

Chapter 6 Bicycles



This chapter summarizes existing and future facility needs for bicycles in the City of Tigard. The following sections outline the criteria to be used to evaluate needs, provide a number of strategies for implementing a bikeway plan and recommend a bikeway plan for the City of Tigard. The needs, criteria and strategies were identified in working with the City's TSP Task Force. As part of the TSP Task Force, the Planning Commission provided input regarding the transportation system in Tigard, specifically exploring bicycle needs. The methodology used to develop the bicycle plan combined citizen and staff input, specific Transportation Planning Rule requirements¹ and continuity to the regional bicycle system.²

Metro's *Draft Regional Transportation Plan (RTP)* has identified a Proposed Regional Bicycle Network. As such, these routes will eventually have bicycle lanes, if they don't already. The following Tigard streets are classified as follows in the RTP:

Regional Access	Regional Corridor (on-street)	Community Connector	Regional Corridor Off-Street
<ul style="list-style-type: none"> Hall to Greenburg to Main to Hunziker 	<ul style="list-style-type: none"> Walnut Street Scholls Ferry Rd Hall Boulevard ORE 99W Hall-Durham-Boones 	<ul style="list-style-type: none"> 72nd Avenue Bonita-McDonald Carman-Durham 	<ul style="list-style-type: none"> Fanno Creek Tualatin River Powerlines Hunziker to LO through I-5/ORE 217

NEEDS

Continuous bikeways are currently only provided for the full length of Durham Road, McDonald Street and Tigard Street in the City of Tigard. Bikeways are also currently provided for significant portions of ORE 99W, Hall Boulevard, Bonita Road, 97th/98th Avenues, Greenburg Road, Walnut Street, 121st Avenue and Bull Mountain Road. In addition, there are a few segments where bikeways do exist where new development and roadway improvements have occurred. Continuity and connectivity are key issues for bicyclists and the lack of facilities (or gaps) cause significant problems for bicyclists in Tigard. Without connectivity of the bicycle system, this mode of travel is severely limited (similar to a road system full of cul-de-sacs). The TPR³ calls for all arterial and collector streets to have bicycle facilities. To meet the TPR requirements and fill in existing gaps in the existing bicycle system, an action plan that focuses on a framework system should be developed to prioritize bicycle investment.

¹ Transportation Planning Rule, State of Oregon, DLCD, Section 660-12-020(2)(d), 660-12-035(3)(e), 660-12-095(3)(b & c).

² Regional Bicycle System Map, Regional Transportation Plan Draft, Metro, 1999.

³ Oregon Administrative Rules, Chapter 660, Division 12, Section 045(3).

Bicycle trips are different from pedestrian and motor vehicle trips. Common bicycle trips are longer than walking trips and generally shorter than motor vehicle trips. Where walking trips are attractive at lengths of a quarter mile (generally not more than a mile), bicycle trips are attractive not only for these short trips, but lengths of two to three miles. Bicycle trips can generally fall into three groups: commuters, activity-based and recreational. Commuter trips are typically home/work/home (sometimes linking to transit) and are made on direct, major connecting roadways and/or local streets. Bicycle lanes provide good accommodations for these trips. Activity based trips can be home-to-school, home-to-park, home-to-neighborhood commercial or home-to-home. Many of these trips are made on local streets with some connections to the major functional classification streets. Their needs are for lower volume/speed traffic streets, safety and connectivity. It is important for bicyclists to be able to use through streets⁴. Recreational trips share many of the needs of both the commuter and activity-based trips, but create greater needs for off-street routes, connections to rural routes and safety. Typically, these bike trips will exceed the normal bike trip length.

FACILITIES

Bicycle facility needs fall into two primary categories: route facilities and parking facilities. Bicycle lanes are the most common route facilities in Tigard. Racks, lockers and shelters are typical bicycle parking facilities that are provided at individual land use sites. Bicycle ways can generally be categorized as bike lanes, bicycle accommodation, or off-street bike paths/multi-use trails. Bike lanes are areas within the street right-of-way designated specifically for bicycle use. Federal research has indicated that bike lanes are the most cost effective and safe facilities for bicyclists when considering all factors of design. Bicycle accommodations are where bicyclists and autos share the same travel lanes, including a wider outside lane and/or bicycle boulevard treatment (priority to through bikes on local streets). Multi-use paths are generally off-street routes (typically recreationally focused) that can be used by several transportation modes, including bicycles, pedestrians and other non-motorized modes (i.e. skateboards, roller blades, etc.). The term bikeway is used in this plan to represent any of the bicycle accommodations described above. The bicycle plan designates where bike lanes and multi-use paths are anticipated and any other bicycleways are expected to be bike accommodations (i.e. shared with motor vehicles).

Bicycle lanes adjacent to the curb are preferred to bicycle lanes adjacent to parked cars or bicycle lanes combined with sidewalks. Six foot bicycle lanes are recommended. Provision of a bicycle lane not only benefits bicyclist but also motor vehicles which gain greater shy distance/emergency shoulder area and pedestrians which gain buffer between walking areas and moving vehicles. On reconstruction projects, bicycle lanes of five feet may need to be considered. Bicycle accommodations can be provided by widening the curb travel lane (for example, from 12 feet to 14 or 15 feet. This extra width makes bicycle travel more accommodating and provides a greater measure of safety). Off-street trails should be planned for 12 feet in width, desirable for mixed-up activity (ped and bike). Signing and marking of bicycle lanes should follow the *Manual on Uniform Traffic Control Devices*, as adopted for Oregon. Design features in the roadway can improve bicycle safety⁵. For example, using curb storm drain inlets rather than catch basins significantly improves bicycle facilities.

⁴ This can include end of cul-de-sac connections, but even better is regular spacing of local streets.

⁵ Oregon Bicycle and Pedestrian Plan, ODOT, June, 1995; this provides an in-depth discussion on bicycle network development.

Bicycle parking is required in Tigard for new land use applications (see Development Code Section 18.765, Table 18.765.2 Minimum and Maximum Required Off-street Vehicle and Bicycle Parking) Requirements in Community Development Code Section 18.765.050 outline the design and placement of bicycle parking (within 50 feet of building entrance).

CRITERIA

Tigard's TSP Task Force created a set of goals and policies to guide transportation system development in Tigard (see Chapter 2). Several of these policies pertain specifically to bicycle needs:

Goal 2 *Policy 3 Bicycle lanes must be constructed on all arterials and collectors within Tigard (with construction or reconstruction projects). All schools, parks, public facilities and retail areas shall have direct access to a bikeway.*

Policy 5 Bicycle and pedestrian plans shall be developed which link to recreational trails.

Policy 6 Local streets shall be designed to encourage a reduction in trip length by providing connectivity and limiting out-of-direction travel. Provide connectivity to activity centers and destinations with a priority for bicycle and pedestrian connections.

Goal 3 *Policy 3 Safe and secure pedestrian and bikeways shall be designed between parks and other activity centers in Tigard.*

These goals and policies are the criteria that all bikeway improvements in Tigard should be measured against to determine if they conform to the intended direction of the City. Policy 2-3 sets a specific requirement that bicycle lanes be constructed on all arterials and collectors within Tigard consistent with the Bicycle Master Plan and that all schools, parks, public facilities and retