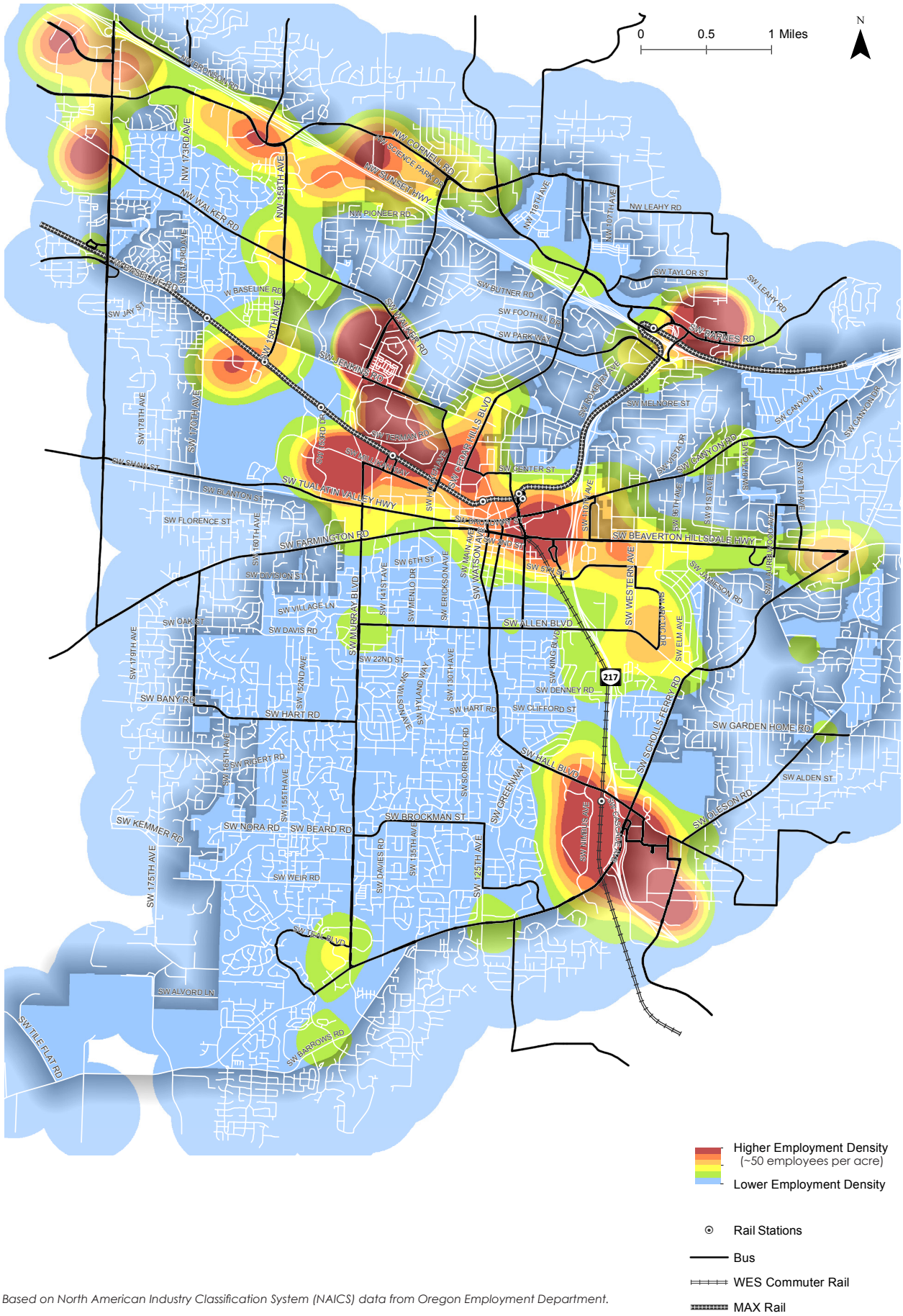


Figure 2 - Employment Density & Transit Map



Based on North American Industry Classification System (NAICS) data from Oregon Employment Department.

ENVISIONED ACTIVE TRANSPORTATION NETWORK

Active Transportation Networks

The envisioned active transportation network is Beaverton's vision of pedestrian and bicycle routes and their functional classifications within and through the City. While walking and bicycling are similar in many ways, and in some cases use the same facilities (like multi-use trails), it is best to evaluate the needs of people walking and bicycling separately when planning and designing the networks. This approach is consistent with Metro's regional active transportation plan and Washington County's transportation system plan. The development of these networks and functional classifications considers the following characteristics of each transportation mode:

BICYCLING	WALKING & ROLLING
▶ Can cover longer distances more quickly	▶ Generally a slower pace, covers shorter distances
▶ Is typically treated more similarly to an auto than a pedestrian in the law	▶ Pedestrians are treated separately under the law
▶ Current designs are attractive to a small subset of the population; however, bicycle facility design is rapidly evolving	▶ Current designs (when implemented in alignment with ADA guidance) are designed to serve all users
▶ Currently, a small percentage of people use bicycling for transportation in Beaverton	▶ Most transit trips and many vehicle trips include some walking at each end
▶ Secure bicycle parking and covered racks are needed to support access to destinations.	▶ Easy to access destinations (don't have to think about parking)

Fairmont

Pedestrian Network

Completing a connected pedestrian network that serves people for transportation and recreation, a connected and comfortable network of sidewalks, pedestrian pathways, trails, shared streets, and street crossings is necessary. It must provide access to destinations and transit stops and a comfortable place for recreation accessible by all people. Figure 3 shows the Pedestrian Functional Classification map for walking in Beaverton, including the following classifications (note: all streets in Beaverton, including those without a Pedestrian Classification, are open to pedestrians, except Highways 217 and 26):

Pedestrian Parkways

- Typically on major streets with transit service (arterials and collectors) or regional trails
- Provide direct regional connections over longer distances
- Have pedestrian crossings at transit stops and mid-block on busy roads where warranted.

Pedestrian Corridors

- On secondary streets with transit service, regional trails, or local trails
- Provide connections between pedestrian parkways
- Have pedestrian crossings at transit stops

Local Routes

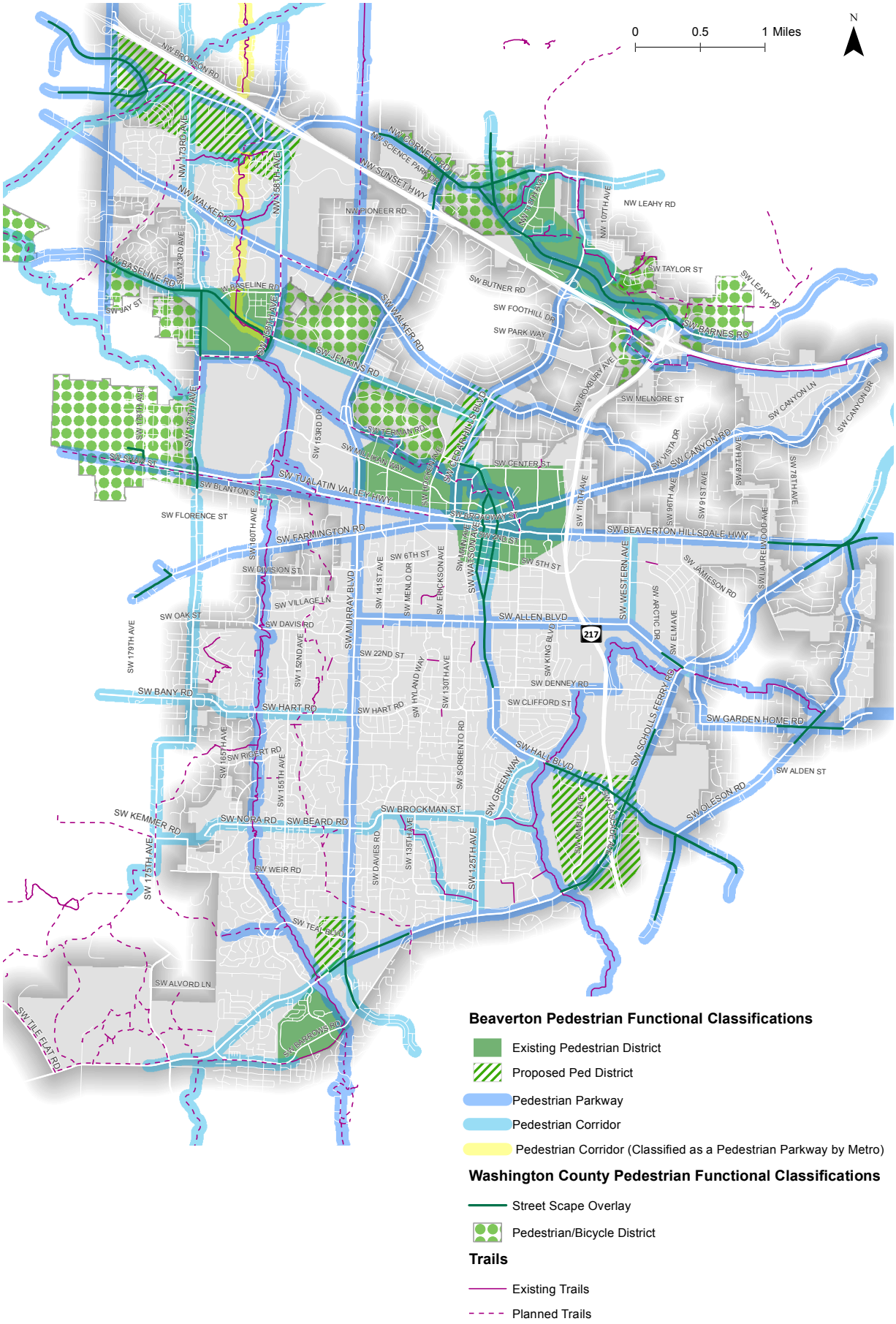
- Provide connections to local destinations, residential areas, and between Pedestrian Parkways and Corridors
- All streets that aren't part of the regional network (Pedestrian Parkways and Corridors) are local routes for pedestrians

Pedestrian/Bicycle Districts

- Areas within the City of Beaverton that currently have or are planned to have a mix of land use types and densities that support a high level of pedestrian activity
- Have high connected pedestrian networks and frequent safe crossings of arterials, collectors, or other types of barriers

The pedestrian functional classifications in Figure 3 parallel those functional classifications outlined by Metro in the Regional Transportation Plan with the exception of adding several additional trails as pedestrian corridors. Additionally, Figure 3 includes the addition of several new pedestrian districts and expansion of several existing pedestrian districts to better represent the current and expected land uses and densities within Beaverton. Trails identified as part of the pedestrian network should have lighting. See Design Approach and Treatments section.

Figure 3 - Pedestrian Functional Classification Map



Bicycle Network

To provide a connected bicycle network that serves people for transportation and recreation, Beaverton shares a long-term vision with Metro and Washington County of creating an interconnected network of bicycle routes serving a range of needs, from long regional bicycle trips, to short neighborhood rides. Using Metro and Washington County's Active Transportation Plan Functional Classifications as a starting point, the Beaverton Active Transportation Plan includes three types of designated bikeways. Figure 4 shows the Bicycle Functional Classification map for bicycling in Beaverton, including the following classifications (note: all streets in Beaverton, including those without a Bicycle Classification, are open to bicyclists, except Highways 217 and 26):

Enhanced Major Bikeways

- Typically on major streets (arterials and some collectors) or regional trails
- Provide direct regional connections over long distances

Major Bikeways

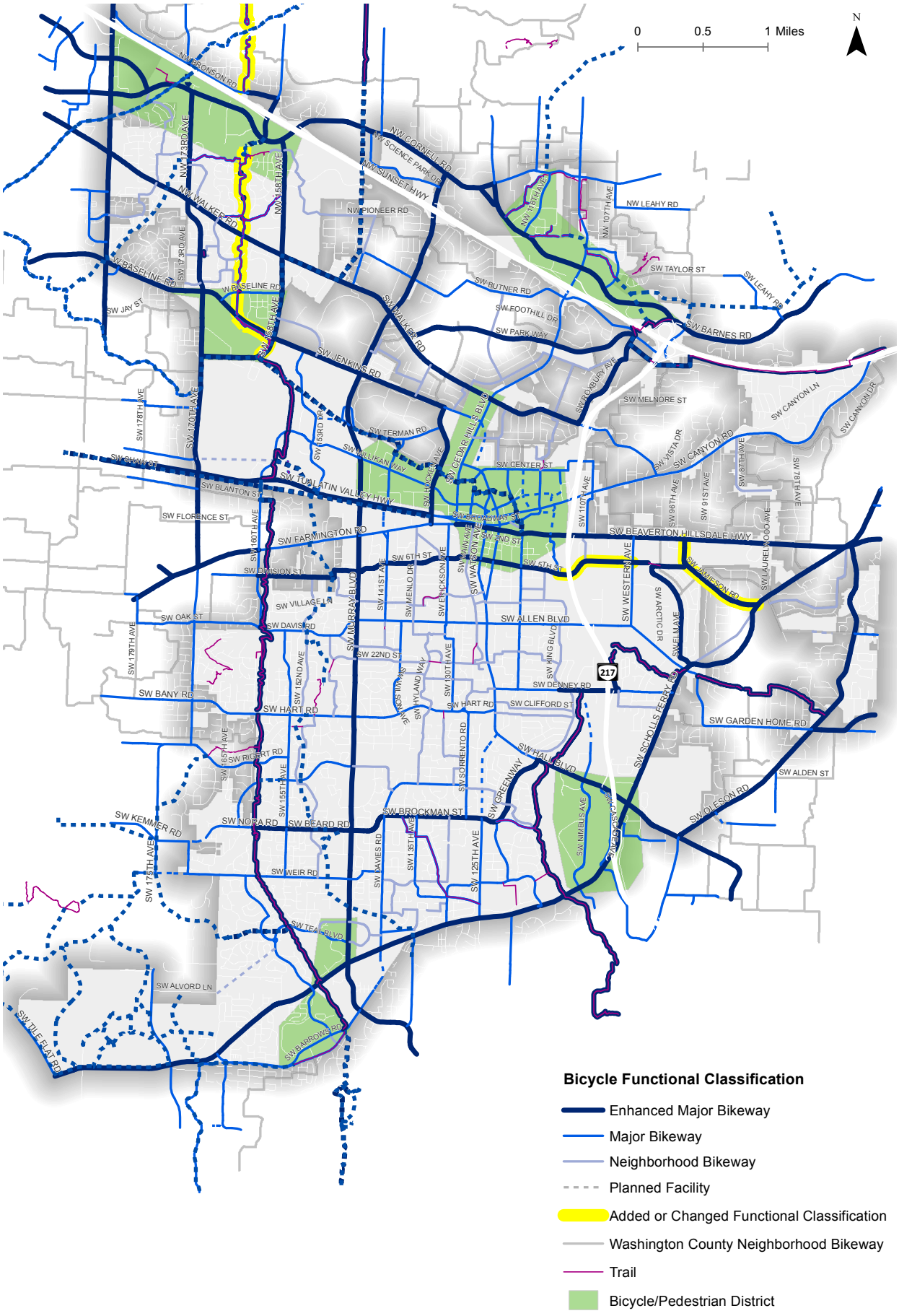
- On major streets (collectors and some arterials), regional trails, or local trails
- Provide connections between Enhanced Major Bikeways and to destinations within and nearby the City of Beaverton

Neighborhood Bikeways

- On neighborhood streets (neighborhood routes, local streets, or short trail connections)
- Provide connections to local destinations, residential areas, Enhanced Major Bikeways and Major Bikeways

The Enhanced Major Bikeway and Major Bikeway functional classifications in Figure 4 are consistent with those functional classifications outlined by the Washington County TSP with a few exceptions. First, several existing and planned trails were added as Enhanced Major Bikeways or Major Bikeways. Additionally, outreach efforts and knowledge of the area helped inform the addition of portions of Jamieson Road, Elm Avenue, Cypress Street and SW 5th Street as enhanced major bikeways, as they currently serve many bicyclists and help provide important connectivity within the system. The Neighborhood Bikeways were developed considering routes identified by the public as neighborhood routes they are currently using, Strava and Ride Report data identifying popular and low stress routes, field work to identify additional neighborhood routes, and providing connectivity to the Washington County neighborhood bikeway network. Trails identified as part of the pedestrian network should have lighting. See Design Approach and Treatments section.

Figure 4 - Bicycle Functional Classification Map



DESIGN APPROACH AND TREATMENTS

Best Practices in Pedestrian and Bicycle Design

In order for walking and bicycling to be key forms of transportation, facilities must be comfortable, safe, convenient, and designed to be attractive to a wide range of potential users. To plan for walking and bicycling facilities that will be attractive to a wide range of potential users, the City of Beaverton must consider following best practices for bicycle and pedestrian facility design:

Travelers must feel comfortable and safe while walking and bicycling on the system

- Facilities must be sufficiently separated from motor vehicle traffic
- Facilities must feel secure for travel at all times of day
- Projects must be designed to address barriers, fill existing gaps, and create a continuous and comfortable experience for all users independent of skill level or ages. Facilities should connect seamlessly to the systems in neighboring jurisdictions, including unincorporated Washington County, the City of Tigard, the City of Hillsboro, and the City of Portland

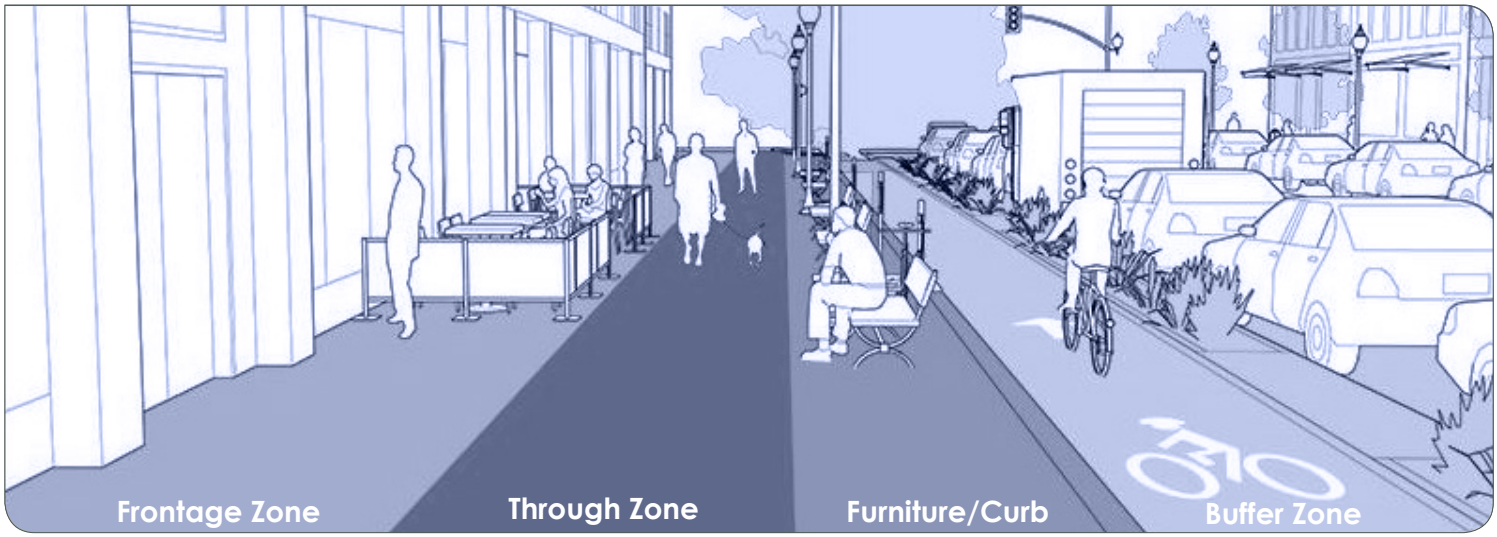
Walking and bicycling must be a convenient way to travel

- Provide wayfinding signage, particularly for neighborhood routes and key connections that are not on the arterial roadway system
- Design direct routes between origins and destinations where possible
- Minimize delay for bicyclists or pedestrians at intersections and road crossings
- Provide secure bicycle parking at employment areas, commercial areas, schools, and transit hubs

Create facilities to serve a wide range of users

- Within a 1/2 mile of schools, facilities should be designated to serve school-aged children walking and bicycling to school and should be consistent with safe routes to school action plans
- Sidewalks and crossings through the City must be designated to serve persons with disabilities in accordance with the Americans with Disabilities Act (ADA)
- In locations adjacent to senior centers or other similar facilities, design for slower walking speeds
- Other parts of key bicycling and walking infrastructure should be designated to serve the general population. In many cases, this will result in higher levels of separation from motor vehicles for bicyclists
- Where it is infeasible to design for the general population in the near-term, provide facilities for "confident" adult bicyclists and identify parallel routes.

Figure 5 - Pedestrian Through Zone



Source: NACTO Urban Street Design Guide

Pedestrian Facility Design

Pedestrian infrastructure design must take into consideration everything that may affect the walking experience. The pedestrian through zone, shown in Figure 5, adjacent land uses, and adjacent roadways affect how comfortable a pedestrian feels.

How do we select the appropriate design in a specific location?

Sidewalks along roadways with higher traffic volumes and/or speeds (average daily traffic more than 6,000 and/or speeds of 35 mph or more) necessitate greater separation of pedestrians from traffic to be comfortable. Beaverton will be consistent with Metro's pedestrian infrastructure guidance along Regional Pedestrian Parkways and Corridors (see Pedestrian Functional Classification Map), which aims to provide greater separation for those regional pedestrian facilities along routes with high traffic and speeds. Table 1 provides proposed guidance for pedestrian facility design along Pedestrian Parkways, Pedestrian Corridors, and local streets inside and outside of Pedestrian Districts.

This guidance is based upon the City's design standards as well as Metro's guidance that there should be 15 feet of sidewalk and buffer space in relation to the first travel lane for the higher order pedestrian functional classification and 10 feet of sidewalk and buffer space for the second order pedestrian functional classification. An example of the zones that may be present in these locations are shown in Figure 5.

Table 1 - Pedestrian Design Matrix

	Pedestrian Parkway	Pedestrian Corridor	Local Street
In Pedestrian District	*Frontage zone 6-10' through zone 2-10' curb zone 5-10' buffer zone	*Frontage zone 6-8' through zone 2-6' curb zone 5-10' buffer zone	6' through zone Optional curb zone Optional buffer zone
Outside Pedestrian District	6-8' through zone 2-5' curb zone 5-10' buffer zone	6-8' through zone 2-5' curb zone 5-10' buffer zone	5' through zone Optional curb zone Optional buffer zone

*Frontage zone depends on adjacent land use.

Bicycle Facility Design

There are four primary categories of bicycle facility design types for roadways. They are summarized below in Table 2 in order of most separation from traffic to least separation from traffic. Design guidance from Washington County's Bicycle Design Toolkit and Neighborhood Bikeways Plan for each of these facility design types is included in **Attachment D and E**, respectively.

- Bicycle Facility Design Types

Protected Bicycle Lane

Typically located on major arterials with high vehicular volumes, a protected bicycle lane is an exclusive space for bicyclists along or within a roadway that is physically separated from motor vehicles by vertical and horizontal elements. Protected bicycle lanes may be one or two-way facilities.

Buffered Bicycle Lane

Provides physical separation in the form of vertical flexible posts or paint. Buffered bicycle lanes are typically suggested for collector roadways with medium to high vehicular speeds and volumes.

Bicycle Lane

Designated exclusively for bicycle travel, bicycle lanes are separated from vehicle travel with striping and include pavement stencils. Bicycle lanes may include additional enhancements such as green paint.

Mixed Traffic or shared Lane Marking (Sharrow)

Typically located on neighborhood streets with low vehicular volumes and speeds, "sharrows" are designated to inform motorists to expect bicyclists to be in the travel lane. Shared lane markings also provide wayfinding for bicyclists on neighborhood bicycle routes.

Who are we designing for?

With this plan, Beaverton is seeking to design streets and trails so that all ages and abilities of bicyclist will be able to use them. Our future designs should consider students who would like to bicycle to school, as well as our average adult population who may use bicycling for errands or work commutes. One common typology categorizes people into four different groups, as shown in Figure 6. To serve students and average adults, Beaverton will seek to design for the "interested but concerned" population.

"Strong and Fearless"

The "Strong and Fearless" are estimated at approximately four percent of the population, as shown in Figure 6. These riders are comfortable mixing with traffic and are comfortable riding in all conditions. It's likely that Beaverton's current bicycle commuters primarily fall into this first group.

"Enthused and Confident"

"Enthused and confident" riders make up about nine percent of the population and includes people interested in bicycling for transportation, who are comfortable riding close to traffic using standard bicycle lanes. Because parts of the Portland Metro Region has created a network of on-street bicycle lanes and bicycle boulevards that connect people to destinations, many of the people in this category are currently bicycling within the Metro area. However, it seems that Beaverton's bicycle network may not yet cater to this group of people.

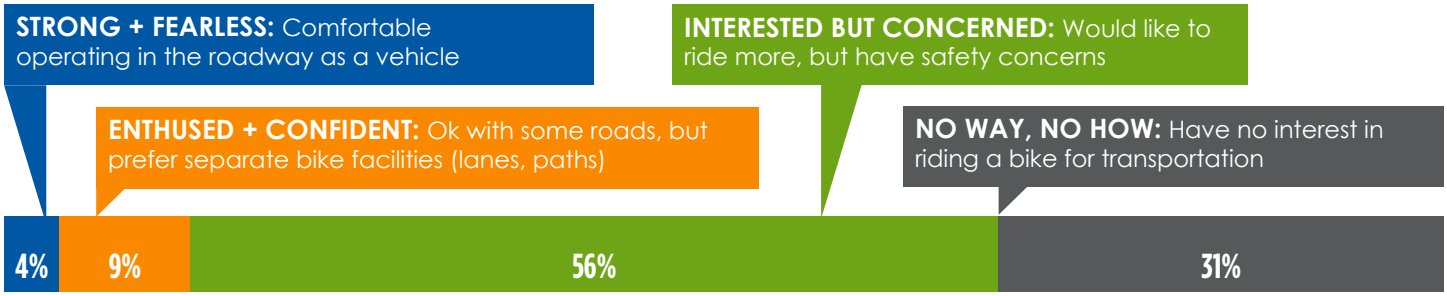
"Interested but Concerned"

The third group is by far the largest - the "Interested but Concerned" which make up approximately 56% of the population. This group is open to bicycling, and may bicycle recreationally on multi-use paths, but generally fear for their safety in on-street settings. In all but a few limited places in the United States, this group is not bicycling for transportation.

"No Way, No How"

The fourth group, "No Way, No How" are people who are simply not interested in bicycling for transportation.

Figure 6 - Four Types of Bicyclists



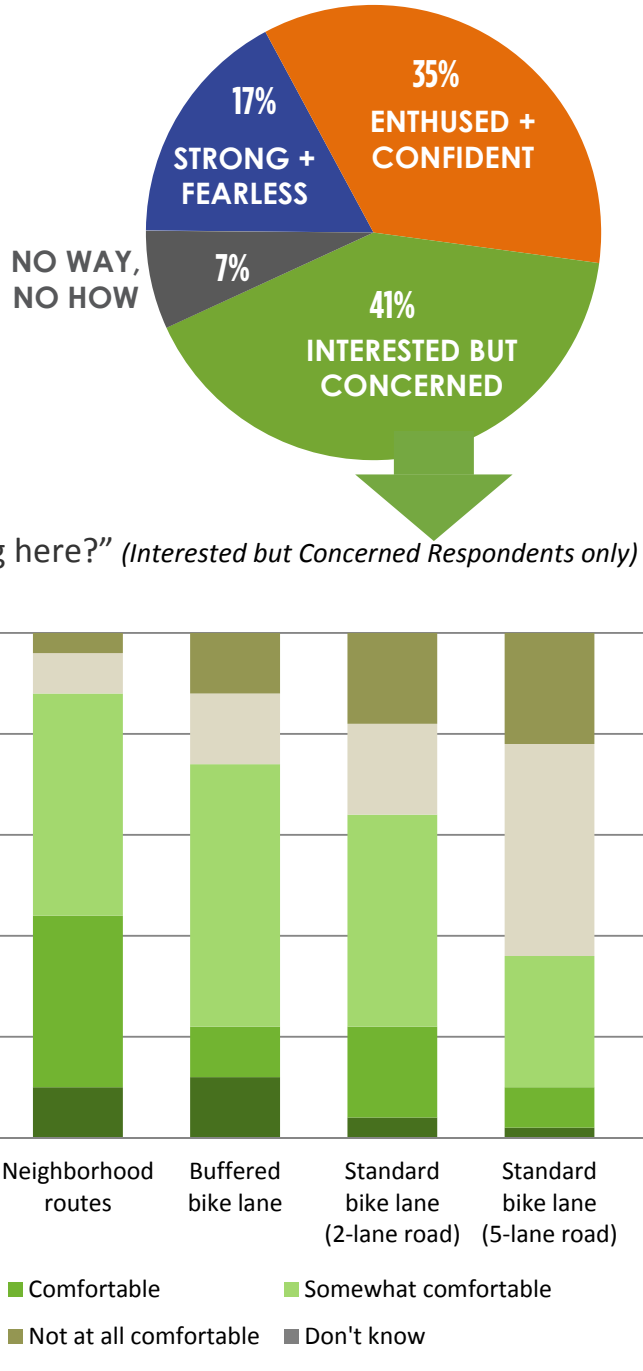
Based on *Four Types of Cyclist, Testing a Typology to Better Understand Bicycling Behavior and Potential.* Jennifer Dill, Ph.D and Nathan McNeil, Portland State University.

What facilities do "interested but concerned" riders prefer?

An online survey was conducted as part of the Virtual Open House 1 where participants were asked to define what type of bicyclist they are based on the "Four Types of Bicyclists." A total of 120 people responded, as shown in Figure 7. Given that participants self-selected, survey responses are likely to reflect an interest in bicycling. All but 7% of respondents currently ride bicycles or are interested in riding bicycles. The survey also asked respondents to share whether they would be comfortable bicycling on various facility types. Responses of the "interested but concerned" respondents (the group is most likely to represent the general population) are also shown in Figure 7.

The majority of respondents identifying as "interested but concerned" would not feel comfortable riding on a standard bike lane on a five-lane road; however, the majority would be comfortable using protected bike lanes.

Figure 7 - Beaverton Survey Respondents — Types of Bicyclist and Facility Preferences



BIKE LANE
ENDS
WALKER

How do we choose the right bicycle facilities for a specific location?

When designing for bicycle facilities along roadways, the appropriate design treatment varies depending on the context of the road. When adding a new bicycle facility to an existing roadway, the City will seek to provide a low-stress bicycle facility that serves:

- School-age children on routes near schools or identified through Safe Routes to Schools action plans; and,
- The general population ("interested but concerned"), who may be interested in bicycling to access transit and other daily needs.

Figure 8 provides guidance for the types of designs able to achieve a low level of stress and attract the general population, including the "interested but concerned" riders. This general guidance accounts for the need to provide different types of treatment in different contexts, depending primarily on the speeds and volumes of motor vehicles. For example, on a street with approximately 8,000 vehicles per day, with average speeds of 35 mph, the general population would feel comfortable using a protected bike lane, but would likely not be comfortable using a standard bike lane. However, on a street with 1,500 vehicles per day and speeds of around 20 mph, most adults would feel comfortable bicycling on the street in a shared lane, without needing a bicycle lane. In order to implement the vision and serve the general population, the City of Beaverton will follow this design treatment guidance, shown as it applies to streets in Beaverton in *Figure 9,* and will consider protected bicycle lanes on streets over 25mph.

Figure 8 - Bicycle Facility Design Guidance

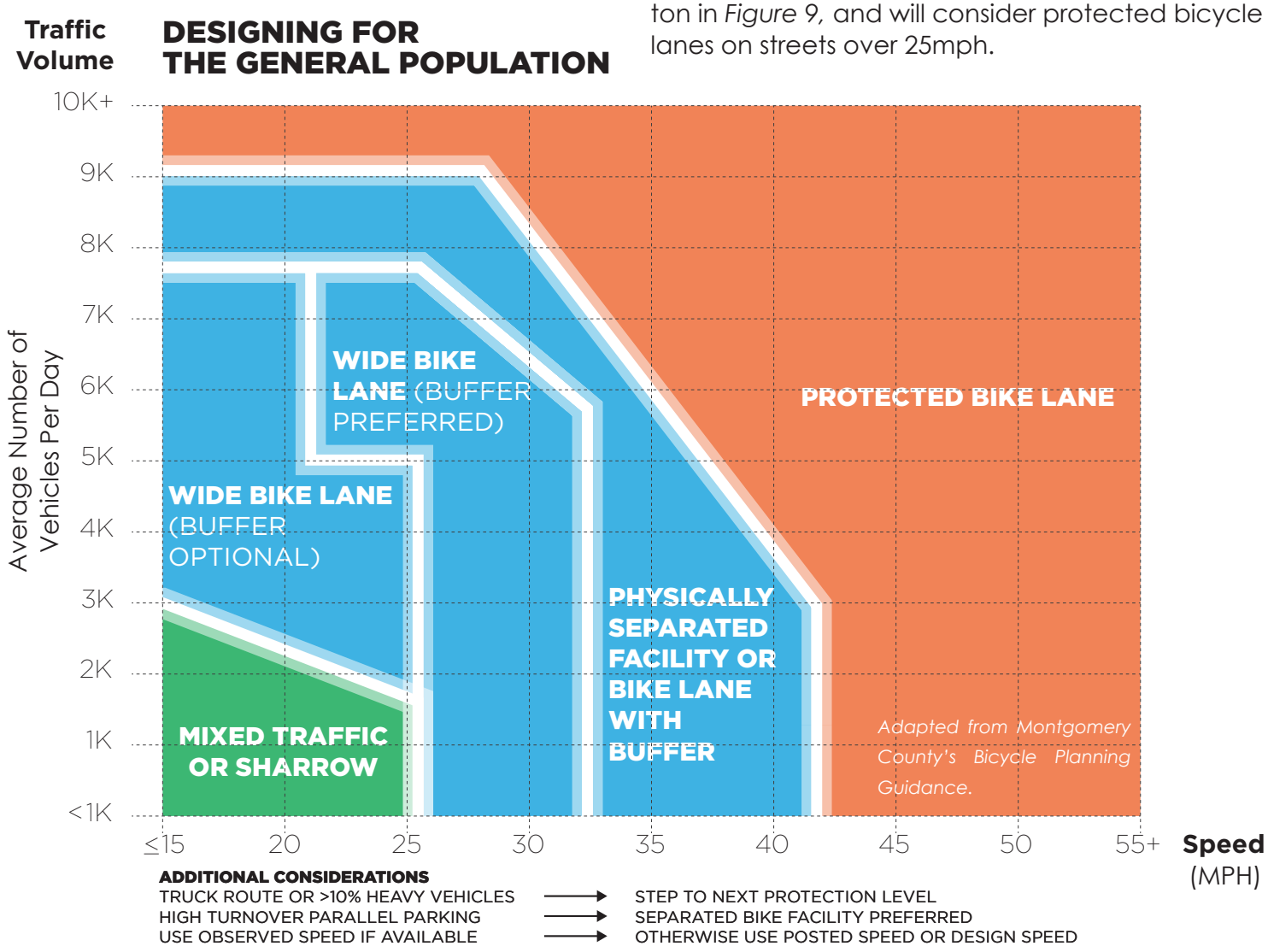
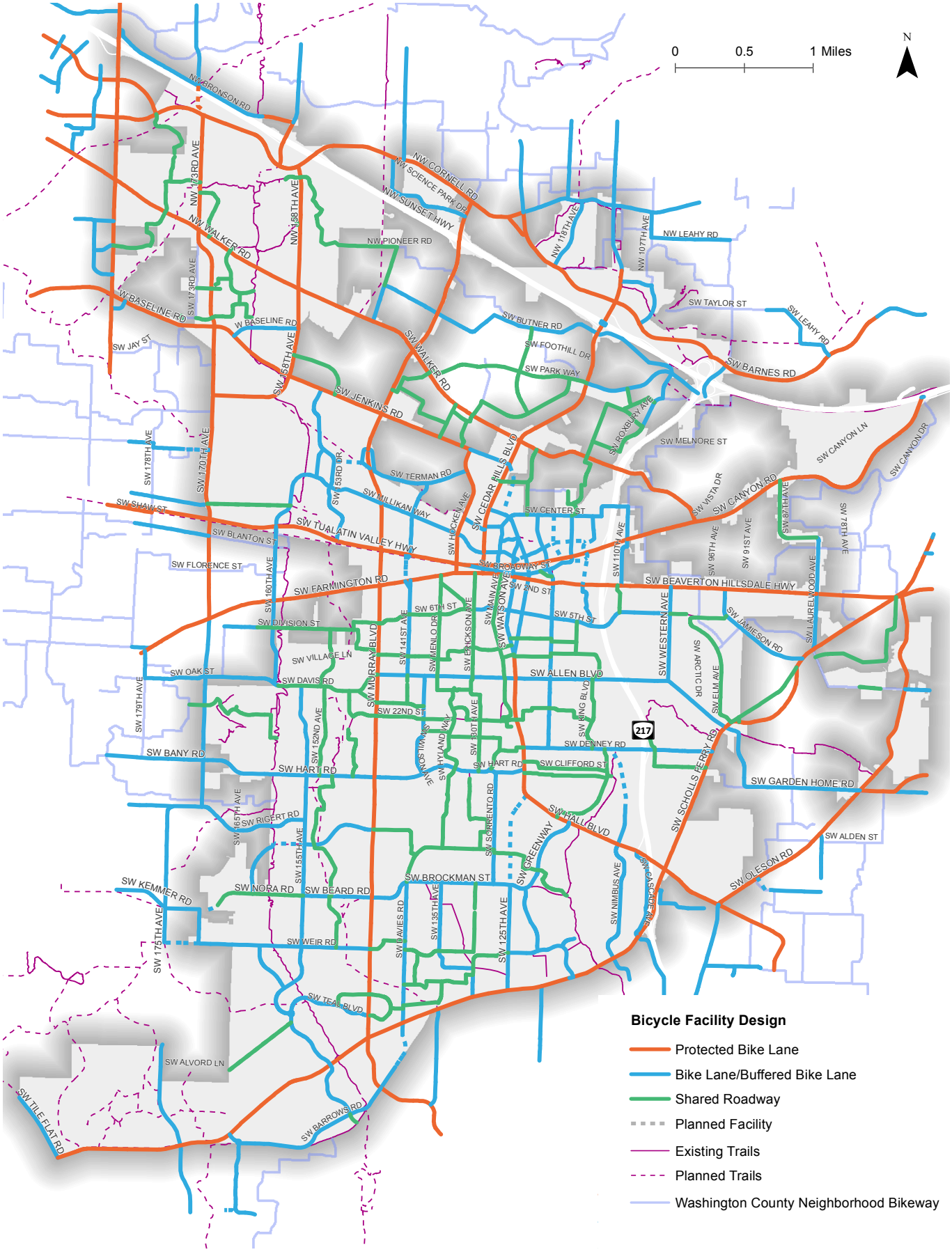


Figure 9 - Bicycle Facility Design Map



Intersection Treatments for Bicycles

Designing intersections for safe, comfortable, and accessible active transportation needs is an essential step forward in achieving low-stress bicycle networks. Successful intersection design can minimize delays, reduce the number of conflicts and decrease the severity of injuries resulting from crashes. Intersection design treatments vary for bicycles based on the context of the surrounding network. *Table 3* summarizes the typical applications and treatments for bicycle accommodations at intersections.

Table 3 - Intersection Treatments for Bicycles

Protected Intersection Design

Provides the highest level of comfort for bicyclists traveling through or turning at an intersection. Such designs are intended to minimize conflicts between bicyclists and vehicles by providing physical separation through the intersection.

Bicycle Signals

Provides protected and dedicated signal phase for bicyclists to eliminate the potential for vehicle conflicts. Prioritizes bicycle movements at intersections and may be programed to allow for leading bicycle intervals.

Bicycle Boxes

Provides a designated queuing space for bicyclists at signalized intersections between a set-back stop bar and the crosswalk. Allows bicyclists to queue in front of stopped vehicles to increase visibility and reduce turning conflicts. Application should be considered in full intersection context, including vehicle right-turn-on-red movements.

Two-Stage Left-Turn Boxes

Allows bicyclists to execute a left-turn at multi lane intersections from a right-side bicycle facility. Bicyclists arriving at a green light travel into the intersection and pull onto the two-stage turn queue box away from through moving bicycles.

Pavement Markings

Green paint used in "conflict zones" where vehicles and bicycles commonly cross paths at an intersection, driveway, or right-turn pocket.

Traffic Diverters/Medians with Bicycle Access

Designed to allow for bicycle movements while restricting through and left-turning movements for vehicles.

Multi-use Trails

Multi-use trails serve as transportation and recreational corridors, separated from motorized vehicles by open space and physical barriers. Establishing multi-use trail systems can provide long distance, regional connections and contribute to the local economy by attracting tourist from outside the region. The City of Beaverton recognizes the benefits of multi-use trails as links to connect residential neighborhoods to employment centers and community destinations.

How are multi-use trails incorporated into the walking and bicycling networks?

Multi-use trails are part of the bicycle and pedestrian networks, as reflected on the Bicycle and Pedestrian Functional Classification Maps. These facilities play an integral role in recreation, commuting, and accessibility due to their appeal to users of all ages and skill levels. In the City of Beaverton, most multi-use trails are under the jurisdiction of the Tualatin Hills Parks and Recreation District (THPRD). THPRD typically leads the development of trail design, and has a Trails Functional Plan to guide their design. THPRD's "regional trails" classification aligns with Beaverton's "Enhanced Major Bikeway" and "Pedestrian Parkway" classifications; THPRD's "community trail" classification roughly aligns with Beaverton's "Major Bikeway" and "Pedestrian Corridor" classifications. Table 4 summarizes the benefits, constraints, typical applications, and design considerations for multi-use trails.

Table 4 - Multi-use Trails Considerations

BENEFITS

Serves the needs of active transportation users in less space than separated facilities. Separation from vehicles attracts users of all levels and skill sets. Multi-use trail networks can provide safe and accessible regional connections.

CONSTRAINTS

Potential conflicts between bicycles and pedestrians due to shared space. May need to create enhanced crossing of major roadways. Isolated segments of multi-use paths may introduce personal security concerns.

TYPICAL APPLICATION

Medium to long-distance links within and between communities that also serve as recreational facilities. Parallel to roads in rural areas where sidewalks and on-street facilities are not present.

DESIGN CONSIDERATIONS

A minimum width of 10 feet is recommended for areas with low pedestrian and bicycle volumes, 12 to 20 feet should be considered in areas with moderate to high levels of pedestrian and bicycle volume. The Oregon Department of Transportation standard for regional trails is 12 feet plus a 1-foot buffer on each side. Pavement markings can be used to indicate distinct space for pedestrians and bicycle travel while also serving as a wayfinding resource. Multi-use trails serving transportation functions should have lighting, designed to avoid adverse impacts to wildlife in natural areas in alignment with Metro's Recreation Ecology Literature Review.

Crossing Treatments for Pedestrians and Multi-use Trails

Building safe, comfortable and accessible walking networks requires protected crossings and access to direct routes. The following describes approaches to providing crossing in different areas for pedestrians and multi-use trail users.

How do we address crossing needs?

- In pedestrian districts, provide frequent spacing and safe direct crossings between destinations. Consider that a crossing spaced 300' from a desired location adds 2.5 minutes of additional walking time. With the addition of signal delay, a few inconvenient crossings along a route can quickly add 10 minutes to someone's walk. For comparison, an intersection is considered to function at the worst "level of service" (LOS F), when people driving motor vehicles experience an average of 80 seconds or more of delay (1.33 minutes).
- On transit routes, provide crossings at transit stops (or locate transit stops at crossings)
- At mid-block, uncontrolled locations with pedestrian crossing demand, select treatments appropriate for the roadway characteristics
- At intersections and mid-block crossings near schools, provide ADA accessible crossings (and sidewalk facilities) at all intersection legs

What crossing treatments are appropriate?

The type of appropriate crossing depends on the characteristics of the roadway being crossed. Vehicle speed, number of lanes, width, and number of vehicles are among the characteristics that need to be considered when designing a crossing. Generally speaking, wide, high-speed roadways with many vehicles necessitate a higher level of separation or protection for crossing pedestrians. Table 5 provides guidance for appropriate crossing treatments based on roadway characteristics. Washington County has adopted guidance on applying crossing treatments on County facilities.

Table 5 - Crossing Treatments for Pedestrians and Multi-use Trails

Grade separated crossing

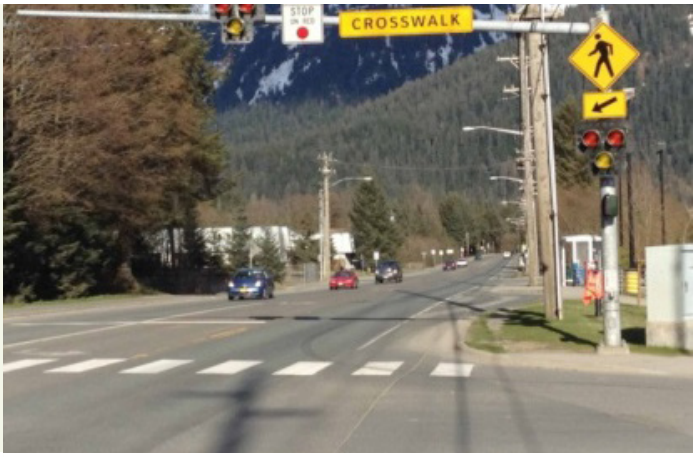
Undercrossings or overcrossings provide the highest level of separation from motor vehicles. They are best suited for crossings of roads with high vehicle volumes and speeds or locations where a path is naturally located on a different grade than the road. Under and overcrossings should be appropriately lighted to increase perceived safety and should use switchbacks or circular ramps to provide direct, accessible, and convenient access from the street. They should not require extensive out of direction travel.

Pedestrian Signal

Pedestrian signals provide the next highest level of separation and protection from motor vehicles. These are typically applied at: mid-block crossings with high pedestrian or bicycle demand and/or high traffic volumes, or previously stop-controlled intersections where pedestrian volumes warrant a signal.

Pedestrian Hybrid Beacon

Sometimes called a HAWK signal, a pedestrian hybrid beacon remains dark when not in use. When activated, the HAWK signal provides drivers a yellow light to alert them to slow down followed by a solid red light while pedestrians cross the street. It is typically used for mid-block crossing locations with high pedestrian or bicycle use and/or high traffic volumes.



Rectangular Rapid Flashing Beacon

RRFBs have a pedestrian activated strobe light that alerts motorists of pedestrians or bicyclists intending to cross a roadway. These are typically used at midblock crossings with medium to high pedestrian and bicycle demand and/or medium to high traffic volumes on roadways. RRFBs may not be as appropriate as pedestrian signals or pedestrian hybrid beacons on roadways wider than three lanes, unless a pedestrian refuge island is provided.

Crossing Island (Pedestrian Refuge)

This treatment provides a protected area for pedestrians to stop while crossing the street. They are typically used when crossing multi-lane streets, in areas with high levels of vulnerable pedestrian users. For example, crossing islands are used near schools or senior centers, and often applied in areas with medium to high traffic volumes and/or with pedestrian crash history.

Bulb-out/Curb Extension

This treatment shortens the for pedestrians and narrows the vehicle path to reduce vehicle speeds. They are typically applied at midblock or intersection pedestrian crossings on streets with unrestricted on-street parking or streets with on-street parking where pedestrian volumes are greater than 20 per hour and Average Daily Traffic (ADT) is 1,500 vehicles per day or greater.

Raised Pedestrian Crossing

This treatment brings the roadway even with the sidewalk and requires vehicles to slow. They are typically applied at mid-block crossings on two-lane roads where pedestrian volumes ≥ 50 pedestrians per hour and speed control is needed. Raised crosswalks may be provided at intersections where low-volume streets intersect with high-volume streets or where a roadway changes character (such as from commercial to residential). Raised crosswalks should not be used on transit routes or where there are steep grades or curves.

High Visibility Crosswalk

This treatment is the least protective and provides the lowest level of separation from vehicles. It consists of reflective roadway markings and accompanying signage, and is generally used at intersections of arterials and collectors with other facilities. It can also be applied at mid-block crossing locations on smaller streets with low traffic volumes and speeds.

Leading Pedestrian Interval (LPI)

This treatment provides pedestrians with a 2-5 second head start before a concurrent vehicle phase turns green to allow pedestrians to enter and occupy the crosswalk before vehicles begin to turn. This is typically used in areas where vehicle turning movements often interfere with pedestrian crossing movements, and is only possible to implement when pedestrian signal faces are present.

Pedestrian Priority Signal Timing

In addition to LPIs, various signal timing strategies can increase priority for pedestrians:

- Timing that activates a pedestrian signal immediately after actuation, after completing the minimum green time for conflicting vehicles. This strategy minimizes pedestrian delay and can reduce vehicle delay as well (in cases where pedestrians use the push button, but then cross before the pedestrian signal is active due to excessive delay).
- Overall shorter cycle lengths at signals. Shorter signal lengths result in lower delays for pedestrians, since the pedestrian phase will come up more frequently.
- Exclusive pedestrian phasing, also known as a "pedestrian scramble," which provides an exclusive phase where all vehicles are stopped, and pedestrians can cross in any direction, including diagonally. This is appropriate for intersections with high pedestrian volumes in all directions.

A Performance-Based Design Approach for Constrained Multimodal Streets

In order to complete the pedestrian and bicycle systems to serve users of all ages and abilities using the treatments discussed in this chapter, the City of Beaverton will need to develop flexible design solutions, particularly in constrained areas. This approach, also referred to as performance-based design, has been developed through federal research and guidance, and is being incorporated into design guidance from ODOT and Metro.

In developing solutions for streets that require redesign to implement the envisioned improvements, Beaverton's design approach will include the following considerations:

What are the key functions of this transportation corridor?

- **Transit** – Is there bus service? What is the average level of ridership?
- **Motor Vehicles** – What is the Average Annual Daily Traffic (AADT)? What mobility and access needs are served?
- **Freight and Heavy Vehicles** – Is this a designated freight route? How many heavy vehicles use this route? What is the appropriate "design vehicle"?
- **Bicycles** – What is the functional classification for bicycles? What types of bicyclist are served and what destinations do they need to reach?
- **Pedestrians** – What is the functional classification for pedestrians? What types of destinations are located on this corridor and how can access be provided?
- Are there other key functions, such as parking, stormwater management, street trees?
- Which, if any, of these key functions are well-served by alternate, parallel routes?

Based on the key desired functions, and the existing types and volumes of users on the roadway, Beaverton will consider flexibility for roadway design elements such as number of lanes, lane widths, design speed, turning radii, medians, shoulders, and on-street parking.

Design Speed

Motor vehicle speeds have an impact on safety performance for all modes and level of comfort for pedestrians and bicyclists. Lower vehicle speeds are correlated with lower crash risk and lower severity crashes. Selecting a design speed for streets should be based on the "target" speed for the street. Target speeds should be determined based on the key functions of the street, and should typically fall in the range of 10 to 35 mph for multimodal urban streets. Streets with speeds of 25 mph or less result in a smaller speed differential between bicyclists and motor vehicles, creating an environment where motorists and bicyclists can become more comfortable sharing the facility. The selected design speed impacts a number of different design elements:

- **Corner radii** – in urban areas, small corner radii are preferred to encourage slow turning speeds (15 mph or less). Corner radii dimensions should typically be 15 feet or less. Freight vehicles can still be accommodated through use of freight aprons, set-back stop bars, and designing to allow freight vehicles use of far receiving lanes.
- **Presence and width of shoulders or shy distance** – in urban areas, lower speed streets can be designed with minimal or no shoulders or shy distance between the travel lanes and curbs.
- **Traffic calming elements**, such as speed humps or bulb-outs, can be used to achieve lower target speeds.
- **Lane Widths** – for urban streets with target speeds of 35 mph or less, 10 foot lanes can be used, except where wider outside lanes are needed to accommodate transit or freight routes.

[1]Based on a review of the Highway Capacity Manual (HCM) 2000, HCM 2010, and 6th Edition.

Lane Widths

– There is no substantive decrease in urban street intersection capacity when through lane widths are narrowed from 12 feet to 10 feet, as long as all other geometric and traffic signalization conditions remain constant . Research has also shown that narrower lane widths in urban areas (10 or 11 feet) have equal or potentially improved safety performance over 12-foot lanes. The City of Beaverton will consider narrowing travel lanes to 10 feet to allow for the addition or widening of pedestrian or bicycle facilities. In transit or freight corridors, appropriate outside lane widths will be selected to accommodate transit and freight vehicles (11 feet or 12 feet).

Number of Lanes – Beaverton will consider reducing the number of vehicle travel lanes and reallocating street space to other modes or uses on a case-by-case basis. Typically, this type of redesign, often called a "road diet," is implemented by converting 4 travel lanes (two in each direction) to 3 travel lanes (one in each direction, and a center turn lane) and bike lanes. This type of conversion typically has minimal impacts on traffic operations on streets with less than 15,000 average daily vehicles (ADT). Streets with 15,000 to 25,000 ADT may have impacts to vehicle operations, but these effects will be studied for each specific case prior to implementation on higher ADT streets.

Parking – On-street parking will be considered for removal in order to add pedestrian or bicycle facilities in locations where:

- On-street parking is underutilized;
- On-street parking is utilized but adjacent off-street parking is available and underutilized; or,
- On-street parking does not fulfill a key function of the street (e.g. providing access to destinations; providing a physical buffer to enhance pedestrian or bicycle facilities; providing traffic calming)

Providing ADA Access – Best practices are evolving for providing ADA access at intersections, transit stops, on-street parking, and in conjunction with protected bicycle facilities. The City of Beaverton will continue to accommodate ADA access in all new street designs.

NEEDS EVALUATION AND PROJECTS

Needs

Infrastructure Needs

The multi-step process for defining the needs in the Active Transportation Plan drew on the goals and objectives of the plan, along with early input from the project committees and the public.

At its core, the needs represent a comparison of the envisioned pedestrian and bicycle systems (the functional classification maps) with the existing infrastructure for those systems. Areas where the existing system does not match the envisioned system are determined to be "needs". Needs are organized into three categories: pedestrian infrastructure, bicycle infrastructure, and crossing.

Pedestrian Infrastructure Needs

The City of Beaverton envisions a high quality, comfortable, and enjoyable pedestrian experience in the City, for people walking or rolling to and from destinations, schools, or transit stops. The pedestrian functional classification map designates pedestrian parkways, pedestrian corridors, and pedestrian districts – areas where it's appropriate to provide enhanced sidewalks that are above the minimum design for ADA accessibility, as described in the Pedestrian Design Matrix.

However, drawing on guidance from Metro's Regional Active Transportation Plan development process, the Beaverton ATP recognizes that a minimal sidewalk is better than none, and used the following categories to identify sidewalk "needs":

- **Sidewalk gap:** no sidewalk present. Need to construct sidewalk, in alignment with design guidance.
- **Impassable sidewalk:** sidewalk present, but contains obstructions or is in poor condition such that there is not a consistent four-foot clear space for movement. Need to widen or improve sidewalk.
- **Passable sidewalk:** sidewalk present and consistently has at least four feet of clear space for movement, but does not meet the envisioned width and design for the corridor. Need to widen sidewalk.

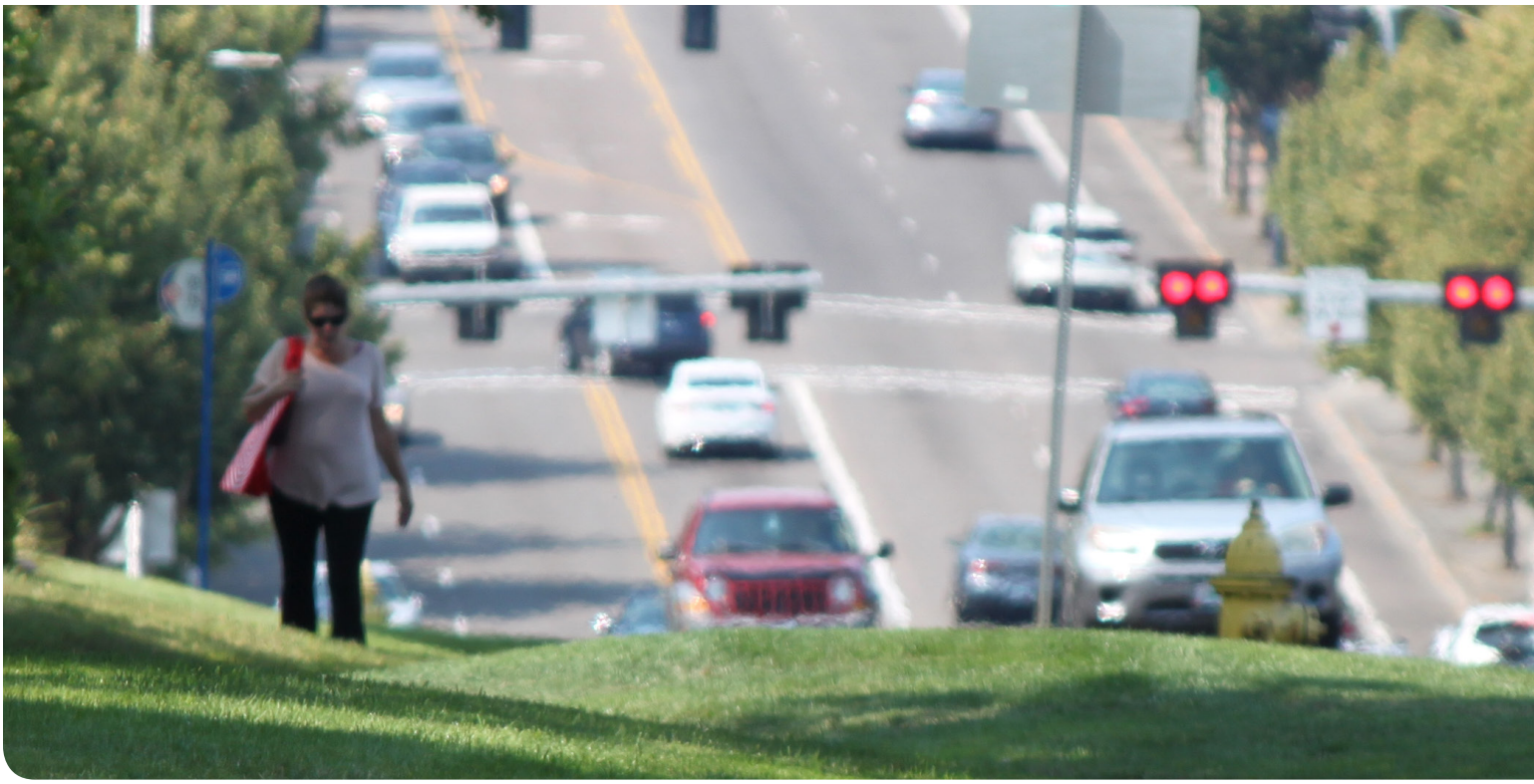
Figure 10 displays the pedestrian needs, using symbology to represent both sides of each street. Generally, black indicates a sidewalk gap, red indicates an impassable sidewalk, and blue indicates a passable sidewalk below the desired width. Lines that are dashed represent streets with different conditions on the two sides of the street.

Bicycle Infrastructure needs

The City of Beaverton envisions a network of bicycle facilities that provide a comfortable experience for riders of varying ages and abilities. However, the level of comfort a bicyclist experiences is likely to vary significantly based on the roadway characteristics – vehicle speeds, volumes, and type of bike facility. Therefore, to identify "infrastructure needs" on the bicycle system, the Beaverton ATP used an analysis method to assess whether each street provides a comfortable experience to bicyclists of all abilities.[1] This analysis resulted in the assessment, shown in Figure 11:

- Locations where a protected bike lane needs to be constructed
- Locations where a buffered or standard bike lane needs to be constructed
- Locations where an existing bike lane needs to be upgraded to a protected bike lane.
- Locations where an existing bike lane needs to be widened to add a buffer
- Locations where wayfinding and signage need to be installed

1. This analysis is called a "level of traffic stress" analysis, and is described in the ODOT analysis procedures manual. It is designed to rate the stress a bicyclist might feel when riding along a particular facility, with 1 being the lowest level of stress (and the highest level of comfort) and 4 being the highest level of stress (and lowest level of comfort). The City of Beaverton set level of traffic stress 2 as the target for all bike routes in the City.



Crossing Needs

There are many areas in the City of Beaverton where a lack of safe crossings affects the connectivity and convenience of the pedestrian and bicycle networks. The assessment of crossing needs reviewed locations where existing marked crossings need enhanced treatments and locations where there are currently no crossing treatments, but where treatments are needed.[2] The following locations were emphasized in the assessment:

- Pedestrian and bicycle districts – the assessment reviewed the spacing of existing marked crossings of arterials and collectors in these districts, with the goal of having crossings at least every 530 feet.
- Schools – the assessment reviewed locations around schools where additional crossing treatments were identified as needs during Safe Routes to Schools planning.
- Neighborhood bikeway and trails crossings
- Transit stops
- Intersections with a pedestrian or bicycle-involved crash history

All crossing needs include a project to address them, as shown on Figure 15 a-d.

2. Though all street intersections are legal pedestrian crossings in Oregon, these locations are often not market and are not safe or comfortable, particularly when pedestrians need to cross multiple lanes of traffic or streets with high speeds and/or traffic volumes. The Regional Transportation Functional Plan indicates that crossings should be provided at transit stops where practicable. The Regional Active Transportation Plan suggests providing marked crosswalks every 530 feet along pedestrian corridors to provide pedestrian system connectivity.

Evaluation

After defining the active transportation needs, the next step of the Active Transportation Planning process was to evaluate them and create an overall ranking or prioritization. Establishing these rankings will help the City determine which major projects should be prioritized for allocation of funding and/or for which projects regional, state, or federal grant funding should be pursued.

The needs evaluation is based on this plan's goals and objectives, seeking to prioritize projects that will provide the most benefits across various goals, including safety, equity, and serving people to make utilitarian trips by walking or bicycling. The overarching factors and specific criteria used to evaluate the needs are shown in Table 6 below.

All identified needs were scored for each criterion on a zero to ten point scale. Based on input from the TAC, CAC, and members of the public through the virtual open house, each overarching factor was given equal weight in the final score, regardless of how many criteria were evaluated for each factor. This process resulted in evaluation scores ranging from approximately 90 to 360, which were then grouped as high, medium, or low. Results of the needs evaluation are shown in Figures 12 and 13. Results of the crossing needs evaluation are reflected in the rankings of the crossings projects in figures 15 a-d. Additional information on the factors and evaluation criteria is included in the Prioritization Process and Prioritized Projects Memorandum in **Attachment G**.

Table 6 - Prioritization Factors and Criteria

Prioritization Factor	Criteria	Type of Needs Applied To
Safety	▶ High Priority safety segments and intersections (based on Equivalent Property Damage Only calculations)	▶ Pedestrian Segments ▶ Bicycle Segments ▶ Crossings
	▶ Level of Traffic Stress (LTS)	▶ Bicycle Segments
Demand	▶ Presence and condition of bicycle or pedestrian facility ▶ Proximity to transit ▶ Proximity to essential destinations ▶ Proximity to Schools	▶ Pedestrian Segments ▶ Bicycle Segments ▶ Crossings
Connectivity	▶ Fills gaps in otherwise complete surrounding network	▶ Pedestrian Segments ▶ Bicycle Segments
Existing Conditions	▶ Presence and condition of existing sidewalk	▶ Pedestrian Segments
	▶ Presence and condition of existing bike facility	▶ Bicycle Segments
	▶ Distance between crossings	▶ Crossings
Equity	▶ Transportation Equity Index (includes low income households, persons of color, persons under 18 and over 64 years of age, persons with disabilities, limited English proficiency, and no vehicle access)	▶ Pedestrian Segments ▶ Bicycle Segments ▶ Crossings

Figure 10 - Pedestrian Infrastructure Needs

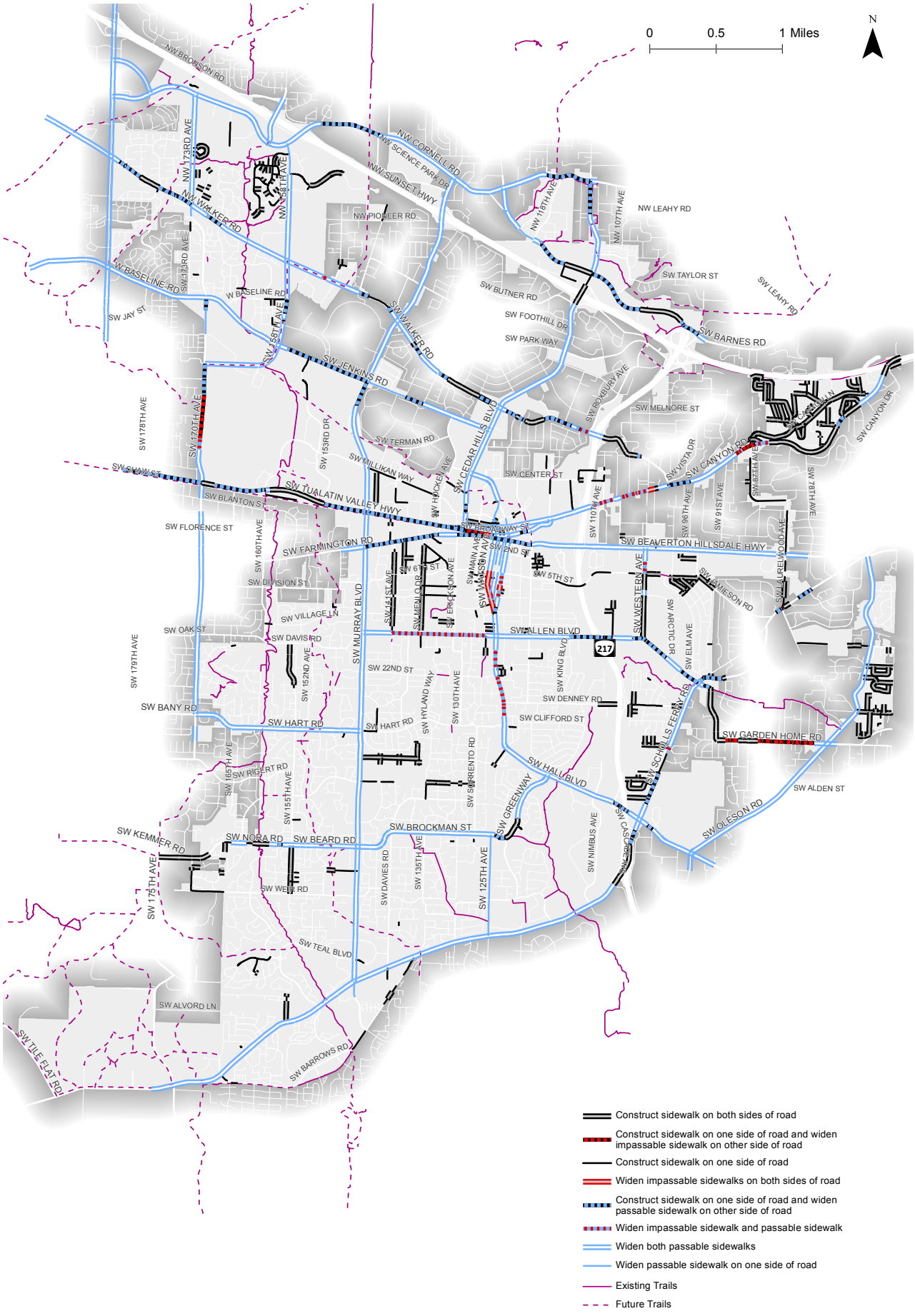


Figure 11 - Bicycle Infrastructure Needs

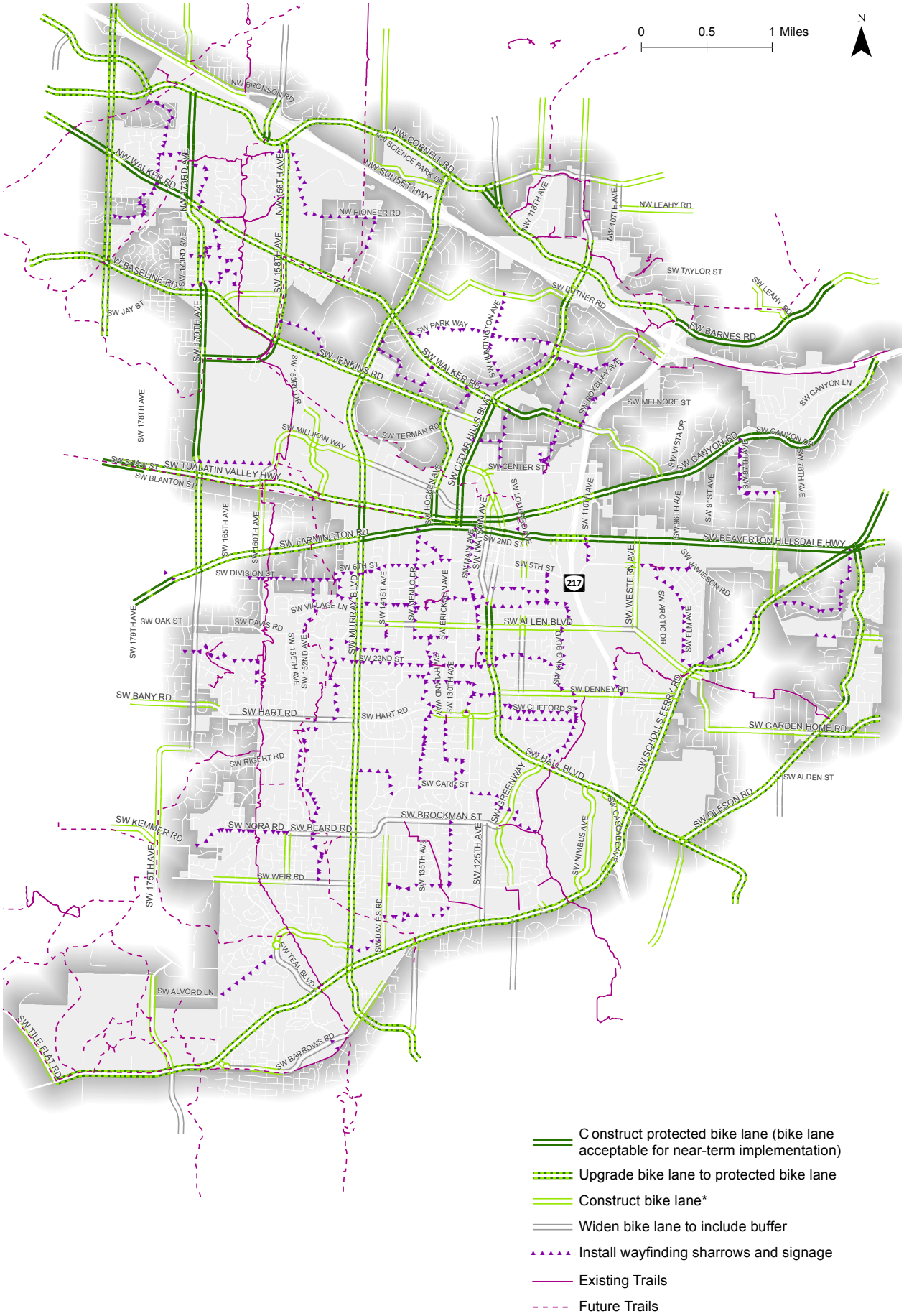


Figure 12 - Pedestrian Needs Evaluation

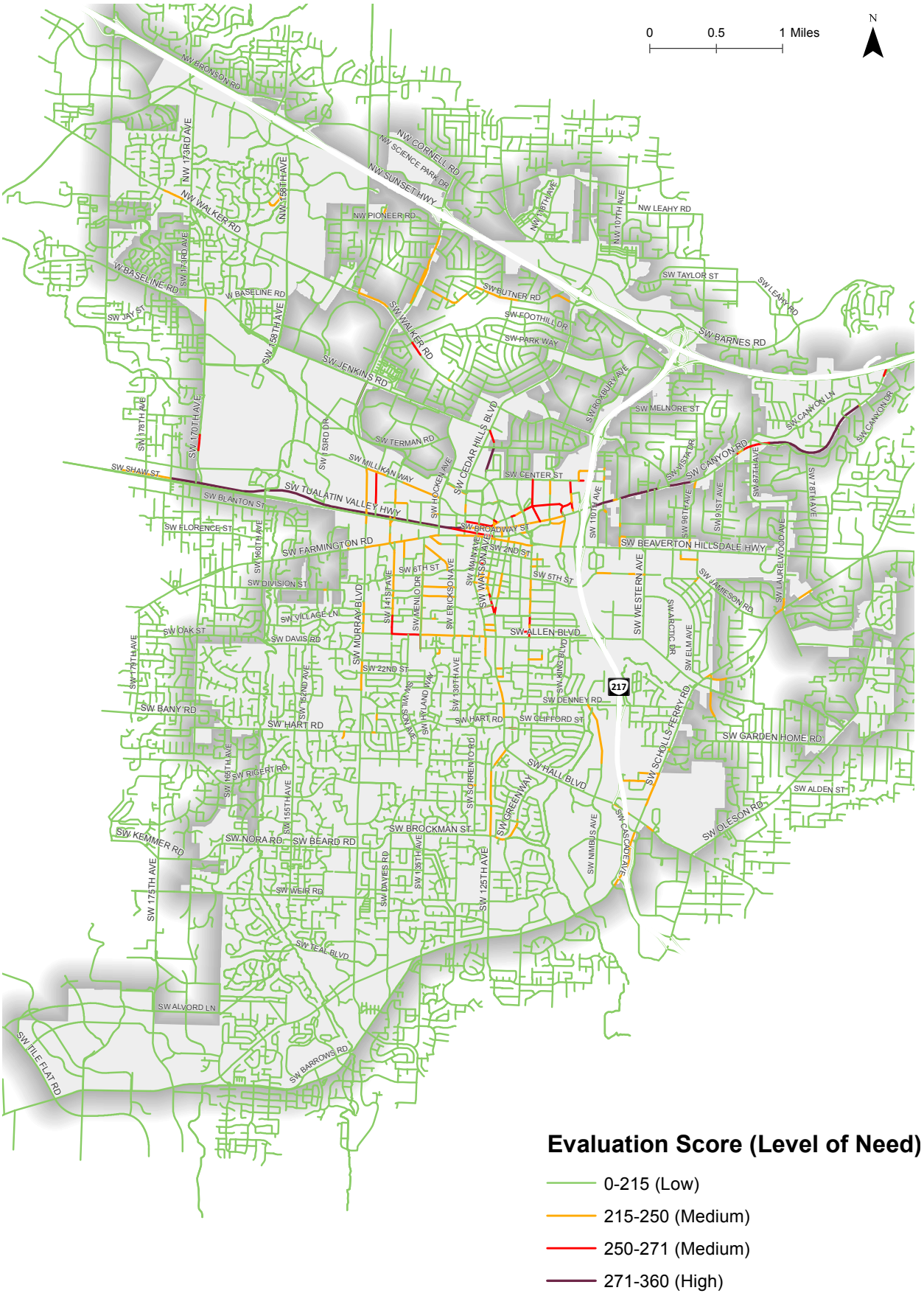
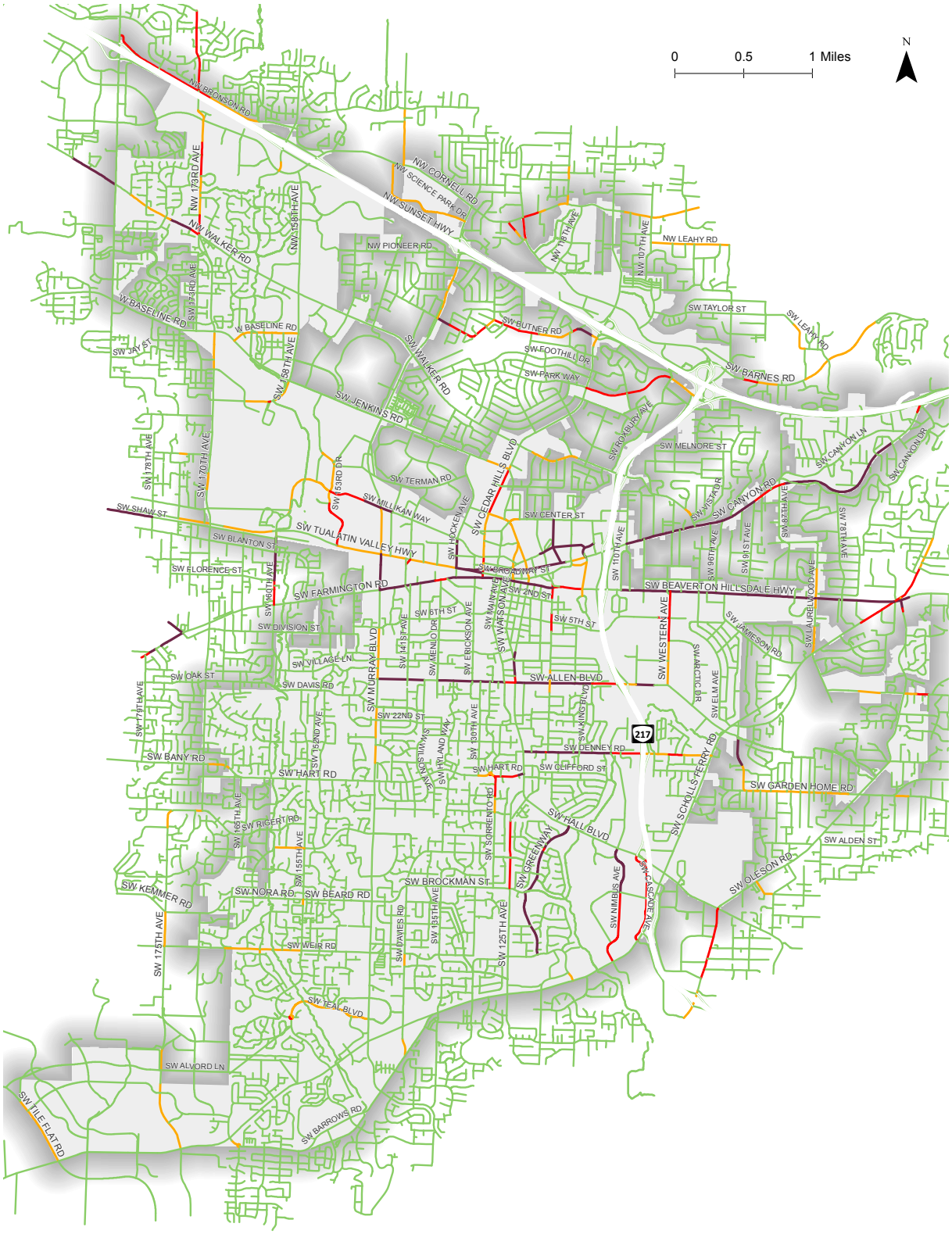


Figure 13 - Bicycle Needs Evaluation



Evaluation Score (Level of Need)

- 0-215 (Low)
- 215-250 (Medium)
- 250-271 (Medium)
- 271-360 (High)

Projects

This Active Transportation Plan includes a complete list of projects to meet the pedestrian, bicycle, and crossing needs identified and evaluated through the planning process. This complete list of projects is extensive and covers various types of roadways within the City of Beaverton, including roadways owned by ODOT, Washington County, and the City of Beaverton. While the City of Beaverton does not have the ability to implement projects on roadways owned by other agencies, Beaverton regularly coordinates and collaborates with those agencies in project development, and this plan provides documentation of Beaverton's desired pedestrian and bicycle infrastructure these on streets.

The projects are shown and described in maps and tables and are organized as follows:

Neighborhood bikeways

The neighborhood bikeways represent some of the lowest cost projects in this plan, because implementation of most of these routes does not require significant changes to infrastructure. Rather, implementation will include primarily sharrows (painted symbols) and wayfinding. Therefore, the neighborhood bikeway routes are grouped into five "projects" based on their geographic locations and the connections they provide to destinations and between other types of bicycle routes. These routes are shown in Figure 14 and described in Table 7. Most of the routes shown in Figure 14 are on streets that are already low-stress for bicycling, due to low vehicle speeds and volumes. Figure 14 also designates some neighborhood bikeway routes as "high priority." These high priority routes are those that provide parallel, alternative routes to key regional routes that do not yet have bicycle facilities. More detailed maps of neighborhood routes are included in **Attachment I**. All routes have been reviewed by Beaverton's Bicycle Advisory Committee.

Sidewalk and Bicycle Lane Projects

The sidewalk and bicycle lane projects are those that are designed to meet the segment-based needs from the needs evaluation. These projects are included in Figures 15 a-d and are described in Table 8. Both sidewalk and bicycle facility treatments are described for each roadway, with extents also specified for the various treatments. The sidewalk and bicycle lane projects table is color-coded by roadway owner:

City of Beaverton
Washington County
ODOT

Interim and Preferred Treatments

Table 8 includes columns for both "treatment or interim treatment" and "preferred treatment." The interim treatment is designed to reflect Metro's active transportation policy to complete the network and fill gaps as soon as possible, even if the preferred treatment is not feasible in the near term due to funding, right-of-way, or other constraints. In general, the "treatment or interim treatment" column includes projects that are more likely to be feasible to implement. If a project includes a "preferred treatment," the facility listed in the "treatment or interim treatment" column should be considered to be interim. The "preferred treatment" represents the vision in this plan, however, it may not be feasible in the near term.

In some cases, the treatments are not likely to be implemented as standalone projects, but would be implemented in conjunction with a major roadway project - e.g. widening "passable" sidewalks to the ultimate vision would occur in conjunction with a larger roadway project.

Crossing Projects

Crossing projects are included in Table 9 and are also shown in Figures 15 a-d, for all roadway owners. The specific treatment needed for each crossing is not described in the table, simply because a more specific engineering evaluation needs to be done at each location prior to finalizing the appropriate treatment type. However, high-level assumptions about the types of treatment are used to inform the cost estimate. In general, the lower cost estimates reflect needs related to striping, median islands, or minor improvements to existing

crossings, while higher costs reflect the likely need to add or modify a signal or other type of active warning. Crossing projects are included to meet the crossing needs that were identified during the needs evaluation.

Sidewalk Infill on Local Routes

Figure 16 shows locations within the City of Beaverton where sidewalks are missing from one or both sides of Local Routes. Local Routes are all Beaverton streets that are not part of the part of the regional pedestrian system (Pedestrian Parkways or Corridors). These sidewalk gaps were not evaluated and included in the project lists as individual projects, but represent system needs across the city.

Project Costs

Planning-level cost estimates were prepared for projects on City of Beaverton facilities. These estimates are included in the project tables. Right-of-way costs are not included in these costs. According to Metro's Regional Active Transportation Plan, there are very few instances, if any, in the US where a department of transportation has acquired ROW solely for a bikeway project, such as a cycle track. Acquiring right-of-way for sidewalk expansion is also rare. In instances where bicycle and pedestrian projects are developed on new right-of-way, the right-of-way was acquired to expand capacity for automobiles. It is safe to assume that this trend will continue across the region and that the addition of separated on-street bikeways and sidewalk expansions will, in most circumstances, need to be accommodated in existing right-of-way through roadway reconfigurations or as part of larger roadway projects. Nevertheless, right-of-way costs for the projects in the ATP can be estimated using a spreadsheet tool included in **Attachment H**. Further details on cost estimate assumptions are also included in the **Attachment H**.

Table 7 - Neighborhood Bikeways

ID	Area	Combined Length (ft)	Related Crossing Project	Cost
65	Northwest	34,111	CR-35, 86, 87, 88	$34,500
66	North	38,213	CR 89, 104, 105, 107, 112	$6,525
67	East/Northeast	15,808	-	$9,451
68	Downtown/Hyland	94,551	CR-1, 39, 46, 53, 84, 85, 100, 110	$11,813
69	Southwest	31,557	CR-27, 43, 92	$41,532

Figure 14 - Neighborhood Bikeways

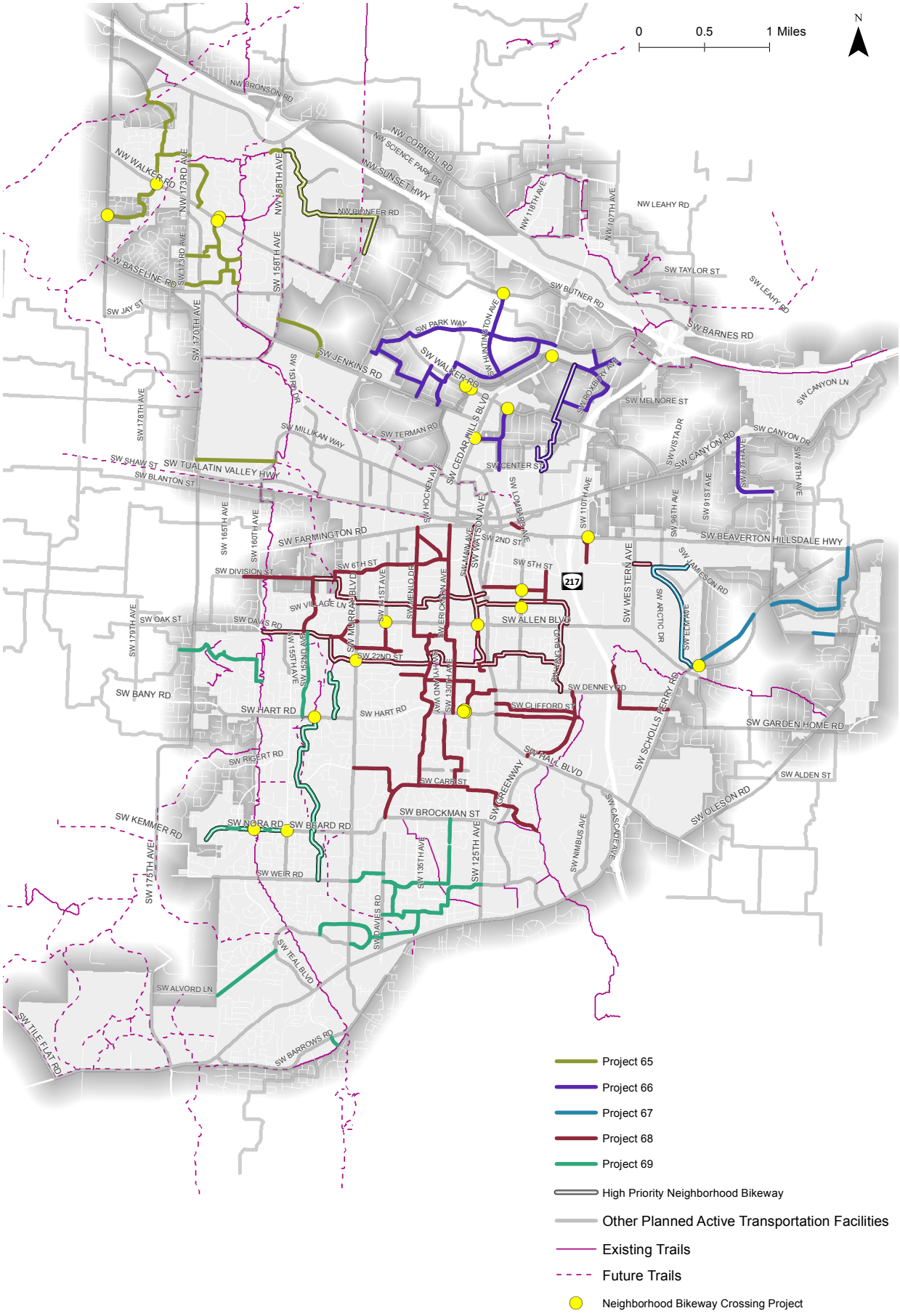


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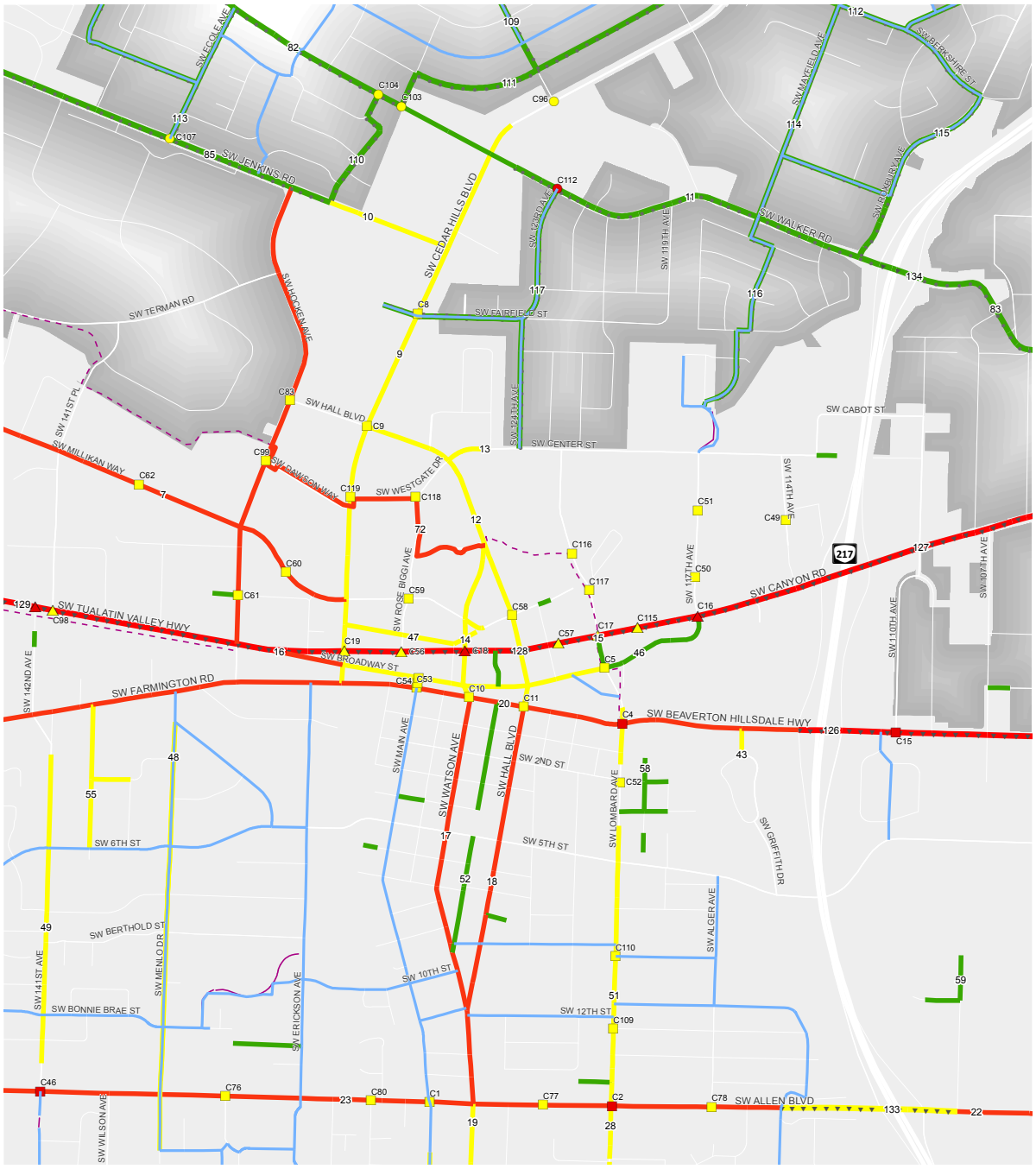
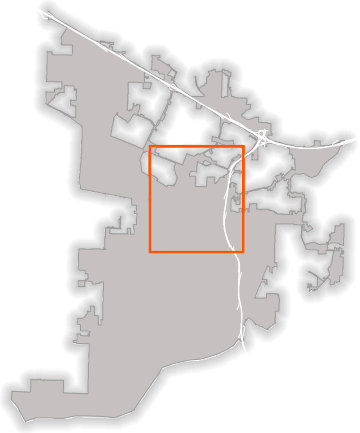
Figure 15a - Sidewalk and Bicycle Lane Projects - All Owners



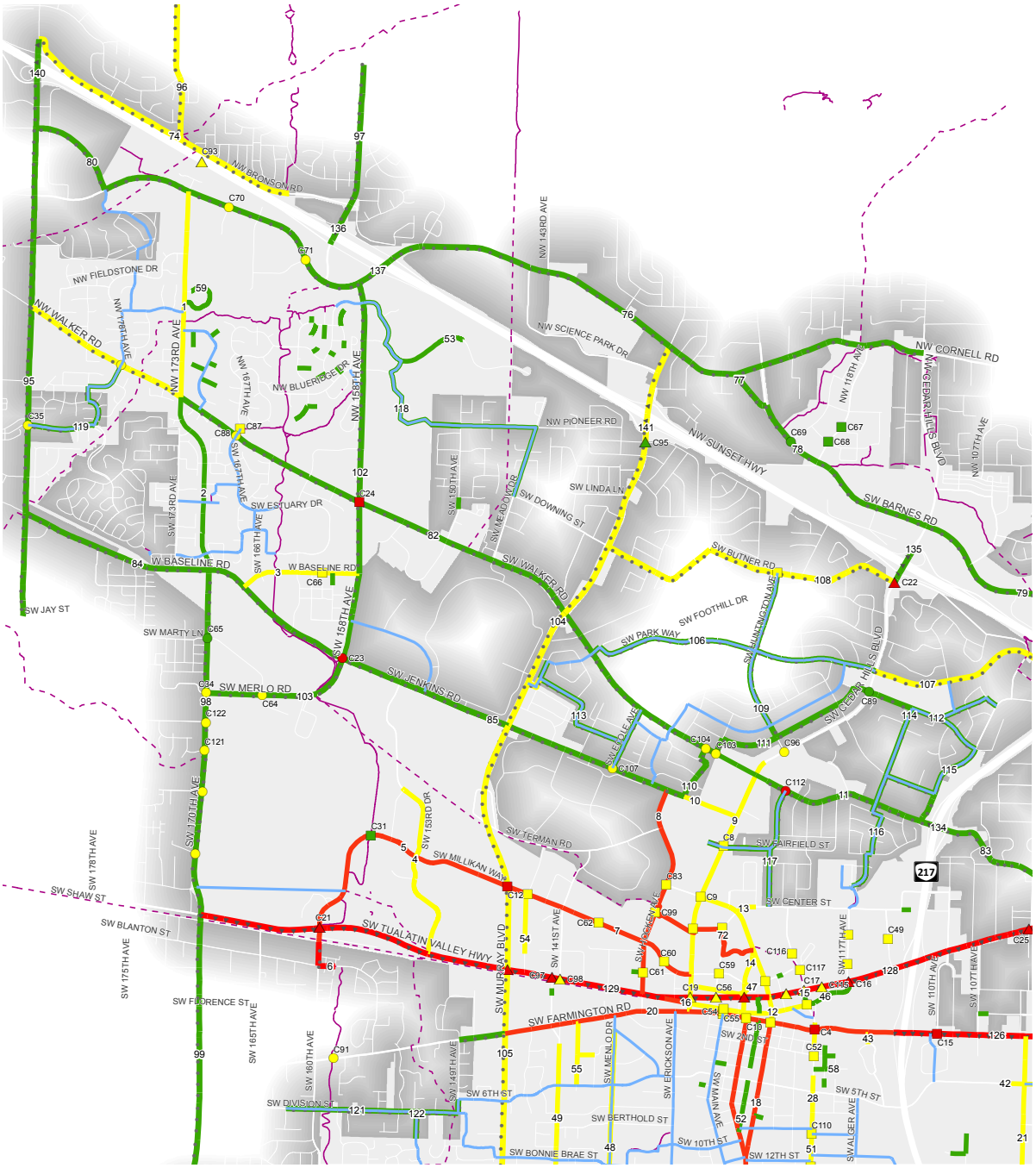


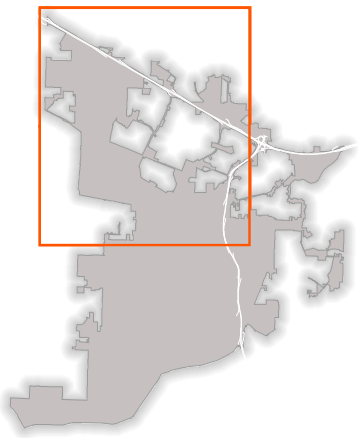
Roadway Owner- Evaluation Score

- Beaverton: High
- Beaverton: Medium
- Beaverton: Low
- ODOT: High
- ODOT: Medium
- ODOT: Low
- Washington County: High
- Washington County: Medium
- Washington County: Low
- Existing Trails
- Future Trails
- Beaverton: Low
- Washington County: Low
- ODOT: Low
- Beaverton: Medium
- Washington County: Medium
- ODOT: Medium
- Beaverton: High
- Washington County: High
- ODOT: High

0 0.25 Miles N

Figure 15b - Sidewalk and Bicycle Lane Projects - All Owners





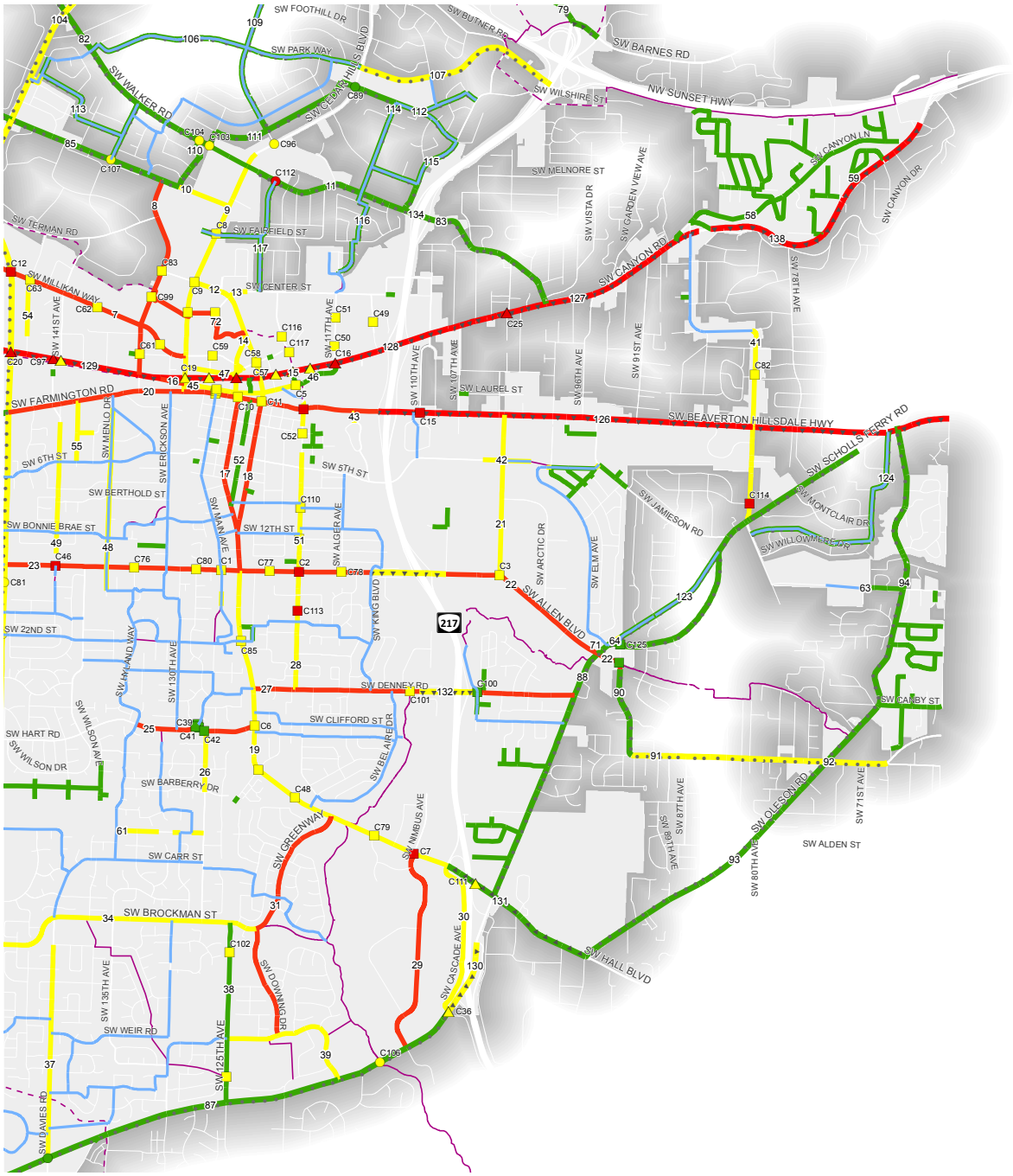
Roadway Owner- Evaluation Score

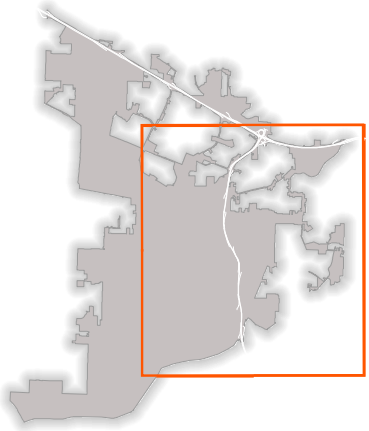
- Beaverton: High
- Beaverton: Medium
- Beaverton: Low
- ODOT: High
- ODOT: Medium
- ODOT: Low
- Washington County: High
- Washington County: Medium
- Washington County: Low
- Existing Trails
- Future Trails
- Beaverton: Low
- Washington County: Low
- ODOT: Low
- Beaverton: Medium
- Washington County: Medium
- ODOT: Medium
- Beaverton: High
- Washington County: High
- ODOT: High

0 0.25 0.5 0.75 Miles

N

Figure 15c - Sidewalk and Bicycle Lane Projects - All Owners





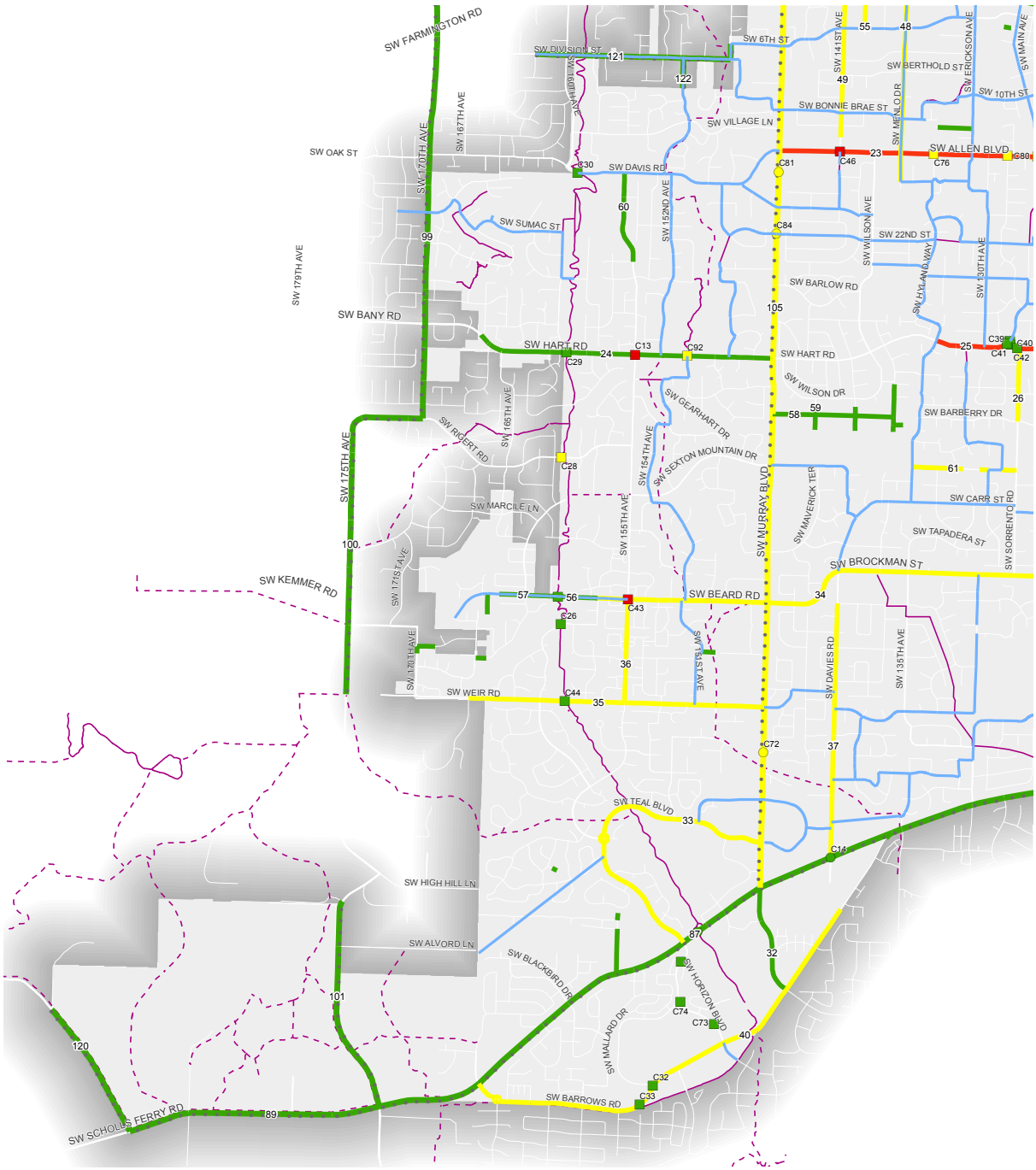
Roadway Owner- Evaluation Score

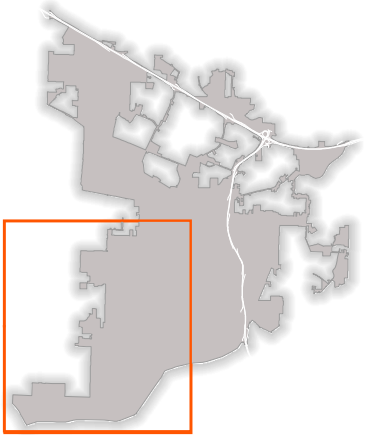
- Beaverton: High
- Beaverton: Medium
- Beaverton: Low
- ODOT: High
- ODOT: Medium
- ODOT: Low
- Washington County: High
- Washington County: Medium
- Washington County: Low
- Existing Trails
- Future Trails
- Beaverton: Low
- Washington County: Low
- ODOT: Low
- Beaverton: Medium
- Washington County: Medium
- ODOT: Medium
- Beaverton: High
- Washington County: High
- ODOT: High

0 0.25 0.5 0.75 1 Miles

N

Figure 15d - Sidewalk and Bicycle Lane Projects - All Owners





Roadway Owner- Evaluation Score

- Beaverton: High
- Beaverton: Medium
- Beaverton: Low
- ODOT: High
- ODOT: Medium
- ODOT: Low
- Washington County: High
- Washington County: Medium
- Washington County: Low
- Existing Trails
- Future Trails
- Beaverton: Low
- Washington County: Low
- ODOT: Low
- Beaverton: Medium
- Washington County: Medium
- ODOT: Medium
- Beaverton: High
- Washington County: High
- ODOT: High

0 0.25 0.5 0.75 Miles

N

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
City of Beaverton						
NW 173rd Avenue	NW Walker Road to NW Cornell Road	**1**	Reconfigure roadway to provide bicycle facilities (such as removing center turn lane and providing buffered bicycle lanes or separated bicycle lanes)	Construct protected bicycle lane along entire corridor; widen passable sidewalk on both sides of road along entire corridor	Medium	$2,200,000
				Widen passable sidewalk on both sides of road along entire corridor		
NW 173rd Avenue and NW 170th Avenue	NW Walker Road to W Baseline Road	**2**	Restripe to include bicycle lane within 400 feet of W Baseline Road	Upgrade bicycle lane to protected bicycle lane	Low	$1,900,000
				Widen passable sidewalk on west side of road within 500 feet of Walker Road		
NW Greenbrier Parkway	NW Blueridge Drive to Fox 12 KPTV Driveway	**53**	Widen passable sidewalks on both sides of road		Low	$300,000
SW 125th Avenue	SW Brockman Street and SW Scholls Ferry Road	**38**	Widen bicycle lane to add buffer		Low	$1,900,000
			Widen passable sidewalks on both sides of road			
SW 139th Avenue	SW Farmington Road to SW 6th Street	**55**	Infill sidewalks gaps on both sides of road		Medium	$360,000
SW 141st Avenue	SW Farmington Road to SW Allen Boulevard	**49**	Infill sidewalks gaps on both sides of road		Medium	$580,000
SW 144th Avenue	Millikan Way to SW Tualatin Valley Highway	**54**	Infill sidewalks gaps on both sides of road		Medium	$250,000
SW 153rd Drive	350 feet northwest of SW 154th Terrace to Tualatin Valley Highway	**4**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$1,900,000
SW 155th Avenue	SW Weir Road to SW Beard Road	**36**	Construct sidewalk on both sides of road		Medium	$900,000
			Construct or restripe to include bicycle lanes or buffered bicycle lanes			

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
SW 155th Avenue	SW Davis Road and SW Beaverly Beach Court	**60**	Widen passable sidewalks on both sides of road		Low	$360,000
SW 160th Avenue	SW Tualatin Valley Highway to Blanton Street	**6**	Widen sidewalk on east side of roadway to create multi-use trail connection		High	$440,000
SW 160th Avenue	W Baseline Road to 250 feet south of W Baseline Road	**62**	Infill sidewalks gaps on both sides of road		Low	$50,000
SW 5th Street	450 feet west of Western Avenue to Western Avenue	**42**	Construct or restripe to include bicycle lanes or buffered bicycle lanes on the south side of the road		Medium	$500,000
	Western Avenue to end of SW 5th Street (near SW Chestnut Place)		Construct sidewalk on both sides of road			
SW 92nd Avenue	SW Elm Avenue to City Limits	**64**	Construct sidewalk on both sides of road		Medium	$50,000
SW Allen Boulevard	217 to SW Scholls Ferry Road	**22**	Widen bicycle lane to include buffer	`	High	$1,600,000
	SW Scholls Ferry Road to SW 92nd Avenue		Add multi-use trail connection on south side of Allen Boulevard (CR-124 necessary)			
	217 to 300 feet west of SW Western Avenue		Widen passable sidewalks on both sides of road			
	SW Arctic Drive to 250 feet south of SW Fallbrook Plaza		Widen passable sidewalks on both sides of road	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure		
	250 feet south of SW Fallbrook Plaza to SW 92nd Avenue		Widen passable sidewalk on north side of roadway and construct sidewalk on south side of roadway	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure		
SW Allen Boulevard	SW Murray Boulevard to SW King Boulevard	**23**	Construct or restripe to include buffered bicycle lanes		High	$1,900,000

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	SW Murray Boulevard to SW 141st Avenue		Widen passable sidewalks on both sides of road			
	SW 141st Avenue to SW Main Avenue		Widen passable sidewalk on north side of roadway and widen impassable sidewalk on south side of roadway			
	SW Main Avenue to SW King Boulevard		Widen passable sidewalks on both sides of road			
SW Barrows Road	SW Scholls Ferry Road near SW Loon Drive and SW Roshak Road	**40**	Construct or restripe to include buffered bicycle lanes		Medium	$4,100,000
	SW 160th Street to SW Roashak Road		Widen bicycle lane to add buffer			
	SW 160th Street to SW 154th Avenue		Construct or restripe to include buffered bicycle lanes			
	SW 154th Avenue to 450 feet east of SW Horizon Boulevard		Widen bicycle lane to add buffer			
	SW Horizon Boulevard to SW Davies Road		Construct or restripe to include buffered bicycle lanes			
	150 feet south of SW Davies Road		Construct sidewalk on north side of road			
	SW 135th Avenue to SW Davies Road		Construct sidewalk on both sides of road			
SW Beard Road and SW Brockman Street	SW 155th Avenue to SW Downing Street	**34**	Construct or restripe to include buffered bicycle lanes		Medium	$4,400,000
	SW 155th Avenue to SW Oxbow Terrace		Widen passable sidewalks on both sides of road			
SW Beaverdam Road	SW Cedar Hills Boulevard to150 feet east of SW Watson Avenue	**47**	Construct sidewalk on both sides of road		Medium	$350,000

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
SW Beaverton Creek Trail Connection	SW Hall Blvd to SW Hocken	**72**	Provide wayfinding, sharrows, sidewalks and crossings for Beaverton Creek Trail through the round		High	$490,000
SW Blanton Street	SW 160th Avenue to Westside Trail	**6**	Widen sidewalk on north side of roadway to create multi-use trail connection		High	$440,000
SW Broadway Street	SW Canyon Road to SW Cedar Hills Boulevard	**16**	Create low stress connection between SW Hocken Avenue and area east of SW Cedar Hills Boulevard for bicyclists- construct bicycle lane or widen sidewalk for multi-use path connection		High	$100,000
SW Broadway Street	SW Cedar Hills Boulevard and SW Watson Avenue	**45**	Construct sidewalk on south side of roadway and widen sidewalk on north side of roadway		Medium	$580,000
	SW Watson Avenue to diagonal roadway 150 feet east of SW East Avenue		Widen passable sidewalks on both sides of road			
	Diagonal roadway 150 feet east of SW East Avenue to Lombard Avenue		Construct sidewalk on south side of roadway and widen sidewalk on north side of roadway			
SW Broadway Street	SW Lombard Avenue to SW Canyon Road	**46**	Widen passable sidewalks on both sides of road		Low	$260,000
SW Brockman Street	SW Downing Street to SW Oxbow Terrace	**34**	Widen passable sidewalk on south side of roadway and construct sidewalk on north side of roadway		Medium	$4,400,000
SW Canyon Lane and Canyon Drive	SW Canyon Road (south) to SW Canyon Road (north)	**73**	Construct sidewalk on both sides of road		Low	$1,300,000
SW Cascade Avenue	SW Hall Boulevard to SW Scholls Ferry Road	**30**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$1,700,000
SW Cedar Hills Boulevard	SW Farmington Road to SW Walker Road	**9**	Restripe to add bicycle lanes	Construct protected bicycle lane along entire corridor	Medium	$2,900,000

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	SW Walker Road to Washington County road ownership		Restripe to add buffer to bicycle lanes	Upgrade bicycle lane to protected bicycle lane		
SW Center Street	SW Westgate Drive to SW 125th Avenue	**13**	Construct or restripe to include bicycle lanes		Medium	$200,000
SW Conestoga Drive	SW Scholls Ferry Road and SW 125th Avenue	**39**	Construct or restripe to include bicycle lanes or buffered bicycle lanes or put "No Parking" signs in existing striped bicycle lanes		Medium	$1,600,000
SW Davies Road	SW Scholls Ferry Road and SW Brockman Street	**37**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$2,200,000
SW Davies Road	SW 135th Avenue to SW Sorrento Road	**61**	Construct sidewalk on both sides of road		Medium	$290,000
SW Denney Road	SW Hall Boulevard to SW Scholls Ferry Road (excluding 217 Bridge)	**27**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		High	$2,700,000
SW Farmington Road and Beaverton Hillsdale Highway	SW Griffith Drive to Murray Boulevard	**20**	Construct or restripe to include bicycle lanes or buffered bicycle lanes	Construct protected bicycle lanes	High	$4,100,000
	217 to SW Griffith Drive		Construct or restripe to include buffered bicycle lanes	Upgrade bicycle lane to protected bicycle lane		
	217 to Lombard Avenue		Widen passable sidewalks on both sides of road			
	Lombard Avenue to SW Erikson Avenue		Widen passable sidewalk on south side of roadway and construct sidewalk on north side of roadway			
	SW Erikson Avenue to SW Hocken Avenue		Widen passable sidewalks on both sides of road			
	SW Hocken Avenue to SW Murray Boulevard		Widen passable sidewalk on south side of roadway and construct sidewalk on north side of roadway			
SW Greenway and SW Downing Street	SW Conestoga Drive to SW Hall Boulevard	**31**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		High	$2,700,000

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	SW Hall Boulevard to 800 feet south of SW Murphy Lane		Widen passable sidewalks on both sides of road			
	800 feet south of SW Murphy Lane to SW Downing Street		Construct sidewalk on both sides of road			
SW Griffith Drive	SW Beaverton Hillsdale Highway to 250 feet south of SW Beaverton Hillsdale Highway	**43**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$120,000
SW Hall Boulevard	SW Cedar Hills Boulevard to SW Farmington Road	**12**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$1,600,000
	SW Cedar Hills Boulevard to SW Crescent Street		Widen passable sidewalks on both sides of road			
	SW Farmington Road to SW Broadway Street		Widen impassable sidewalk on east side of roadway and widen passable sidewalk on west side of roadway			
	SW Broadway Street to SW Millikan Way		Widen passable sidewalk on east side of roadway			
SW Hall Boulevard	SW 12th Street to SW Sabin St	**18**	Widen, construct or restripe to provide bicycle lane or buffered bicycle lane	Construct protected bicycle lanes	High	$700,000
SW Hall Boulevard	SW Farmington Road to SW Cedar Hills Boulevard	**18**	Widen sidewalks on both sides of road			
SW Hall Boulevard	SW Sabin St to 217	**19**	Construct or restripe to include buffered bicycle lanes	Upgrade bicycle lane to protected bicycle lane	Medium	$4,000,000
	217 to Cresmoor Drive		Widen passable sidewalks on both sides of road			
	Cresmoor Drive to Sabin		Widen sidewalks that currently vary between passable and impassable on both sides of road			

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
SW Hart Road	SW Murray Boulevard to SW 166th Avenue	**24**	Construct or restripe to include buffered bicycle lanes		Low	$2,600,000
	SW Murray Boulevard to SW Bany Road		Widen passable sidewalks on both sides of road			
SW Hart Road	SW Hyland Way to SW Hall Boulevard	**25**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		High	$670,000
SW Hocken Avenue	SW Tualatin Valley Highway to SW Millikan Way	**8**	Restripe to add bicycle lanes	Construct protected bicycle lane along entire corridor	High	$2,300,000
	SW Millikan Way to SW Jenkins Road		Restripe to add buffer to bicycle lanes	Upgrade bicycle lane to protected bicycle lane		
SW Jenkins Road	SW Cedar Hills Boulevard west to Washington County road ownership	**10**	Widen bicycle lane to add buffer, if appropriate		Medium	$600,000
			Widen passable sidewalks on both sides of road			
SW Larch Place	50 feet east of SW Spencer Road to SW 139th Avenue	**55**	Construct sidewalk on both sides of road		Medium	$360,000
SW Laurelwood Avenue	SW Scholls Ferry Road to SW Birchwood Road	**41**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$2,000,000
	200 feet south of SW Laurelwood Court to SW Homewood Street		Construct sidewalk on both sides of road			
SW Lombard Avenue	SW Canyon Road to SW Broadway Street	**15**	Widen bicycle lane to add buffer		Low	$100,000
SW Lombard Avenue	Crossings of SW Allen Boulevard and SW Denney Road	**28**	Provide enhanced treatments for bicycles through intersections		Medium	$2,000,000
	Crossing of SW 5th Street		Add bicycle lanes or buffered bicycle lanes through intersection			

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	100 feet north of SW Farmington Road to 100 feet south of SW 1st Street		Construct or restripe to include buffered bicycle lanes			
SW Menlo Drive	SW Fairmont Drive to SW Allen Boulevard	**48**	Construct sidewalk on both sides of road		Medium	$700,000
SW Millikan Way	650 feet north of Tualatin Valley Highway to SW Murray Boulevard	**5**	Infill sidewalks gaps		High	$2,600,000
	650 feet north of Tualatin Valley Highway to SW Murray Boulevard		Construct or restripe to include bicycle lanes or buffered bicycle lanes (perform road diet feasibility study on this section of Millikan Road)			
	Tualatin Valley to 650 feet north of Tualatin Valley Highway		Restripe to add buffered bicycle lanes, if appropriate			
SW Millikan Way	SW Murray Boulevard to SW Cedar Hills Boulevard	**7**	Restripe to add buffered bicycle lanes, if appropriate		High	$2,100,000
SW Millikan Way	100 feet west of SW Watson Avenue to SW Watson Avenue	**47**	Construct sidewalk on both sides of road		Medium	$350,000
SW Murray Boulevard	SW Barrows Road to SW Scholls Ferry Road	**32**	Construct or restripe to include buffered bicycle lanes	Construct protected bicycle lanes	Low	$1,000,000
	Scholls Ferry Road to 300 feet south of Scholls Ferry Road		Widen passable sidewalk on east side of road			
SW Nimbus Avenue	SW Hall Boulevard to SW Scholls Ferry Road	**29**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		High	$2,200,000
SW Nora Road	SW 155th Avenue to SW Galena Way	**34**	Widen passable sidewalk on north side of roadway and construct sidewalk on south side of roadway		Medium	$4,400,000

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
SW Nora Road	SW 166th Avenue to SW Galena Way	**56**	Infill sidewalks gaps on both sides of road		Low	$380,000
SW Old Scholls Ferry Road	SW Elm Avenue to City Limits	**64**	Construct sidewalk on north side of road		Medium	$50,000
SW Scholls Ferry Road	SW Allen Boulevard to SW 92nd Avenue	**71**	Provide multi-use trail connection on north side of roadway		Low	$110,000
SW Sorrento Road	SW Hart Road to SW Barberry Drive	**26**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$640,000
SW Teal Boulevard	SW Murray Boulevard to SW 155th Avenue	**33**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$3,000,000
	SW 155th Avenue to SW Scholls Ferry Road		Construct or restripe to include buffered bicycle lanes			
SW Vermont Court	SW Oleson Road to Montclair Elementary School	**63**	Construct sidewalk on both sides of road		Low	$190,000
SW Walker Road	Beaverton jurisdiction	**11**	Restripe to add buffer to bicycle lanes	Upgrade bicycle lane to protected bicycle lane	Low	$600,000
			Construct sidewalk on south side of roadway from SW Westfield Ave to 400 feet west of Cedar Hills Boulevard, where the current sidewalk ends			
			Widen passable sidewalks on north side of road			
			Widen passable sidewalk on south side of road between Cedar Hills Boulevard and 400 feet west of Cedar Hills Boulevard			
SW Washington Avenue	SW Farmington Road to SW Watson Avenue	**52**	Widen impassable sidewalks on both sides of road		Low	$450,000
SW Watson Avenue	SW Farmington Road to SW Crescent Street	**14**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$700,000

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
SW Watson Avenue	SW Crescent Street to SW Millikan Way	**14**	Widen passable sidewalk on east side of roadway		Medium	$700,000
	SW Millikan Way to SW Canyon Road		Widen passable sidewalk on west side of roadway and construct sidewalk on east side of roadway			
	SW Canyon Road to SW Broadway Street		Widen passable sidewalks on both sides of road			
SW Watson Avenue	SW 10th Street to SW Farmington Road	**17**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		High	$600,000
	SW Farmington Road to SW 5th Street		Widen passable sidewalks on both sides of road			
	SW 5th Street to SW 12th Street		Widen impassable sidewalk on west side of road			
	SW 5th Street to midblock crossing north of SW 12th Street		Widen impassable sidewalk on east side of road			
SW Weir Road	SW 155th Avenue to SW Mt Adams Drive	**35**	Construct or restripe to include buffered bicycle lanes		Medium	$2,600,000
	SW 155th Avenue to SW Murray Boulevard		Widen bicycle lane to add buffer			
SW Western Avenue	SW Allen Boulevard to SW Beaverton Hillsdale Highway	**21**	Construct or restripe to include bicycle lanes or buffered bicycle lanes		Medium	$1,700,000
	SW Allen Boulevard to SW Arctic Drive		Construct sidewalk on both sides of road			
	Arctic Drive to railroad crossing 200 feet north of SW Arctic Drive		Widen passable sidewalks on both sides of road			
	Railroad crossing 200 feet north of SW Arctic Drive to SW 5th Street		Construct sidewalk on both sides of road			

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	SW 5th Street to SW Beaverton Hillsdale Highway		Widen sidewalk that currently varies between passable and impassable on the east side of the road and widen passable sidewalk on the west side of the road			
W Baseline Road	SW Jenkins Road to SW 158th Avenue	**3**	Construct or restripe to include bicycle lanes		Medium	$1,200,000
	SW Jenkins Road to SW 158th Avenue		Construct sidewalk on south side of roadway within 950 feet of 158th			
Washington County						
NW 158th Ave	NW Cornell Rd to SW Jenkins Rd	**102**		Construct protected bicycle lanes throughout entire corridor	Low	
NW 174th Ave	Lonerock Road to Bronson Road	**96**	Construct bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Medium	
NW 185th Ave	NW Tanasbourne Dr to SW Jay St	**95**		Construct protected bicycle lanes throughout entire corridor	Low	
NW Bethany Blvd	NW West Union Road to US 26	**97**	Construct bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Low	
NW Bronson Road	NW 185th Ave to Waterhouse Trail	**74**	Restripe roadway to accommodate bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Medium	
	NW 185th Ave to NW Bethany Blvd		Construct sidewalk facility along south side of roadway for entire length			
			Construct sidewalk facility along north side of roadway between NW179th and NW 174 Ave			
NW Canbray Street	NW Walker Road to NW Pioneer Road	**119**	Install wayfinding sharrows and signage		Low	
NW Cornell Road	NW Evergreen Parkway to OR26	**75**		Construct protected bicycle lanes throughout entire corridor	Low	
NW Cornell Road	OR26 to NW Cedar Hills Blvd	**76**	Construct sidewalk facility along north side between NW 153rd Ave to existing sidewalk terminus perpendicular to NW Science Park Dr		Low	

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
			Construct sidewalk facility along south side of roadway between existing terminus (Cornell Family Medicine PC) and NW 123rd Ave			
			Construct sidewalk facility along north side of roadway between NW 119th Ave and existing terminus approximately 350' west of NW 113th Ave			
				Construct buffered bicycle lanes throughout entire corridor		
NW Evergreen Parkway	NW 185th Ave to NW Cornell Rd	**80**		Construct protected bicycle lanes throughout entire corridor	Low	
NW Heritage Pkwy	NW Pioneer Road to NW 185th Ave	**119**	Install wayfinding sharrows and signage		Medium	
NW Meadow Drive	NW Pioneer Road to SW Downing Street	**118**	Install wayfinding sharrows and signage		Low	
NW Pioneer Road	NW 153rd Ave to NW Meadow Drive	**118**	Install wayfinding sharrows and signage		Low	
NW Walker Road	NW 185th Ave to NW 173rd Ave	**81**	Construct bicycle lanes between NW 180th to NW 173rd	Construct protected bicycle lanes throughout entire corridor	Medium	
			Construct sidewalk facility along south side of roadway between NW 185th and NW NW 183rd Ave			
			Construct sidewalk facility on north side of roadway between NW 183rd Ave to NW 180th Ave			
			Construct sidewalk facility from existing terminus point approximately 300' east of NW180th to NE 178th Ave			
NW Walker Road	NW 173rd Ave to Westfield Ave (City Limits)	**82**	Construct sidewalk facility on north side of roadway from approximately 500' east of SW Meadows Dr to SW Butner Rd		Low	

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	NW 173rd Ave to SW Cedar Hills Blvd		Construct sidewalk facility on both sides of roadway between SW 139th Ave to existing sidewalk terminus (approximately 172' on north side and 550' on south side)			
			Construct sidewalk facility on south side of roadway between SW Ecole Ave and sidewalk terminus approximately 440' west of SW Cedar Hills Blvd			
				Construct protected bicycle lanes throughout entire corridor		
NW Walker Road	SW Cedar Hills Blvd to SW Canyon Road	**83**	Construct bicycle lanes between SW 123rd Ave to SW Mayfield Ave	Construct protected bicycle lanes throughout entire corridor	Low	
	217 to SW Canyon Road		Construct bicycle lanes between OR 217 to SW Canyon Road	Construct protected bicycle lanes throughout entire corridor		
	SW Cedar Hills Blvd to SW Canyon Road		Constuct sidewalk facility on north side of roadway between SW 123rd Ave to SW Mayfield Ave			
			Construct sidewalk facility on north side of roadway between SW Mayfield Ave to existing terminus perpendicular to SW 113th Ave			
			Construct sidewalk facility on both sides of roadway from Walker Road overcrossing to SW Canyon Road			
SW 116th Ave and SW Fairfield St and SW Terra Linda St	SW Mayfield Ave to SW Merill Lane	**116**	Install wayfinding sharrows and signage		Low	
SW 123rd Ave	SW Walker Road to SW Fairfield Street	**117**	Install wayfinding sharrows and signage		Low	
SW 124th Ave	SW Fairfield Street to SW Center Street	**117**	Install wayfinding sharrows and signage		Low	
SW 144th Ave	SW Furlong Way to Domino Street	**113**	Install wayfinding sharrows and signage		Low	

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
SW 149th Ave	SW Division to SW 6th Street	**121**	Install wayfinding sharrows and signage		Low	
SW 152nd Ave	SW Division to SW Village Lane	**122**	Install wayfinding sharrows and signage		Low	
SW 170th Ave	SW Baseline Road to SW Sullivan Ln	**98**	Construct bicycle lanes	Construct protected bicycle lanes throughout entire corridor	Low	
	SW Sullivan Ln to SW Alexander St		Construct bicycle lanes	Construct protected bicycle lanes throughout entire corridor		
	SW Alexander St to Tualatin-Valley Hwy			Construct protected bicycle lanes throughout entire corridor		
SW 170th Ave	Tualatin-Valley Hwy to SW Rigert Rd	**99**		Construct protected bicycle lanes throughout entire corridor	Low	
SW 175th Ave	SW Horse Trail Lane to Scholls Ferry Road	**101**	Construct bicycle lanes		Low	
SW 175th Ave and Ringert Road	SW 170th Ave to SW Horse Trail Lane	**100**	Construct bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Low	
SW 92nd Ave	SW Allen Blvd to SW Garden Home Road	**90**	Construct bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Low	
	SW Allen Blvd to SW Garden Home Road		Construct sidewalk on both sides of roadway for entire length			
SW Bany Road - SW Hart Rd	SW 166th Terrace to SW Murray Blvd			Widen existing bicycle lanes to accommodate buffered bicycle lanes	Low	
SW Bany Road - SW Hart Rd	SW Murray Blvd to SW Hall Blvd		Restripe roadway to accommodate bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Low	
SW Barnes Road	NW Cornell Road to NW Saltzman Road	**77**	Constuct bicycle lanes	Construct protected bicycle lanes throughout entire corridor	Low	
			Construct sidewalk facility along south side of roadway between existing terminus (approximately 170' south of NW Cornell Rd) to NW Saltzman Rd			

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
SW Barnes Road	NW Saltzman Rd to SW Cedar Hills Blvd	**78**	Construct sidewalk facility on north side of roadway between existing termnius (approximately 180' east of NW 118th Ave) to SW Cedar Hills Blvd		Low	
			Construct sidewalk facility along south side of roadway between NW 117th Ave and SW Cedar Hills Blvd			
SW Barnes Road	SW Cedar Hills Blvd to SW Baltics Ave	**79**	Construct sidewalk facility on north side of roadway between SW Cedar Hills to Valeria View Dr		Low	
			Construct sidewalk facility on both sides of roadway between Sunset Transit Center (western access) to SW Baltic Ave			
			Construct sidewalk facility on south side of roadway from SW Baltic Ave, 500' west to SW Barnes Rd/Sunset Transit Center intersection			
				Construct protected bicycle lanes throughout entire corridor		
SW Beechwood Ave and SW Brightwood St	SW Walker to SW Walker Road	**110**	Install wayfinding sharrows and signage		Low	
SW Berkshire Street	SW Cedar Hills Blvd to Roxbury Ave/ Eastridge St	**112**	Install wayfinding sharrows and signage		Low	
SW Burlwood Street	SW 139th Ave to SW Ecole Ave	**113**	Install wayfinding sharrows and signage		Low	
SW Butner Road	SW Murray Blvd to SW Cedar Hils Blvd	**108**	Construct bicycle lane		Medium	
	SW 136th Ave to SW Cedar Hils Blvd		Construct sidewalk on both sides of road			
SW Division Street	SW 162nd Ave to SW 139th Ave	**121**	Install wayfinding sharrows and signage		Low	

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	SW 160th to SW 155th		Construct sidewalks on both sides of road			
SW Dogwood Lane	SW Westgate Way to Beaverton Hillsdale Hwy	**124**	Install wayfinding sharrows and signage		Low	
SW Domino Street	SW 144st Ave to SW Burlwood Street	**113**	Install wayfinding sharrows and signage		Low	
SW Douglas Street	SW Westfield Ave to SW Cedar Hills Blvd	**111**	Install wayfinding sharrows and signage		Low	
SW Ecole Ave	SW Walker to SW Jenkins Road	**113**	Install wayfinding sharrows and signage		Low	
SW Fairfield Street	SW Cedar Hills to SW 124th Ave	**117**	Install wayfinding sharrows and signage		Low	
SW Farmington Rd	SW 149 Ave to SW Murray Blvd	**86**		Construct protected bicycle lanes throughout entire corridor	Low	
SW Farmington Rd	SW Murray Blvd to SW Lombard Ave		Construct bicycle lanes	Construct protected bicycle lanes throughout entire corridor	Low	
SW Farmington Rd	SW Murray Blvd to SW Lombard Ave		Construct sidewalk facility on north side of roadway between SW Murry Blvd and SW 142nd Ave		Low	
SW Garden Home Road	SW 92nd Ave to SW 76th Ave	**91**	Construct bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Medium	
			Construct sidewalk on both sides of roadway for entire length			
SW Garden Home Road	SW 76th Ave to SW 69th Ave	**92**		Widen existing bicycle lanes to accommodate buffered bicycle lanes	Medium	
SW Huntington Ave	SW Butner Road to SW Cedar Hills Blvd	**109**	Install wayfinding sharrows and signage		Low	
SW Jenkins Road	SW 170th Ave to SW Edgemoor Ave	**85**	Construct sidewalk facility on north side of roadway between SW Briggs Rd to SW Ecole Ave		Low	
				Construct protected bicycle lanes throughout entire corridor		

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	SW Edgemoor Ave to Cedar Hills Blvd		Restripe roadway to accommodate bicycle lanes	Construct protected bicycle lanes throughout entire corridor		
SW Mayfield Ave	SW Berkshire Street to SW Walker Road	**114**	Install wayfinding sharrows and signage		Low	
SW Merlo Rd	SW Jenkins Rd to SW 170th Ave	**103**	Construct bicycle lanes	Construct protected bicycle lanes throughout entire corridor	Low	
SW Murray Blvd	NW Cornell Rd to SW Tualatin-Valley Hwy (not including US 26 undercrossing)	**104**		Construct protected bicycle lanes throughout entire corridor	Medium	
SW Murray Blvd	SW Tualatin-Valley Hwy to SW Scholls Ferry Rd	**105**		Construct protected bicycle lanes throughout entire corridor	Medium	
SW Old Scholls Ferry Road	SW Scholls Ferry Road to SW Scholls Ferry Road	**123**	Install wayfinding sharrows and signage		Low	
SW Oleson Road	Beaverton city limits (south) to SW Hall Blvd		Construct bicycle lanes	Construct buffered bicycle lanes throughout entire corridor	Medium	
SW Oleson Road	SW Hall Blvd to SW Garden Home Road	**93**		Widen existing bicycle lanes to accommodate buffered bicycle lanes	Low	
SW Oleson Road	SW Garden Home Road to SW Beaverton Hillsdale Hwy	**94**		Widen existing bicycle lanes to accommodate buffered bicycle lanes	Low	
SW Park Way	SW Walker Road to SW Cedar Hills Blvd	**106**	Install wayfinding sharrows and signage		Low	
SW Park Way	SW Cedar Hills Blvd to OR 217	**107**	Construct bicycle lane		Medium	
SW Roxbury Ave	SW Berkshire Street to SW Walker Road	**115**	Install wayfinding sharrows and signage		Low	
SW Scholls Ferry Road	SW 175Ave to SW Cascade Ave	**87**		Construct protected bicycle lanes throughout entire corridor	Low	
SW Scholls Ferry Road	SW Washington Square Road to SW Stephens Ln	**88**	Construct sidewalk on both sides of roadway between SW Scholls Ferry Rd overcrossing to SW Washington Square Rd		Low	

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
	SW Washington Square Road to SW Stephens Ln/ Beaverton City Limits (east)			Construct protected bicycle lanes throughout entire corridor		
SW Scholls Ferry Road	SW Roy Rogers Road to SW Tile Flat Road	**89**		Upgrade bicycle lane to protected bicycle lane	Low	
SW Tile Flat Road	SW Kobbe Drive to SW Scholls Ferry Road	**120**	Construct bicycle lanes		Low	
SW Westfield Ave	SW Walker Road to SW Douglas St	**111**	Install wayfinding sharrows and signage		Low	
SW Westgate Way	SW Nicol Road to SW Dogwood Lane	**124**	Install wayfinding sharrows and signage		Low	
W Baseline Road	NW 185th Ave to SW 170th Ave	**84**		Construct protected bicycle lanes throughout entire corridor	Low	
Oregon Department of Transportation						
NW 185th Avenue (OR26)	NW Bronson Rd to NW Tanasbourne Dr		Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	
NW 185th Avenue (OR26)	NW Bronson Rd to NW Tanasbourne Dr	**140**	Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing		Low	
NW Bethany Boulevard (OR26)	US 26 On-Ramp to US 26 Off-Ramp	**136**	Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	
NW Cornell Road (OR26)	NW 153rd Ave to NW 158th Ave	**137**	Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	
SW Allen Boulevard (OR217)	SW King Blvd to SW 107th Ave	**133**	Evaluate feasibility of enhanced pedestrian crossing at SW 170th Avenue	If warranted, construct enhanced pedestrian crossing at SW 170th Ave	Medium	
			Restriping roadway to accommodate bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure		

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
				Widen overcrossing structure to construct sidewalk facility on south side of structure		
SW Beaver-ton-Hillsdale Highway (OR10)	OR217 to SW 65th Ave	**126**	Provide parallel route wayfinding		High	
			Conduct feasibility study to evaluate enhanced pedestrian crossing at SW Chestnut Place	If warranted, construct enhanced pedestrian crossing at SW Chestnut Place		
			Conduct feasibility study to evaluate enhanced pedestrian crossing at SW Poplar Lane	If warranted, construct enhanced pedestrian crossing at SW Poplar Lane		
			Conduct feasibility study to evaluate enhanced pedestrian crossing at SW 62nd Ave	If warranted, construct enhanced pedestrian crossing at SW 62nd Ave		
			Conduct feasibility study to evaluate crossing improvements at SW 110th Ave	If warranted, construct enhanced pedestrian crossing at SW 110th Ave		
				Construct protected bicycle lanes between OR217 and SW 65 Ave		
				Widen passable sidewalk on south side of corridor between SW Laurelwood Ave and driveway per-pendicular to SW 78th Ave		
				Construct multi-use path along south side of corri-dor from SW Scholls Ferry Road to SW 65th Avenue		
				Upgrade existing bicycle lanes under OR217 to protected bicycle lanes		
SW Canyon Road - Lower West Slope (OR8)	OR217 to SW 87th Ave	**127**	Provide parallel route wayfinding		High	
			Construct missing sidewalk gap (approx-imately 930') on north side of corridor east of SW Walker			

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
			Construct missing sidewalk gap (approximately 470') on north side of corridor west of SW Walker			
			Construct missing sidewalk gap (approximately 250') on south side of corridor west of SW Walker			
			Construct bicycle lanes in existing facility gaps between SW 110th Ave to SW 87th Ave	Construct protected bicycle lanes between SW 110th Ave to SW 87th Ave		
				Upgrade existing bicycle lanes to protected bicycle lanes between OR217 to SW 110th Ave		
SW Canyon Road - Upper West Slope (OR8)	OR26 to SW 87th Ave	**138**	Provide parallel route wayfinding		High	
			Construct missing sidewalk gap on both sides of the corridor between SW Canyon Dr and SW Crestdale Dr			
			Conduct feasibility study to evaluate enhanced pedestrian crossing at west leg of SW Canyon Road/SW 87th Avenue intersection	If warranted, constructed enhanced pedestrian crossing at west leg of SW Canyon Road/SW 87th Ave intersection		
			Construct bicycle lanes along existing facility gaps between SW Crestdale Dr to SW 87th Ave	Construct protected bicycle lanes along existing facility gap between SW Crestdale Dr to SW 87th Ave		
			Upgrade eastbound right-turn channelization at SW Canyon Road/SW 87th Avenue intersection to raised concrete refuge island			
			Construct buffered bicycle lanes between OR26 to SW Crestdale Dr	Upgrade existing bicycle lanes to protected bicycle lanes between OR26 to SW Crestdale Dr		
			Provide parallel route wayfinding			

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
			Construct missing sidewalk gap on both sides of the corridor between SW Canyon Dr and SW Crestdale Dr			
			Conduct feasibility study to evaluate enhanced pedestrian crossing at west leg of SW Canyon Road/SW 87th Avenue intersection	If warranted, constructed enhanced pedestrian crossing at west leg of SW Canyon Road/SW 87th Ave intersection		
			Construct bicycle lanes along existing facility gaps between SW Crestdale Dr to SW 87th Ave	Construct protected bicycle lanes along existing facility gap between SW Crestdale Dr to SW 87th Ave		
			Upgrade eastbound right-turn channelization at SW Canyon Road/SW 87th Avenue intersection to raised concrete refuge island			
			Construct buffered bicycle lanes between OR26 to SW Crestdale Dr	Upgrade existing bicycle lanes to protected bicycle lanes between OR26 to SW Crestdale Dr		
SW Canyon Road - West of OR217 (OR8)	SW Hocken Ave to OR217	**128**	Conduct feasibility study to evaluate enhanced crossing at SW Rose Biggi Ave	If warranted, construct enhanced pedestrian crossing at SW Rose Biggi Ave	High	
			Conduct feasibility study to evaluate enhanced crossing at SW East Ave	If warranted, constructed enhanced pedestrian crossing at SW East Ave		
			Construct missing sidewalk gap on south side of corridor between SW Hocken Ave and SW Cedar Hills Blvd			
			Construct bicycle lanes along existing facility gaps between SW Lombard Ave to SW Hocken Ave	Construct protected bicycle lanes between SW Lombard Ave to SW Hocken Ave		
			Construct buffered bicycle lanes between OR217 to SW Lombard Ave	Upgrade existing bicycle lanes to protected bicycle lanes between OR217 to SW Lombard Ave		
				Provide multi-use path along north side of railroad between SW Hocken Ave and SW Cedar Hills Blvd		

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
			Restripe north and south legs of SW Canyon Road at Hocken Ave intersection to introduce bicycle lanes	Construct protected intersection at Hocken Avenue/SW Canyon Road		
SW Cedar Hills (OR26)	US 26 On-Ramp to SW Butner Rd	**135**	Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	
				Widen overcrossing structure to construct sidewalk facilities on both sides of structure		
SW Denney Road (OR217)	Utility Access Road to SW 105th Ave	**132**	Restripe travel lanes to accommodate bicycle lanes on both sides of overcrossing. Add paint to sidewalk to separate bicyclists and pedestrians using the sidewalk as the trail connection.	Widen overcrossing structure to construct protected bicycle lanes on both sides of overcrossing structure	Medium	
				Widen overcrossing structure to construct missing sidewalk gap on south side of overcrossing structure		
SW Hall Boulevard (OR217)	SW Cascade Ave to SW Oleson Rd	**131**	Conduct feasibility study to evaluate enhanced pedestrian crossing approximately 100' east of overcrossing structure	If warranted, construct enhanced pedestrian crossing approximately 100' east of overcrossing structure	Low	
			Restripe travel lanes to accommodate bicycle lanes on both sides overcrossing structure	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure		
				Widen overcrossing structure to construct sidewalk facility on north side of structure		
SW Murray Boulevard (OR26)	NW Glenridge Dr to NW Mill Creek Dr		Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	
SW Murray Boulevard (OR26)	NW Glenridge Dr to NW Mill Creek Dr	**141**	Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing		Low	
SW Scholls Ferry Road (OR217)	SW Cascade Ave to OR141	**130**	Provide parallel route wayfinding		Medium	

Table 8 - Sidewalk and Bicycle Lane Projects - All Owners

Corridors	Extents	ID	Treatment or Interim Treatment	Preferred Treatment	Project Need/ Evaluation Score	Cost Estimate
				Upgrade existing bicycle lanes to protected bicycle lanes across SW Scholls Ferry overcrossing structure		
				Widen overcrossing structure to accommodate sidewalk facilities on both sides of structure		
SW Skyline Boulevard (OR26)	SW Montgomery St to SW Hewett Blvd		Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	
SW Skyline Boulevard (OR26)	SW Montgomery St to SW Hewett Blvd	**139**	Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	
SW Tualatin-Valley Highway (OR8)	SW 170th to SW Hocken Ave	**129**	Improve accessibility to transit stop at SW 153rd Dr		High	
			Construct missing sidewalk gap on north side of corridor between SW160th Ave SW 153rd Dr			
			Construct missing sidewalk gap on south side of corridor between SW 170th Ave to SW Hocken Ave			
			Improve accessibility to transit stop at SW 153rd Dr			
			Conduct feasibility study to evaluate enhanced pedestrian crossing at SW 141st Ave	If warranted, construct enhanced pedestrian crossing at SW 141st Ave		
			Construct buffered bicycle lanes in both directions	Upgrade existing bicycle lanes to protected bicycle lanes		
SW Walker Road (OR217)	SW Roxbury Ave to northbound on-ramp	134	Restripe travel lanes to accommodate buffered bicycle lanes on both sides of overcrossing	Widen overcrossing structure to construct protected bicycle lanes on both sides of structure	Low	

For the health of our community, these grounds are tobacco free.
Por la salud de nuestra comunidad, se prohibe usar tabaco.
I Love Bend, OR

Table 9 - Crossing Improvements - All Owners

KEY

City of Beaverton
Washington County
ODOT

Cross Street 1	Cross Street 2	ID	Project Need/ Evaluation Score	Existing Signal	Cost Estimate
City of Beaverton					
NW 118Th Ave	NW Timberview Ln	CR-67	Low	No	$46,250
NW 118Th Ave	NW Cedar Falls Dr	CR-68	Low	No	$46,250
SW 105Th Ave	SW Denney Rd	CR-100	Low	No	$250,000
SW 114Th Ave	SW Mcbride Pl	CR-49	Medium	No	$35,000
SW 125Th Ave	Near Colt Ct	CR-102	Medium	No	$35,000
SW 160Th Ave	Near SW 124Th Ave	CR-30	Low	No	$35,000
SW 5th St	Near SW Mallard	CR-130	Medium	Yes	$3,000
SW Allen Blvd	Near SW Sandhill Loop	CR-1	Medium	Yes	$3,000-$50,000
SW Allen Blvd	Near 111Th St	CR-2	High	Yes	$3,000-$50,000
SW Allen Blvd	Near SW Ridgecrest Dr	CR-3	Medium	Yes	$3,000-$50,000
SW Allen Blvd	North of railroad tracks	CR-46	High	No	$250,000
SW Allen Blvd	New trail connection at SW Millikan Way and Beaverton Transit Center	CR-76	Medium	No	$250,000
SW Allen Blvd	Near SW 154Th Terrace	CR-77	Medium	No	$250,000
SW Allen Blvd	Near SW Rose Biggi Ave	CR-78	Medium	No	$250,000
SW Allen Blvd	Near SW Hocken Ave	CR-80	Medium	No	$250,000
SW Allen Blvd	Schottky Trail	CR-124	Low	No	$250,000

Table 9 - Crossing Improvements - All Owners

Cross Street 1	Cross Street 2	ID	Project Need/ Evaluation Score	Existing Signal	Cost Estimate
SW Barrows Rd	Near SW 161St Ave	CR-32	Low	No	$46,250
SW Barrows Rd	Near SW 160Th Ave	CR-33	Low	No	$46,250
SW Barrows Rd	Near SW 160Th Ave	CR-73	Low	No	$46,250
SW Beard Rd	Near SW 160Th Ave	CR-43	High	No	#N/A
SW Beard Rd	Near SW Hall Blvd	CR-129	Medium	No	$35,000
SW Beaverton Hillsdale Hwy	Near SW 160Th Ave	CR-15	High	Yes	$3,000-$50,000
SW Beaverton Hillsdale Hwy/SW Farmington Rd	Access point to Homegoods shopping center	CR-4	High	Yes	$3,000-$50,000
SW Broadway St	End of east side of bridge, near shopping center access point	CR-55	Medium	No	$46,250
SW Broadway St	SW Millikan Way	CR-61	Medium	No	$35,000
SW Brockman St	Westside Trail	CR-131	Medium	Yes	$15,000
SW Canyon Rd	Entrances to Safeway and Road International Gourmet shopping centers	CR-50	Medium	Yes	$35,000
SW Canyon Rd	Westside Trail	CR-51	Medium	Yes	$35,000
SW Cedar Hills Blvd	SW Fairfield St	CR-8	Medium	Yes	$3,000-$50,000
SW Cedar Hills Blvd	SW Hall Blvd	CR-9	Medium	Yes	$3,000-$50,000
SW Denney Rd	Near 111Th St	CR-101	Medium	No	$250,000
SW Farmington Rd	Near SW Ridgecrest Dr	CR-10	Medium	Yes	$3,000-$50,000
SW Farmington Rd	North of railroad tracks	CR-11	Medium	Yes	$3,000-$50,000
SW Farmington Rd	New trail connection at SW Millikan Way and Beaverton Transit Center	CR-53	Medium	No	$46,250
SW Farmington Rd	SW Main Ave	CR-54	Medium	No	$46,250
SW Galena Way	SW 160Th Ave	CR-26	Low	No	$35,000
SW Hall Blvd	SW Hart Dr	CR-6	Medium	Yes	$3,000-$50,000
SW Hall Blvd	SW Nimbus Ave	CR-7	High	Yes	$3,000-$50,000

Table 9 - Crossing Improvements - All Owners

Cross Street 1	Cross Street 2	ID	Project Need/ Evaluation Score	Existing Signal	Cost Estimate
SW Hall Blvd	SW Green Ln/ SW Cresmoor Dr	CR-47	Medium	No	$250,000
SW Hall Blvd	Near SW Ridgecrest Dr	CR-48	Medium	No	$250,000
SW Hall Blvd	SW Stratus St	CR-79	Medium	No	$250,000
SW Hall Blvd	SW 22nd St	CR-85	Medium	No	$250,000
SW Hall Blvd	SW 9th St	CR-128	Medium	No	$35,000
SW Hart Rd	SW 155Th Ave	CR-13	High	Yes	$3,000-$50,000
SW Hart Rd	SW Sorrento Rd	CR-38	Low	No	$35,000
SW Hart Rd	SW Sorrento Rd	CR-39	Low	No	$35,000
SW Hart Rd	SW Sorrento Rd	CR-40	Low	No	$35,000
SW Hart Rd	SW Sorrento Rd	CR-41	Low	No	$35,000
SW Hart Rd	SW Sorrento Rd	CR-42	Low	No	$35,000
SW Hart Rd	SW 149 Th Ave	CR-92	Medium	No	$46,250
SW Hocken Ave	SW Hall Blvd	CR-83	Medium	No	$250,000
SW Hocken Ave	SW Dawson Way	CR-99	Medium	No	$250,000
SW Horizon Blvd	SW Millard Dr	CR-74	Low	No	$35,000
SW Horizon Blvd	SW Junco Way	CR-75	Low	No	$35,000
SW Laurelwood Ave	SW Laurel St	CR-82	Medium	No	$35,000
SW Laurelwood Ave	SW Homewood St	CR-114	High	No	$35,000
SW Lombard Ave	SW Broadway	CR-5	Medium	Yes	$3,000-$50,000
SW Lombard Ave	SW 2Nd St	CR-52	Medium	No	$35,000
SW Lombard Ave	SW 12Th St	CR-109	Medium	No	$35,000
SW Lombard Ave	SW 9Th St	CR-110	Medium	No	$35,000
SW Lombard Ave	SW Iron Horse Ln	CR-113	High	No	$35,000

Table 9 - Crossing Improvements - All Owners

Cross Street 1	Cross Street 2	ID	Project Need/ Evaluation Score	Existing Signal	Cost Estimate
SW Lombard Ave	North of railroad tracks	CR-116	Medium	No	$46,250
SW Lombard Ave	New trail connection at SW Millikan Way and Beaverton Transit Center	CR-117	Medium	No	$46,250
SW Millikan Way	Near SW 154Th Terrace	CR-31	Low	No	$46,250
SW Millikan Way	SW Hall Blvd	CR-58	Medium	No	$35,000
SW Millikan Way	SW Rose Biggi Ave	CR-59	Medium	No	$35,000
SW Millikan Way	Near SW Rose Biggi Ave	CR-60	Medium	No	$46,250
SW Millikan Way	Near SW Hocken Ave	CR-62	Medium	Yes	$35,000
SW Millikan Way	Schottky Trail	CR-63	Medium	No	$35,000
SW Murray Blvd	SW Millikan Way	CR-12	High	Yes	$3,000-$50,000
SW Nora Rd	Near SW 161St Ave	CR-27	Low	No	$35,000
SW Rigert Rd	Near SW 160Th Ave	CR-28	Medium	No	$35,000
SW Rigert Rd	Near SW 160Th Ave	CR-29	Low	No	$35,000
SW Scholls Ferry Rd	SW 92Nd Ave	CR-125	Low	Yes	$250,000
SW Scholls Ferry Rd	SW 125Th Ave	CR-90	Medium	Yes	$35,000
SW Watson Avenue	SW 9Th St	CR-127	Medium	No	$35,000
SW Weir Rd	Near SW 160Th Ave	CR-44	Low	No	$35,000
SW Westgate Dr	Near SW Hall Blvd	CR-118	Medium	Yes	$35,000
SW Westgate Dr	SW Cedar Hills Blvd	CR-119	Medium	No*	$250,000
Trail connection 200 feet north of SW Walker Rd	167Th Ave	CR-87	Medium	No	$35,000
W Baseline Rd	Near SW 160Th Ave	CR-66	Medium	No	$35,000
Washington County					
NW Barnes Rd	NW Lost Springs Terrace	CR-69	Low	No	$250,000
NW Cornell Rd	NW 169th Pl	CR-70	Medium	No	$250,000

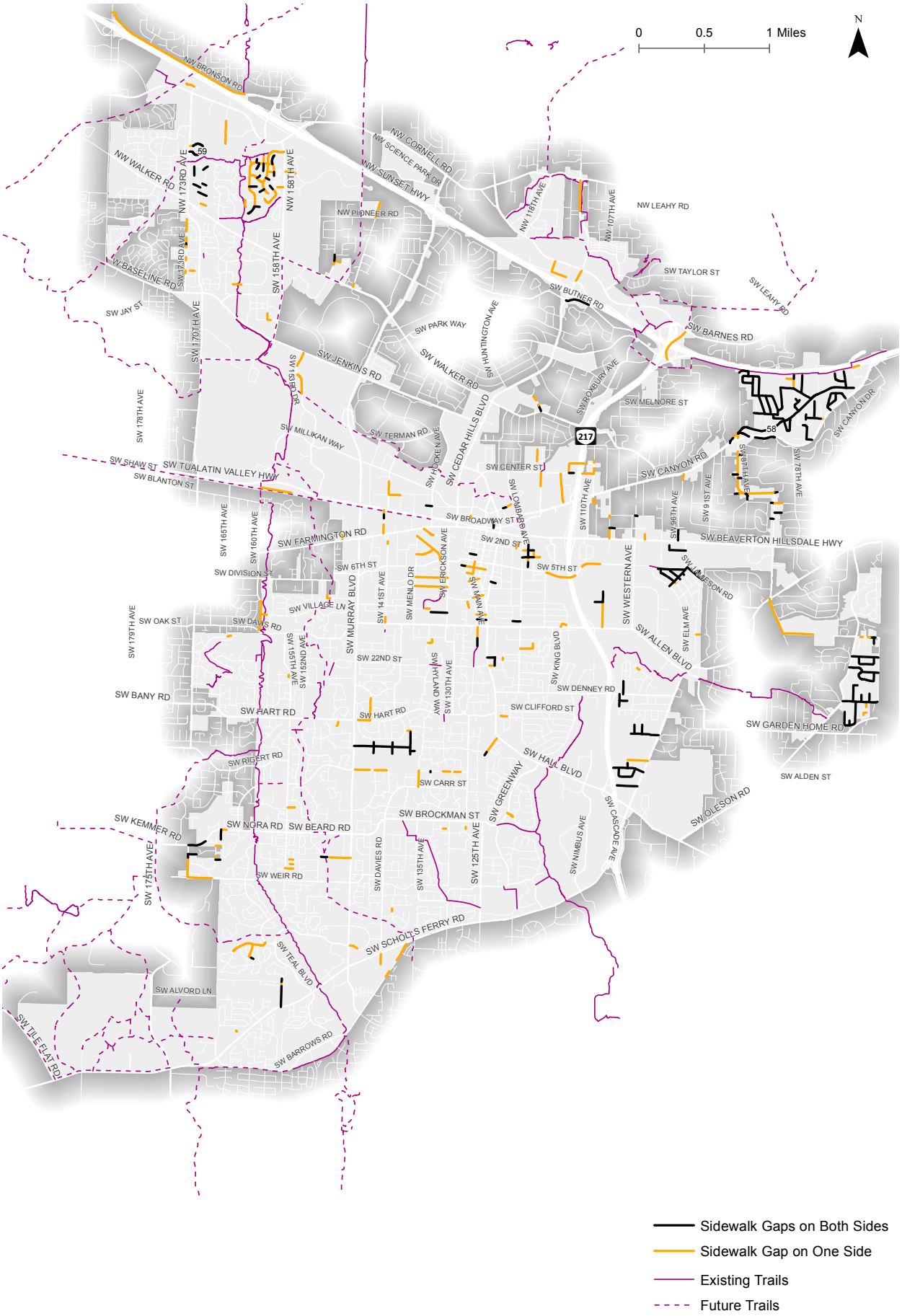
Table 9 - Crossing Improvements - All Owners

Cross Street 1	Cross Street 2	ID	Project Need/ Evaluation Score	Existing Signal	Cost Estimate
NW Cornell Rd	NW Twin Oaks Dr	CR-71	Medium	No	$250,000
NW Heritage Pkwy	NW 185th Ave	CR-35	Medium	Yes	$3,000-$50,000
NW Walker Rd	NW 178th Ave	CR-86	Medium	No	$250,000
NW Walker Rd	NW 167Th Ave	CR-88	Medium	No	$250,000
SW 158th Ave	SW Jenkins Rd	CR-23	High	Yes	$3,000-$50,000
SW 170th Ave	SW Nyssen St	CR-120	Medium	No	$35,000
SW 170th Ave	SW Vendla Park Ln	CR-121	Medium	No	$35,000
SW 170th Ave	SW Augusta Ln	CR-122	Medium	No	$35,000
SW 170th Ave	SW Johnson St	CR-123	Medium	No	$35,000
SW Butner Rd	SW Huntington Ave	CR-105	Medium	No	$35,000
SW Cedar Hills Blvd	SW Berkshire St	CR-89	Low	No	$250,000
SW Cedar Hills Blvd	SW Huntington Ave	CR-96	Medium	No	$250,000
SW Farmington Rd	Westside Trail	CR-91	Medium	No	$250,000
SW Jenkins Rd	SW Ecole Ave	CR-107	Medium	No	$46,250
SW Marty Ln	SW 170th Ave	CR-65	Low	No	$46,250
SW Merlo Rd	SW 170th Ave	CR-34	Medium	Yes	$46,250
SW Merlo Rd	SW Merlo Dr	CR-64	Medium	No	$46,250
SW Murray Blvd	SW Spaniel Ct	CR-72	Medium	No	$250,000
SW Murray Blvd	Entrances to Safeway and Road International Gourmet shopping centers	CR-81	Medium	No	$250,000
SW Murray Blvd	SW 22nd St	CR-84	Medium	No	$250,000
SW Scholls Ferry Rd	SW Davies Rd	CR-14	Low	Yes	$3,000-$50,000
SW Scholls Ferry Rd	Westside Trail	CR-45	Low	No	$250,000
SW Scholls Ferry Rd	SW Fanno Creek Trail	CR-106	Medium	No	$250,000

Table 9 - Crossing Improvements - All Owners

Cross Street 1	Cross Street 2	ID	Project Need/ Evaluation Score	Existing Signal	Cost Estimate
SW Scholls Ferry Rd	SW Old Scholls Ferry Road	CR-126	High	No	$250,000
SW Walker Rd	SW 158Th Ave	CR-24	High	Yes	$3,000-$50,000
SW Walker Rd	SW Westfield Ave	CR-103	Medium	No	$35,000
SW Walker Rd	SW Beechwood Ave	CR-104	Medium	No	$35,000
SW Walker Rd	SW 123rd Ave	CR-112	High	No	$46,250
Oregon Department of Transportation					
NW Sunset Hwy (US 26)	NW 3rd Ave	CR-93	Medium	No	$1,000,000-$5,000,000
SW Canyon Rd	SW 117th Ave	CR-16	High	Yes	$3,000-$50,000
SW Canyon Rd	SW Lombard Ave	CR-17	Medium	Yes	$3,000-$50,000
SW Canyon Rd	SW Watson Ave	CR-18	High	Yes	$3,000-$50,000
SW Canyon Rd	SW Cedar Hills Blvd	CR-19	Medium	Yes	$3,000-$50,000
SW Canyon Rd	SW 103rd Ave	CR-25	High	Yes	$3,000-$50,000
SW Canyon Rd	SW Rose Biggi Ave	CR-56	Medium	No	$250,000
SW Canyon Rd	SW East Ave	CR-57	Medium	No	$250,000
SW Canyon Rd	Access point to Homegoods shopping center	CR-115	Medium	No	$250,000
SW Cedar Hills Blvd	SW Butner Rd	CR-22	High	Yes	$3,000-$50,000
SW Hall Blvd	End of east side of bridge, near shopping center access point	CR-111	Medium	No	$250,000
SW Murray Blvd	SW Tualatin Valley Hwy	CR-20	High	Yes	$3,000-$50,000
SW Murray Blvd	SW Mill Creek Dr	CR-95	Low	No	$250,000
SW Scholls Ferry Rd	SW Cascade Ave	CR-36	Medium	Yes	$3,000-$50,000
SW Tualatin Valley Hwy	SW Millikan Way	CR-21	High	Yes	$3,000-$50,000
SW Tualatin Valley Hwy	SW 142nd Ave	CR-97	High	No	$250,000
SW Tualatin Valley Hwy	SW 141st Ave	CR-98	Medium	No	$250,000

Figure 16 - Sidewalk Infill Projects on Local Routes



Summary of Project Costs

The preferred projects included in this plan represent a large investment in active transportation, and these investments are needed in order to move towards the vision and goals in this plan. Table 10 summarizes the overall costs of the projects in the plan that are on City of Beaverton-owned streets. The cost estimates are planning-level only and will require refinement in the project development phase for each project.

Table 10 - Project Cost Summary

Project Type	Costs to Complete Full Plan	Cost to Complete 'High Needs'
Sidewalks and bicycle facilities on regional routes	$83,200,000	$25,200,000
Neighborhood bikeway routes	$210,000	$118,000
Crossing Projects	$14,900,000	$506,000
Sidewalk infill on local routes	$19,600,000	-
TOTAL COST OF PLANNED PROJECTS	**$117,910,000**	**$25,824,000**

IMPLEMENTATION

Implementing The Active Transportation Plan

This Active Transportation Plan includes the envisioned bicycle and pedestrian networks, the design approach and solutions that are most likely to lead to the desired results, and identifies specific projects that, when implemented, will result in complete networks for walking and biking. However, implementation of the plan must be phased, and the timing will ultimately depend on the funding and staff resources that are allocated towards implementation. This section provides a road map for implementing the plan, including the following categories of actions, discussed further in this section. Table 11 shows an initial set of specific actions.

1. Amend and set policies in Transportation System Plan.
2. Set targets and timeline for performance measures for walking and bicycling.
3. Amend the Engineering Design Manual (EDM) and Development Code and ensure consistency among the TSP, ATP, EDM, and Development Code.
4. Design the envisioned system in alignment with City policies.
5. Fund and construct the system over time.
6. Work with local and regional partners to further plan implementation.
7. Implement and continue programming in support of walking and bicycling.

1. Amend And Set Policies In the Transportation System Plan

The current transportation system plan was adopted in 2010, and includes myriad policies and actions related to active transportation. This Active Transportation Plan sets the direction for the design and implementation of the City's networks over time and provides suggested edits and additions to the City's policies. However, to ensure City staff, leadership, residents, and businesses all understand how to best direct resources towards achieving Beaverton's community vision, the TSP goals and policies should be comprehensively reviewed, discussed through a public process, and simplified to provide better and clearer direction on the City's desired path.

Policy Revisions

The current Transportation System Plan (TSP) sets guidelines for the transportation systems in Beaverton from 2010 - 2035. The Active Transportation Plan is in alignment with existing TSP goals and policies. The TSP goals and policies related to active transportation are shown below. Revisions will be adopted by ordinance to ensure progress on completion of active transportation plan goals. These changes are shown in strike-through and underlined text.

TSP Goal 6.2.1 Transportation facilities designed and constructed in a manner to enhance Beaverton's livability and meet federal, state, regional, and local requirements.

Table 11 - Implementation Actions Matrix

Category / Action		Description	Lead	Collaborators	Timeline	Status
1.	Update Transportation System Plan (TSP)	As part of a future TSP update, adopt land use actions in this plan by ordinance and update policies in TSP	Beaverton – Community Development	Public Works – Transportation Engineering	Near-term (0-3 years)	2018 start
2.	Set Targets for Active Transportation	Develop baselines and targets for the performance measures (table 11) included to track progress on active transportation	Beaverton – Community Development	Public Works – Transportation Engineering	Near-term (0-3 years)	2018 start
3.	Amend Engineering Design Manual (EDM)	Adopt an updated EDM that reflects a performance-based design approach that allows for design flexibility and emphasizes the need to prioritize convenience and comfort of pedestrian and bicycle travel	Beaverton – Public Works	Beaverton Community Development – Transportation Planning Division	Near-term (0-3 years)	Initiated
4.	Outreach/ education to City Staff and Consultants	Educate city staff and consultants working in Beaverton on the design approach, locations where active transportation should be prioritized and, design elements in the active transportation plan, as the plan is adopted and other documents are updated.	Beaverton – Community Development	Public Works – Transportation Engineering, Mayor's Office	Near-term (0-3 years)	Initiated
5.	Allocate Funding to Active Transportation	Develop new funding sources or reallocation of existing funding sources to be able to fund and implement Active Transportation projects.	Beaverton Community Development – Transportation Planning Division	Finance, City Council, Mayor's Office	Ongoing	Council Discussion on Transportation Funding - 2018
	Construct Neighborhood Bikeway Network	Allocating money from the City's paving and maintenance spending, construct the neighborhood bikeway network as shown in the plan.	Public Works – Transportation Engineering/ Operations	Beaverton Community Development – Transportation Planning Division	Near-term (0-3 years)	Initiated
	Construct Other Priority Projects	Drawing on the "top 10" lists of needs for bicycle, pedestrian, and crossings, incorporate priority projects into the City's Capital Improvement Plan for construction	Public Works, Transportation Planning Division		Medium-term	To Begin in 2018
6.	Pursue Grant Funding	Pursue grant funding through various opportunities (table 13) for key projects that are included in the prospectus sheets; in some cases, partner with other local agencies in pursuit of grants.	Transportation Planning Division	Partner Agencies	Ongoing	Opportunity Driven
	Collaborate with Other Local Agencies on Policies, Standards, and Projects	Encourage design flexibility and consideration of changes to design standards related to lighting, lane widths, bicycle facilities, intersection design, and modal priority. Work jointly on project development where possible.	Transportation Planning Division	Public Works – Transportation Engineering	Ongoing	Initiated
7.	Programming	Continue to support existing programming and explore opportunities for additional programming in support of active transportation	Transportation Planning Division	Public Works, Finance	Ongoing	Initiated

- Provide convenient, direct pedestrian and bicycle facilities to promote the health and physical well-being of Beaverton residents, to reduce traffic congestion, to provide commuting and recreational alternatives to the motor vehicle, and to support local commerce.

TSP Goal 6.2.2: "A balanced multimodal transportation system that provides mobility and accessibility for users of all ages and abilities."

The following are relevant TSP policies highlighted to support this goal:

- Develop and provide a safe, complete, attractive, efficient, and accessible system of pedestrian ways and bicycle ways, including bicycle lanes, cycletracks, bicycle boulevards, shared roadways, multi-use paths, and sidewalks according to the pedestrian and bicycle system maps and the Development Code and Engineering Design Manual requirements.
- Design sidewalks and the pedestrian access systems to City standards to enhance walkability: complete the accessible pedestrian network giving highest priority to filling sidewalk gaps, provide safe direct access to transit and activity centers, while providing safe crossings at intersections with pedestrian friendly design
- Provide connectivity to each area of the City for convenient multi-modal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, commercial, employment, and recreational areas, destinations in station areas, regional and town centers by identifying and developing improvements that address connectivity needs
- Develop neighborhood and local connections to provide convenient circulation into and out of neighborhoods. Work to prevent and eliminate pedestrian "cul-de-sacs" that require substantial out-of-direction travel for pedestrians
- ~~Identify specific areas within the City where~~ In pedestrian and bicycle districts, pedestrian needs and the pedestrian experience should be given highest priority in the design of streets, parking, intersections, connectivity, signal controls, and other transportation facilities. Bicycle needs should also be prioritized in these districts.

Actions:

- Provide safe and convenient crossings of all intersection legs.
- Seek to provide short signal cycle lengths to reduce delays for pedestrians.
- Manage vehicle speeds

TSP Goal 6.2.3: "A safe transportation system."

The following are relevant TSP policies highlighted to support this goal:

- Designate safe walkway and bikeway routes from residential areas to schools, parks, transit, and other activity centers.
- Construct multi-use paths ~~only where they can be developed~~ with satisfactory design components that address safety, security, maintainability, and acceptable uses. Multi-use paths should be constructed with ~~converge at traffic-controlled intersections to provide for~~ safe crossings, with appropriate traffic control to facilitate multi-use path movement ~~although they should be separate and distant from major streets for most of their length~~.

Where right-of-way is constrained and prevents near-term construction of the envisioned bicycle and pedestrian facilities, continue to obtain the right-of-way needed for the preferred facilities over time.

TSP Goal 6.2.4: "An efficient transportation system that reduces the percentage of trips by single occupant vehicles reduces the number and length of trips, limits congestion, and improves air quality."

The following are relevant TSP policies and related actions highlighted to support this goal:

- Develop an energy efficient transportation system."

Action:

  - "Provide more multi-modal access through improved transit, bicycle, and pedestrian facilities and access."

LOURAINE
Business
Assistance
Center

- "Support and implement trip reduction strategies developed regionally, including employment, tourist, and recreational trip reduction programs."

Action:

  - "[Continue to] implement the master improvement plans for bicycles, transit, pedestrians, and motor vehicles to implement a convenient multimodal transportation system that encourages increased bicycle, pedestrian, and transit use."

- "Limit the provision of parking to meet regional and State standards." Action:
  - "Update and continue to implement the motor vehicle and bicycle parking ratios in new development."
- Allocate funding to prioritize completion of networks serving non-single occupant vehicle modes to achieve mode splits consistent with Metro's Regional Transportation Plan.

Goal 6.2.5 "Adopt a flexible, performance-based design[1] approach that allows for efficient completion of multimodal networks."

- Consider key functions of each transportation corridor and determine which design elements are flexible.
- Prioritize designing for pedestrian and bicycle travel with special emphasis in the pedestrian and bicycle districts.
- Design pedestrian and bicycle facilities to safely serve users of all ages and abilities, including people with disabilities.
- Set and manage vehicle speeds for safety and ensure alignment with the desired multimodal function of the transportation corridor.
- Seek opportunities to design and implement low-cost, near-term solutions to expand and connect bicycle and pedestrian networks that do not require street reconstruction.
- Ensure the Engineering Design Manual reflects a performance-based design approach that allows for design flexibility and emphasizes the need to prioritize convenience and comfort of pedestrian and bicycle travel.

2. Set Targets and Timeline For Performance Measures For Walking and Bicycling

Inclusion and tracking of performance measures will allow the City of Beaverton to track progress in implementing this Active Transportation Plan, ultimately contributing to achieving the goals and vision of the plan. In addition to tracking and seeking to achieve mode share targets included in Metro's Regional Transportation Plan, Beaverton will set targets for the measures shown in Table 12. The measures were selected to provide a broad assessment of how the City of Beaverton is progressing in the implementation of the Active Transportation Plan. While numerous other measures were considered and could be included, Table 12 represents a shorter list of measures for which data is available and that can be measured fairly easily given available analysis tools.

Regional Modal Targets

2040 Design Type	Non-drive alone modal target
Portland central city	**60-70%**
Regional centers Town centers Main streets Station communities Corridors Passenger intermodal facilities	**45-55%**
Industrial areas Freight intermodal facilities Employment areas Inner neighborhoods Outer neighborhoods	**40-45%**

[1] Performance-Based Design is a design approach that starts with defining the desired functions and outcomes of the project. Practitioners then have the flexibility to select the design elements to support achieving those functions and outcomes. Performance-based design emphasizes designing for and measuring performance rather than a traditional approach of designing based on uniform standards.

Table 12 - Performance Measures

Category	Performance Measure	Baseline	Target
Pedestrian Network Connectivity and Completeness	Miles of sidewalks and trails constructed annually		
	Number of crossings improved annually		
	Percent completed of regional network		
	Percent of projects in pedestrian districts completed		
	Portion of transit stops with crossings and complete sidewalks		
Bicycle Network Connectivity and Completeness	Miles of neighborhood bikeways constructed annually		
	Miles of bicycle facilities constructed each year		
	Percent of regional bicycle network that meets the plan vision for a low-stress facility		
Funding	Dollars allocated to active transportation improvements		
	Grant funding secured for active transportation improvements		
	Investments in neighborhoods with high portions of transportation disadvantaged population		
Programs	Number of schools with active Safe Routes to Schools programs		
	Portion of students walking or biking to schools		
	Number of people/employers participating in Bike to Work month or the Bike More Challenge		
Outcomes	Walking commute mode share		27%
	Biking commute mode share		11.1%
	Number and severity of crashes involving bicyclists or pedestrians		
	Number of schools with low stress walking and biking connections to the neighborhoods they serve		

3. Amend the Engineering Design Manual and Development Code

The City of Beaverton's Development Code and the Engineering Design Manual (EDM) guide the day-to-day actions and decisions of City Staff. They provide the standards that govern development in the City of Beaverton. These documents should align with the goals and policies outlined in the City's Comprehensive Plan, Transportation System Plan, and Active Transportation Plan. Within the Development Code and the EDM, there are a number of areas related to the bicycle and pedestrian modes that require updating to be consistent with City, Metro, and ODOT plans and standards.

Amendment of this design guidance should be an early implementation step to ensure that projects moving forward can be designed to provide high quality, comfortable bicycle and pedestrian facilities (discussed further in the following section, Design the Envisioned System in Alignment with City Policies).

Connectivity

The EDM and Development Code sections 60.05.20 and 60.05.25 provide guidance on bicycle and pedestrian access points; however, the City of Beaverton needs to develop requirements for new developments to make connections to adjacent residential areas and transit stops, and to neighborhood activity centers within one-half mile of the development.

Active Transportation Facilities

The 2007 update of the EDM states that bicycle lanes should be one-way facilities and only allow bicycle travel in the direction of traffic. This standard may unnecessarily limit flexibility in designing

and implementing appropriate bicycle treatments, such as bi-directional protected bicycle lanes or contraflow bicycle lanes. These facilities are allowed by the FHWA and may be the best treatment for an area, especially near multi-use trail connections or for making bicycle connections on narrow streets, one-way streets, or constrained areas.

In addition, the 2007 EDM provides the following guidance on facility widths:

- A minimum five foot standard for bicycle lanes on arterials and collectors. This is inconsistent with ODOT's standard of six feet for bicycle lanes.
- A maximum width of six feet for bicycle lanes. This is limiting and not in line with current best practices that recommend wider, buffered bicycle lanes, especially on roads with higher traffic volumes or speeds.
- For shared-use paths, a 12-foot width for high-density, mixed uses, and areas with an expected high volume. This is not consistent with the recommendations set by the Metro Regional Active Transportation Plan which identifies a 14-foot width in this type of context.
- The EDM states that in many cases drivers will not have to change lanes to pass a bicyclist when there is a wide curb lane. This may be in conflict with the intent of ORS 811.065, Unsafe Passing of a Person Operating a Bicycle.
- While the EDM and Development Code offer standards for minimum widths of bicycle lanes and sidewalks,they do not include guidance on where and in what context designers should consider facilities above the minimum widths. Guidance on sidewalk widths should be amended in alignment with the sidewalk widths in this plan (see Table 1 on page 27).
- The EDM sets minimum lane widths for Collectors and Arterials requiring the outside lane to be a minimum of 12 feet, with inner lanes (on 5- to 7-lane arterials) set at an 11-foot minimum. This minimum standard is not consistent with national guidance from FHWA and AASHTO and should be amended to allow for lane widths ranging from 10 feet to 12 feet on arterial roads. Allowing for narrower lane widths, which have been shown to slow vehicle speeds without reducing capacity, and have also been shown to have a neutral or positive impact on safety performance in most contexts, will allow the City of Beaverton more flexibility in providing high-quality bicycle and pedestrian facilities within the existing right-of-way.

To address these issues, the following revisions will be included in an update of the EDM:

- **720.1 Width and Clearance** The minimum paved width for shared-use paths shall be ten (10) feet. In extenuating circumstances that are due to unique topographic or other constraints such as transitions to existing narrower paths, the City Engineer may approve path widths as narrow as eight (8) feet. A path width of ~~12 feet~~ 14 feet is desirable in areas with high density and mixed use and in areas where a high volume of path users is expected. A minimum 1-foot width clear area shall be maintained adjacent to both sides of the pavement; however, two (2) feet or more is desirable to provide clearance from trees, poles, walls, fences, guardrails, or other lateral obstructions.
- **730.1 Bicycle Lanes On-Street** ~~Bicycle lanes shall always be one-way facilities and carry traffic in the same direction as adjacent motor vehicle traffic. Wrong-way riding is a major cause of bicycle accidents and violates the Rules of the Road stated in the Uniform Vehicle Code. Bicycle lanes on one-way streets should be on the right side of the street, except in areas where a bicycle lane on the left would decrease the number of conflicts (e.g., those caused by heavy bus traffic).~~ The minimum width for bike lanes shall be ~~five (5) feet~~ six (6) feet, ~~and the maximum width shall be six (6) feet,~~ and on high volume or speed roads, buffered or protected bicycle lanes shall be considered whenever practicably possible. Reduction of motor vehicle lane widths to ten (10) feet shall be considered to accommodate for bicycle facilities, except in the outside

lane of transit or freight corridors where motor vehicle lane widths shall not be reduced narrower than eleven (11) feet. Where a longitudinal joint exists (such as the joint between street paving and gutter) within the bike lane, there shall be a minimum clear width of 3.5 feet between the joint and the edge of the bike lane.

- In the EDM Standard Drawings, minimum outer lane widths for Collectors and Arterials are specified to be 12 feet and inner lanes are set at a minimum of 11 feet. The minimum width shall be changed to ten feet to provide design flexibility, except in the outside lane of a transit or freight corridor where motor vehicle lane widths shall be a minimum of eleven feet.
- The EDM and the Development Code will be updated to provide guidance on how to implement protected bicycle lanes, buffered bicycle lanes, neighborhood bikeways, and other bicycle-specific intersection treatments.

Bicycle Parking

Design guidance for bicycle parking in the EDM will be modified to further clarify and align with best practices for installation, as follows:

- **740.2 Bicycle Parking Design**

A. A bicycle parking space shall measure at least 18 inches wide, so staple racks, which hold two bicycles, shall be installed at least 36 inches apart. Bicycle parking spaces shall also be a minimum of six (6) feet in length and shall have a vertical clearance of a minimum of seven (7) feet. A width of two (2) feet is encouraged.

B. The minimum distance between rows of bicycle parking spaces shall be five (5) feet.

C. Minimum clearance between a bicycle parking space and a wall or structure shall be two (2) feet.

D. ~~Bicycle parking spaces shall be separated from motor vehicle parking spaces by at least five (5) feet of clear space.~~ Bicycle parking spaces next to the curb shall be separated by at least two (2) feet, although a width of three (3) feet is encouraged.

E. Every bicycle parking space shall be accessible without moving another bicycle.

- The Development Code specifies the amount of bicycle parking that is required with development. The number of bicycle parking spac-

es should be reviewed and updated to align with current trends and mode share goals.

- Developments that are required to have bike parking facilities must demonstrate that such facilities will meet projected demand.

Crossings

The 2007 EDM standard drawings provide a standard design for crossings of local streets that requires bicycle and pedestrian users to divert from the shortest path through use of a metal barrier. This should be revised to make crossings for bicyclists and pedestrians easy and direct. Appropriate signage or signals will be included, per design guidance in the Active Transportation Plan, to make motorists aware of crossing bicyclists and pedestrians and increase motorist yielding behavior.

The RTFP directs jurisdictions to "provide safe, direct and logical pedestrian crossings at all transit stops where practicable." The EDM and Development Code will be updated to provide guidance on whether or how to identify locations where installing crossings is practicable. This guidance is particularly needed for crossings of collectors or arterials with transit service or long signal spacing.

Lighting

The EDM will be updated to indicate that trails identified as Major Bikeways, Enhanced Major Bikeways, Pedestrian Corridors, or Pedestrian Parkways should be considered transportation facilities and require lighting. Lighting design guidance should consider and minimize impacts on wildlife.

4. Design The Envisioned System in Alignment With City Policies

The City's Transportation System Plan policies provide direction to enhance and complete pedestrian and bicycle networks; increase the non-auto mode-share; and improve safety, comfort, and convenience for people walking and biking. Beaverton's approach to achieving these policy objectives is as follows:

Building safe and comfortable networks that can be used by all

Building a network that can be used by all requires continued focus on a long-term vision for safe and comfortable multimodal facilities. Further, all destinations should be safe and comfortably reachable on foot or by bicycle. In the long-term, this network will be constructed to serve users of all skill levels and abilities as envisioned by the plan improvements. However, achieving this vision will require incremental implementation steps. The following steps will help Beaverton focus on implementation of the

most feasible, high-impact projects first, while continuously working towards implementation of the ultimate vision. **Attachment J** includes prospectus sheets for ten of the City's key high-impact projects.

Bicycle Network

1. **Designate and build a low-stress neighborhood bikeway network based on existing low-traffic, low-speed streets.** These neighborhood bikeways are shown in the Bicycle Functional Classification Map (Figure 4), and design treatments are typically lower-cost and easier to implement. Implementation of these neighborhood bikeways and associated crossing treatments will provide parallel, low-stress routes to some of the existing higher-stress arterial routes, in the near term.
2. **Fill short gaps and address crossing barriers in this existing low-stress network to increase the utility of the neighborhood bikeways**. Focus on making the needed connections between different parts of the low-stress neighborhood bikeway network to maximize the connectivity of the bike network in the near-term.
3. **Construct low-stress bicycle facilities on designated Enhanced Major Bikeways and Major Bikeways that connect and expand the low-stress network and provide access to key destinations.** These projects will require more funding and, in some cases, right-of-way dedication. Where right-of-way is constrained, Beaverton will continue to obtain the right-of-way needed for the preferred facilities over time. Property redevelopment may make incremental improvements to roadway frontage that can be accommodated with available right-of-way, such as a standard bike lane in the near term, where a protected bike lane is envisioned as the preferred treatment. These routes typically have a "high" evaluation score.
4. **Construct bicycle facilities on Enhanced Major Bikeways and Major Bikeways that provide redundancy in the bicycle network.** These projects will require more funding and, in some cases, right-of-way dedication. Where right-of-way is constrained, Beaverton will continue to obtain the right-of-way needed for the preferred facilities over time. Property redevelopment may make incremental improvements to roadway frontage that can be accommodated with available right-of-way, such as a standard bike lane in the near term, where a protected bike lane is envisioned as the preferred treatment. These routes typically have a medium or low evaluation score.

Pedestrian Network

Building a safe, comfortable, and accessible walking network requires making all streets accessible with sidewalks and safe crossings, providing direct routes, addressing barriers[1], and developing a long-term vision for enhancing the pedestrian environment in walkable areas. Beaverton will focus implementation efforts on projects that provide the most benefits first, taking the following steps:

1. **Fill gaps in the sidewalk network and/or multi-use trail system; particularly around schools and transit stops.** These critical needs, when addressed, will help provide safe access to schools and transit. Gaps on the regional pedestrian network will be prioritized. These sidewalk gaps typically have a high evaluation score.
2. **Address crossing barriers** (limited access highways; arterial roads; natural features). Crossing barriers can inhibit pedestrian connectivity due to the long distances and time needed to bypass these barriers. Moreover, conflicts and crashes typically occur most frequently when pedestrians need to cross streets. Addressing these needs can significantly improve safety, comfort, and accessibility for pedestrians.
3. **Establish direct routes where out-of-direction travel is substantial, particularly on Pedestrian Parkways, Pedestrian Corridors, or in Pedestrian Districts** (see Pedestrian Functional Classification Map). Improvements that can improve route directness for pedestrians are likely to increase the attractiveness of walking for short trips.
4. **Fill other gaps in the sidewalk system.** The final step is to fill other gaps in the pedestrian system

1 A crossing spaced 300' from a desired location will add 2.5 minutes of additional walking time, assuming no signal delay at the crossing. This means that including signal delay, a few inconvenient crossings along a route can quickly add 10 minutes to someone's walk. When we evaluate intersections for vehicle traffic, we consider an intersection to function at the worst "level of service" (LOS F), when people driving are experiencing an average of 80 seconds or more of delay (1.33 minutes).

either on regional pedestrian routes or on local streets. Regional pedestrian routes, routes that connect significant origins and destinations, and local streets with high pedestrian activity will be prioritized over other local streets. In some cases with constraints, it may be appropriate to install a pedestrian path or sidewalk on only one side of the street.

5. Fund and Construct the System Over Time

The City of Beaverton's transportation network contains the single greatest amount of publicly owned shared space, accounting for approximately 20 percent, or 4 square miles of the City's total land area.

The transportation network includes roads, sidewalks, bicycle lanes, bridges, pedestrian street crossings, signs and traffic signals, lighting, landscaping, transit stops, and bicycle and vehicle parking. Combined, these elements serve residents of Beaverton and the Portland metro area for the purposes of recreation, work, education, shopping, and essential social and health services.

In 2016, the City of Beaverton completed an assessment of historical revenues and expenditures, projected funds from various sources, anticipated shortfalls, and funding options, in a report, "*Moving Beaverton Forward Part 1, a Report on Transportation Spending Trend and Options for the Future*."

A summary of the report's findings is described below, along with a comparison to funds needed to complete the high priority projects in this Active Transportation Plan and options for additional funding.

Historical Revenues and Expenditures

Revenue is income that the City receives from gas tax, franchise fees, grants, property tax, system development charges and other miscellaneous sources. Between 2005-2014, the City had approximately $82.7 million in total transportation revenues (source: Moving Beaverton Forward).

Figure 17 shows the combined ten-year contribution for each revenue source. The majority of transportation revenue comes from Oregon's gas tax (55 percent), followed by property tax and transportation system development charges, which collectively account for approximately 26 percent of total transportation revenue.

Expenditures represent the annual spending to maintain and construct the transportation network. The City has several primary recurring annual transportation expenditures including: street paving and maintenance, personnel, new construction, administrative overhead, and vehicles and equipment (Figure 18). Between 2005-2014 the City had approximately $70.9M in transportation expenditures.

Figure 17 - City of Beaverton Transportation Revenues

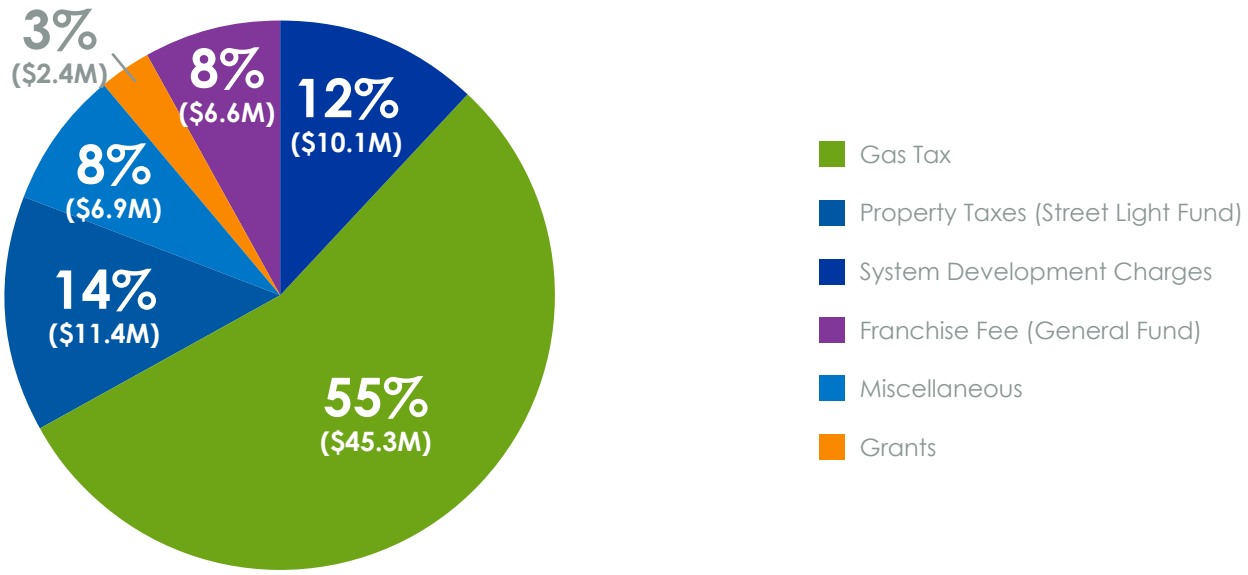
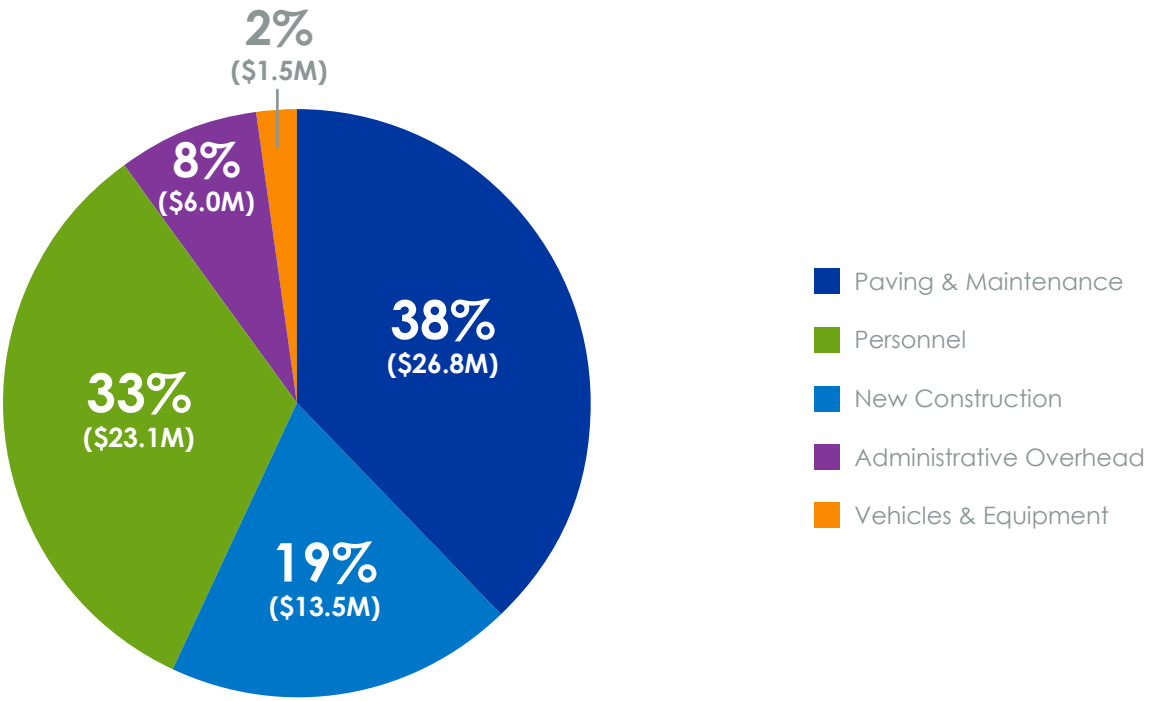


Figure 18 - City of Beaverton Transportation Expenditures



Overall, maintenance and operations (including street paving, personnel, administrative overhead, and vehicles and equipment) account for approximately 81 percent of the City's transportation expenditures, while 19 percent has been spent on new construction.

Of new construction spending since 2005, pedestrian (sidewalk) projects account for approximately 10 percent, or $2.1M, of total capital expenditure from 2005-2014, while motor vehicle capacity improvement projects account for approximately 90 percent, or $19.7M of total capital expenditure.

Washington County Major Streets Improvement Program

The Washington County Major Streets Improvement Program (MSTIP) is another separate funding source that benefits Beaverton. MSTIP is a county-wide mechanism for funding transportation projects on regional roads through county-wide property taxes. The Board of County Commissioners determines MSTIP funding amounts and projects on a five-year cycle. MSTIP projects are chosen by the Board, with funding distributed equally among four County Commissioner districts. The Washington County Coordinating Committee (WCCC), a group of elected officials from Washington County and cities within it, provides recommendations to the Board, and public input is requested during the project selection process. MSTIP projects are described separately from City revenues because: 1) The City does not have authority over the rate of taxation, 2) The City does not have discretion over expenditure, and 3) most improvement projects in Beaverton, although within Beaverton's city limits, have occurred on roads under the jurisdiction of Washington County.

The MSTIP 3D package (adopted in 2012) includes approximately $175M in improvements. Many projects are located on County roads, however both 170th/173rd and Lombard Road are projects that are located on Beaverton roads. These two projects have a combined cost of approximately $12.5M, while all nine projects have a total cost of approximately $76M. One bicycle project, identified as a high priority improvement in the TSP, was completed as part of the MSTIP-funded 170th/173rd street improvement project.

The current funding package, MSTIP 3E, was adopted in 2016. It includes $160 million for 23 road projects that will improve travel for bicyclists, pedestrians, motorists, and transit passengers. The

project list includes improvements to 170th Ave between Merlo Road and Alexander Street, Denney Road from Highway 217 to Scholls Ferry Road, Walker Road between 173rd Avenue and 185thAvenue Walker Road between Murray Boulevard and Highway 217, an extension of Millikan Way from Watson Avenue to Lombard Avenue, and a package of sidewalk gap infill projects on major arterials within the City of Beaverton.

Forecast Funding

Moving Beaverton Forward also estimates revenues and expenditures in the future. Overall, needed expenditures on maintenance and operations are forecast to be higher than anticipated when the 2010 Transportation System Plan was developed, while revenues are forecast to be lower. By 2024, expenditures are anticipated to exceed revenues, leaving no additional funds for capital project investments (other than MSTIP funding).

Active Transportation Funding

These figures provide a rough sense of funding spent on active transportation improvement projects from 2005-2014: $2.1 million in dedicated sidewalk improvement funding (approximately $200,000 annually), and no dedicated bicycle improvement funding outside of the MSTIP. Accounting for only dedicated sidewalk and bicycle project spending underestimates the total investment, since motor vehicle projects also often include improvements to bicycle facilities, sidewalks, and crossings.

Nevertheless, revenues are not increasing as quickly as expenditures, indicating a decreasing trend in funding that may be available for active transportation improvements, given the status quo. However with the passage of the 2017 Transportation Package, additional revenue will be distributed to the City of Beaverton. The City of Beaverton must choose to spend a significant portion of new dollars on active transportation needs make progress on this active transportation plan.

Active Transportation Costs

This active transportation plan envisions a highly connected, comfortable and safe network of facilities for walking and bicycling, beyond what has been previously planned in the City of Beaverton. The costs of implementing this network are estimated herein.

Sidewalks and Bike Facilities on Regional Routes

The most expensive investments in this plan are the sidewalk and bicycle facilities on the collector and arterial network. Most of these facilities are the key regional routes consistent with Metro's Regional Active Transportation Plan. The envisioned treatments, in totality, represent a cost of approximately $83 million (with $25 million evaluated as "high needs"), based on an order-of-magnitude cost estimate. This cost includes a network of protected bicycle lanes, envisioned to provide a comfortable experience to an average adult, along with wide, buffered sidewalks that provide room for enjoyable, safe, walking and transit-related enhancements.

To complete this network as envisioned within 20 years, Beaverton would need to dedicate $4.2 million annually to sidewalks and bicycle facilities on regional routes.

Crossings

This plan identifies 131 locations where crossing improvements are needed. These needs range from installation of new signals to striping of a crosswalk to including bicycle crossing markings. They do not include reconstruction of curb ramps that do not currently meet ADA guidelines. Beaverton has undertaken a process to construct ADA-compliant ramps through a separate effort. The total cost of the proposed crossing treatments is estimated at roughly $15 million (with $500,000 evaluated as "high needs"), based on an order-of-magnitude cost estimate.

To complete these crossings as envisioned within 20 years, Beaverton would need to dedicate $750,000 annually to crossings.

Neighborhood Bikeways

The neighborhood bikeway network includes approximately 40 miles of streets that currently have relatively low volumes and speeds of vehicle traffic. Constructing these neighborhood bikeways

consists primarily of wayfinding signage, striping, and some traffic calming treatments. The total cost of the neighborhood bikeway routes is estimated at roughly $210,000, based on an order-of-magnitude cost estimate.

Completing these bikeways within 5 years would require $42,000 annually.

Sidewalk Infill on Local Streets

Some areas in Beaverton were constructed without sidewalks on local streets, and many of these streets still lack sidewalks. Constructing sidewalks on all of these local streets would cost nearly $42 million, or approximately $2.1million annually to construct these sidewalks within 20 years.

Funding Plan: Steps Toward Constructing the System

In order to fund and construct the designed system (as described in step 4. above), Beaverton will pursue the following strategies:

Construct Neighborhood Bikeway Network

Neighborhood bikeways are relatively low cost and can be constructed as part of the City's operations and maintenance program over the next five years. The City of Beaverton spends nearly $4 million on paving and maintenance annually, and can dedicate approximately $42,000 annually to constructing the neighborhood bikeway network. Prior to initiating construction of this network, the City of Beaverton will conduct a focused planning and design effort to develop proposed signage types and striping for the network.

Construct Crossings and Utilize Improvement Opportunities

Crossings can also be constructed as part of the City's existing operations and maintenance programs. Of the total $15 million needed to complete needed crossings, approximately $500,000 is required to complete crossings that were evaluated as "high needs". These locations will be the focus of the next 3 to 5 years, and can be completed within 5 years for approximately $100,000 annually. The top priorities for crossings are shown in Table 13.

In addition, the City of Beaverton will regularly

Table 13 - Top Priority Crossing Needs

Related Project IDs	Functional Classification	Street 1	Street 2	Recommended Improvement
7	Arterial	SW Hall Boulevard	SW Nimbus Avenue	Signalized intersection improvements
46	Arterial	SW Allen Boulevard	SW 141st Avenue	Stripe crosswalk and make other intersection improvements
2	Arterial	SW Allen Boulevard	SW Lombard Avenue	Signalized intersection improvements
109	Neighborhood Route	SW 12th Street	SW Lombard Avenue	Need for new crossing
99	Collector	SW Dawson Way	SW Hocken Avenue	Crossing needed for southbound bicyclists turning left and pedestrians
124	Arterial	SW 92nd Avenue	SW Allen Boulevard	Need for new crossing
125	Arterial	SW 92nd Avenue	SW Scholls Ferry Road	Need for new crossing
92	Collector	SW Hart Road	SW 149th Avenue	Need for trail crossing
53, 54, 55	Arterial	SW Broadway Street, Railroad, SW Farmington Road	SW Main Avenue	Need crossing/connectivity improvement over Farmington Road, the Railroad tracks, and SW Broadway Street
117	Collector	SW Lombard Avenue	Trail connection at SW Millikan Way and Beaverton Transit Center	Add crossing to connect the planned trail from Millikan Way to Beaverton Transit Center
88, 86, 46, 53, 1, 110, 39, 85, 84, 100, 27, 43, 92, 87	Neighborhood Route	All neighborhood bikeway related crossings should be implemented as the neighborhood bikeways are added		Intersection improvements

review crossing needs in tandem with repaving schedules, and complete any striping needs in conjunction with regular repaving and maintenance.

Finally, as signals are maintained through regular maintenance, the City can seek opportunities to adjust signal timing to shorten cycle lengths or decrease pedestrian delay in pedestrian districts.

Construct Regional Routes Through CIP and Incrementally through Development

The regional walking and biking routes on arterials and collectors can be constructed as part of the Capital Improvement Program (CIP) that implements major capital projects each year. The City of Beaverton can review the needs evaluation for walking and biking to help select CIP projects that will address the highest needs. Tables 14 and 15 show the initial top priorities for walking and bicycling, respectively. While Tables 14 and 15 show top priorities by mode, the locations of these priorities may include treatments for both pedestrians and bicyclists, which can be identified using the corresponding project ID numbers.

In addition, as development and redevelopment occurs along regional routes, the envisioned facilities can be constructed. In the case of protected bike lanes, where piecemeal implementation is not desirable, properties can set aside space and contribute to a fund for future construction. Also, the City of Beaverton will require right-of-way dedication, if needed. In these cases, property redevelopment may make incremental improvements to roadway frontage that can be accommodated with available right-of-way, such as a standard bike lane in the near term, where a protected bike

Table 14 - Top Priorities for Pedestrian Treatments

Related Project IDs	Corridor	Functional Classification	Extent: From	Extent: To	Pedestrian Treatment
5	SW Millikan Way*	Collector	SW Murray Boulevard	SW Hocken Avenue	Infill sidewalk gaps
36	SW 155th Avenue*	Collector	SW Beard Road	SW Weir Road	Construct sidewalk on both sides of road
41	SW Laurelwood Avenue*	Neighborhood Route	SW Birchwood Road	SW Scholls Ferry Road	Construct sidewalk on both sides of road
47	SW Beaverdam Road and SW Millikan Way	Collector	SW Watson Avenue	SW Cedar Hills Boulevard	Treatment to be determined
49	SW 141st Avenue	Collector	SW Allen Boulevard	SW Farmington Road	Infill sidewalk gaps on both sides of road
61	Davies Road	Collector	SW Sorrento Road	SW 135th Avenue	Construct sidewalk on both sides of road
22	Allen Boulevard *	Arterial	SW 92nd Avenue	Fanno Creek Trail	Add multi-use trail connection on south side of Allen Boulevard (include crossing CR-124)
72	SW Dawson Way, Westgate Drive, Rose Biggi Avenue, Crescent Street*	Collector	SW Hall Boulevard	SW Hocken Avenue	Provide wayfinding, sharrows, sidewalks and crossings for Beaverton Creek Trail through the round
31	SW Greenway and SW Downing Street*	Collector	SW Hall Boulevard	SW Conestoga Drive	Construct sidewalks on both sides of road
48	Menlo Drive†	Neighborhood Route	SW Allen Boulevard	SW Fairmont Drive	Construct sidewalk on both sides of road
21	Western Avenue†	Arterial	SW Beaverton Hillsdale Highway	SW Allen Boulevard	Construct sidewalk or widen existing sidewalk on both sides of the road

* Proposed project for corridor also includes bicycle facilities.

† This project already has committed funding and is scheduled for implementation.

lane is envisioned as the preferred treatment.

Pursue Active Transportation Grant Funding

In addition to the CIP and through development, the City of Beaverton can pursue funding for the high priority projects through appropriate grant programs. Additional Safe Routes to School funding will be available through the state transportation bill passed in 2017, and this has the potential to contribute additional funds in Beaverton. Grant funding opportunities are included in Table 16.

Table 15 - Top Priorities for Bicycle Treatments

Related Project IDs	Corridor	Functional Classification	Extent: From	Extent: To	Bicycle Treatment
9, 10	SW Jenkins Road and SW Cedar Hills Boulevard*	Arterial	SW Cedar Hills Boulevard SW Walker Road	SW Edgemoor SW Jenkins Road	Restripe to add bicycle lanes or buffered bicycle lanes; preferred ultimate treatment is protected bicycle lanes. Near term priority is to fill bicycle facility gaps on SW Cedar Hills Blvd and SW Jenkins Road
12	Hall Boulevard*	Arterial	SW Farmington Road	Cedar Hills Boulevard	Construct or restripe to include bicycle lanes or buffered bicycle lanes
14	Watson Avenue*	Arterial	SW Farmington Road	Hall Boulevard	Construct or restripe to include bicycle lanes or buffered bicycle lanes
16	SW Broadway Street†	Collector	SW Cedar Hills Boulevard	SW Hocken Avenue	Create low stress connection between SW Hocken Avenue and area east of SW Cedar Hills Boulevard for bicyclists - construct bicycle lane or widen sidewalk for multi-use path connection
28	SW Lombard Avenue	Collector	100 feet south of SW 1st Street	100 feet north of SW Farmington Road	Construct or restripe to include bicycle lanes or buffered bicycle lanes; include improved intersection crossings for bicyclists at SW Allen Boulevard, SW Denney Road, SW 5th Street
1, 2	NW 170th and NW 173rd Avenue	Arterial	NW Cornell Road	W Baseline	Construct or restripe to include continuous bicycle lanes or buffered bicycle lanes; preferred ultimate treatment is protected bicycle lanes.
18	SW Hall Boulevard*	Arterial	250 feet north of 12th Street	500 feet south of Allen Boulevard	Widen, construct or restripe to provide bicycle lane or buffered bicycle lane; preferred ultimate treatment is protected bicycle lanes.
23, 21	SW Allen Boulevard and Western Avenue*†	Arterial	5th Street (on Western Avenue)	SW Murray Boulevard (on Allen Boulevard)	Add bicycle lanes or buffered bicycle lanes; preferred ultimate treatment is protected bicycle lanes.
25	SW Hart Road	Collector	SW Hall Boulevard	SW Hyland Way	Construct or restripe to include bicycle lanes or buffered bicycle lanes
26	SW Sorrento Road	Collector	SW Barberry Drive	SW Hart Road	Construct or restripe to include bicycle lanes or buffered bicycle lanes
27	SW Denney Road†	Collector	SW Scholls Ferry Road	SW Hall Boulevard	Construct or restripe to include bicycle lanes or buffered bicycle lanes
65, 66, 67, 68, 69	All neighborhood bikeways	Neighborhood Route	N/A	N/A	Adding sharrows, wayfinding/signage, and traffic calming as needed

* Overall corridor treatment also includes pedestrian facility improvements.

† Include ODOT in implementation process to seek to improve adjacent/adjoining ODOT facility.

Allocate More Existing Funding to Active Transportation

To complete the plan, the City of Beaverton needs to allocate a larger portion of existing funding to active transportation investments. Completing the regional routes evaluated as "high needs" requires $25 million in funding.

Pursue Additional Revenue Sources for Active Transportation

The City of Beaverton will pursue additional sources of funding that could go entirely or partially towards improvements in the pedestrian and bicycle systems. The City will consider funding sources, also described in Table 16, such as:

- Citywide SDC
- Street Maintenance / Utility Fee
- Pedestrian and Bike Fee
- Local Gas Tax

These sources are also discussed in Moving Beaverton Forward Part 1, and will be further discussed in Moving Beaverton Forward Part 2.

6. Work with Local and Regional Partners to Further Plan Implementation

Trails

City of Beaverton staff will work with Tualatin Hills Parks and Recreation District staff on trails implementation and design. Beaverton will also coordinate with ODOT on the Sunset Highway trail, and other potential ODOT-owned trail facilities.

- Work to address lighting standards on regional transportation corridors.
- Work to improve trail crossings of streets to allow for comfortable, safe, and convenient movement for trails users.
- Construct trails that serve users of all ages and abilities and meet ADA guidance.
- Look for opportunities to pursue grant funding in partnership

Speed Limits

Currently the Oregon Department of Transportation has authority to set speed limits on all streets. The City of Beaverton will work with Portland and

other Metro-area jurisdictions to gain more control over setting speed limits, leading to the ability to set and design for lower speeds.

On-Street Facilities

The City of Beaverton will work with ODOT and Washington County to implement desired facility types for walking and biking on streets within but not owned by Beaverton.

- Discuss and encourage flexibility in design standards to allow for performance-based design.
- Encourage consideration of narrower travel lanes, minimal shoulders/shy distance, and innovative bicycle facilities in the appropriate contexts.
- Collaborate in pursuing grant and federal funding

Regional Facilities

Work with ODOT, Washington County, City of Tigard, and the City of Portland to implement bicycle and pedestrian facilities in conjunction with those jurisdictions to provide better completeness and connectivity.

7. Implement and Continue Programming in Support of Walking and Bicycling

Creating a physical network of safe and comfortable facilities for walking and biking is a critical step towards improving and encouraging use of these modes. Programming to support and encourage walking and biking is also a key piece of this plan to help Beaverton reach the vision. The City of Beaverton will continue or consider initiation of the following programs during the implementation period of this Active Transportation Plan.

Safe Routes to Schools

The Beaverton School District already has a Safe Routes to Schools (SRTS) program, with an overall program coordinator who helps support the efforts of teams and volunteers at each school. SRTS teams use a number of different strategies, organized into the following categories: Education, Encouragement, Enforcement, Engineering, Evaluation, and Equity. Some of the key strategies being used at schools in Beaverton include:

- Walking/biking schools buses
- Participation in walk/bike to school day
- Development of SRTS plans with suggested routes to schools
- Education around walking and biking safety and other related topics
- Sending out newsletters on topics related to walking and biking.

The recent state transportation bill, House Bill 2017, includes increased funding for Safe Routes to School investments in physical infrastructure (such as sidewalks and crossings) to improve safety of

students walking and biking to school. However, HB2017 does not provide funding for programming. This is a key area that the City of Beaverton will continue to support and seek opportunities to expand in order to reach more students and more schools.

Education

In addition to the educational opportunities about walking and bicycling through safe routes to school, Beaverton can continue to seek other opportunities to educate citizens about safety for people walking and bicycling. Educational efforts will focus not just on pedestrians and bicyclists, but also on people driving. Innovative bicycle facilities may also be unfamiliar to drivers and bicyclists at first, and education can help people navigate these new facilities.

Adult bicycling classes can also help increase confidence in adults who may be interested in bicycling for transportation. Interested adults can also be matched up with a mentor or riding buddy who can help show them the most comfortable routes, and offer advice on details like bike storage and clothing.

Community Events

Beaverton will continue to hold community events related to bicycling, such as Bike Beaverton. Bike Beaverton has a bike rodeo, in which kids get to learn and practice skills in a fun obstacle course setting, and a community bike ride.

Beaverton will consider initiation of a ciclovia-type event, in which streets are closed to cars for a short period (one day or less), and people are free

to walk and bike on the designated streets. The City of Portland holds "Sunday Parkways" several times a year in different parts of the City, and there might be potential for the City of Beaverton to collaborate or build from this ongoing program to have a "Sunday Parkways" in Beaverton.

In addition to holding walk- and bike- specific events, Beaverton can continue and increase support for people walking and biking to other community events. For example, consider offering an incentive for people that walk or bike to the farmers market. At large events, offering free valet bike parking can help to encourage people to bike and ensure that their bike will be safe during the event.

Encouragement Events and Campaigns

The City of Beaverton will continue to participate and continue to increase activities related to existing encouragement events and campaigns. National Bike to Work Day is held in May. On this day, people are encouraged to bike to work. On Bike to Work Day, Beaverton can work with various organizations to support people choosing to bike to work with energizer stations or free breakfast stops at various places in town.

Beaverton will continue to encourage people to participate in the BikeMore Challenge – a month-long campaign by the Street Trust in which people log their rides in a friendly competition on the bikemore website. There are categories for different sizes of employer, where employees sign up and log their rides in a competition against other similarly sized companies.

Finally, Beaverton can continue to engage further with the Street Trust, which offers a variety of encouragement programs. The Street Trust will even come to a business and offer introductory classes on bike commuting for interested companies.

Bikesharing

Bikesharing programs have been shown to attract people who might not otherwise consider bicycling. Cities across the US have been welcoming a variety of bikeshare systems large and small. Beaverton will explore working with Nike to expand the Biketown system from Nike's campus into other parts of the city. Alternatively, Beaverton will seek other types of bikeshare systems.

Table 16 - State, Federal and Local Funding Sources

Source	Description	Eligible Project Types	Managing Agency
Highway Safety Improvement Program	Projects designed to achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways.	On-or off-street projects seeking to reduce serious crashes at highway or railway crossings or on rural roads	Oregon Department of Transportation (ODOT)
Surface Transportation Program (STIP) & Congestion Mitigation & Air Quality (CMAQ)	Used by ODOT for State highway improvements. Metro allocates to Metro programs w/ some to locals competitively for bike/pedestrian/street improvements	Bike, pedestrian and street improvements	ODOT
Connect Oregon	Biannual competitive grant program for design and construction of pedestrian and bicycle facilities, among other types of projects. Includes funding from bicycle excise tax that will be dedicated to bicycle and pedestrian projects.	Primarily transportation facilities, must be in public right-of-way	ODOT
State and County Gas Tax	Over 50 percent of Beaverton's transportation revenue comes from state and county gas taxes. Gas taxes have typically been spent on street paving and maintenance.	Highway and bridge construction, safety, preservation, maintenance, and bike and pedestrian improvements	ODOT
Regional Flexible Funds Allocation	The intent of this program is to fund sustainable, non-highway transportation projects, connectivity, the use and the overall operation of the transportation system.	Transit, bicycle and pedestrian, Transportation Demand Management (TDM), and multimodal street projects	Metro
Oregon Parks and Recreation Local Government Grants	Annual competitive grant program for the acquisition, development, and major rehabilitation projects fro public outdoor park and recreation areas and facilities.	Recreation facilities in public parks or designated recreation areas	Oregon Parks and Recreation Department (OPRD)
Recreational Trails Program	Annual competitive grant program; provides funding to states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses.	Recreation facilities on public property	OPRD
Safe Routes to School	Annual competitive grant program designed to reduce barriers and hazards to children walking or bicycling to school.	Transportation facilities in public right-of-way, parks, or on school property	ODOT
Transportation Enhancements	Biannual competitive grant program; pedestrian and bicycle improvements are one of four project types that are eligible for this program	Facilities primarily designed for transportation; must be on public property or long-term easement	ODOT

Table 16 - State, Federal and Local Funding Sources continued.

Source	Description	Eligible Project Types	Managing Agency
County Major Streets Transportation Improvement Program (MSTIP) Funds	The board of County Commissioners determines MSTIP funding amounts and projects on a five-year cycle. MSTIP projects are chosen by the Board, with funding distributed equally among four County Commissioner districts. The Washington County Coordinating Committee (WCCC), a group of elected officials from Washington County and cities within it, provides recommendations to the Board, and public input is requested during the project selection process.	To be eligible for MSTIP funding, projects must meet the following criteria: Improve safety, improve traffic flow/relieve congestion, be on a major road used by many residents, address multiple transportation needs, including cars, trucks, bicycles, pedestrians and transit and provide geographic balance, ensuring benefits to travelers in all areas of the County	Washington County/ City of Beaverton
Property Taxes (Street Light Fund)	Property taxes are levies on property, with a portion of taxes allocated the City's street light fund and to Washington County for MSTIP.	These funds are typically spent on arterial and collector improvements on the approved designated system.	City of Beaverton
Transportation System Development Charges	Transportation SDCs in Beaverton are charges to developers based on trip generation rates and traffic impacts from a proposed project. They can be used to pay for both on- and off-street facilities.	On-street and off-street facilities specific to the South Cooper Mountain area	City of Beaverton
Urban Renewal Areas (Tax Increment Financing)	The Urban Renewal Program divides Beaverton Urban Redevelopment Agency (BURA) activities and funds into five key project types and recommends a percentage of funding allocation over the life of the urban renewal area. BURA's 30 year plan will spend 48% of their budget on infrastructure and transportation improvements	Improvements to public right-of-ways and infrastructure with the intention of decreasing block size; reducing traffic congestion; and increasing connectivity, universal accessibility, safety, parking structures, utility upgrades, and access to multi-modal options to and within the Urban Renewal Area.	City of Beaverton
Washington County Transportation Development Tax (TDT)	This is a charge on new commercial and residential development. The amount of the fee is based on the estimated traffic generated by each land use. All TDT revenues collected in Beaverton stays within the City and are dedicated to new construction projects to accommodate growth.	TDT funds are spent on arterial and collector improvements on the approved designated system.	City of Beaverton and Washington County
Community Development Block Grants	Federal funding from the Department of Housing and Urban Development is managed by the City of Beaverton. The city supports: homeless shelters/services, homeless prevention, youth and family programs, other public services, lowering the cost of homeownership, critical needs housing repair, small business development, and from time to time infrastructure and public facility development/improvement.	The current consolidated plan (Con Plan) of 2015-2020 does not have any funds allocated to transportation infrastructure projects.	City of Beaverton

Table 16 - State, Federal and Local Funding Sources continued.

Source	Description	Eligible Project Types	Managing Agency
Franchise Fee (General Fund)	Franchise Fees are those fees collected from utility franchises, such as Portland General Electric (PGE) and NW Natural Gas, for the use of the City's right-of-way. Franchise fees feed directly into the General Fund to support a portion of the City's transportation budget. The franchise fee is generally five percent of each utility's locally generated revenue.	Funds are used for any Street Fund activity	City of Beaverton
Local Improvement Districts	In Beaverton, when a street or alley is initially approved to City standards, adjacent property owners are assessed a portion of the costs via development of a local improvement district (LID). This mechanism has also been used in the past to fund sidewalk infill in Beaverton.	Various street improvement projects can be delivered through Local Improvement Districts (LID). For example, in 2009 and LID paid a portion of the cost to construct full-length street and sidewalk, along with other improvements. This particular LID funded $97,994 of the approximate $580,000 total cost.	City of Beaverton

Attachments

A. Plan & Policy Review

B. Public Involvement Summary

C. Mapbooks

D. Washington County Bicycle Design Toolkit

E. Washington County Neighborhood Bikeway Treatments

F. Design Resource Summary and FHWA Bicycle and Pedestrian Design Resource

G. Prioritization Memo

H. Right-of-Way Estimating Guidance

I. Neighborhood Bikeways Detailed Maps

J. High-Impact Project Prospectus Sheets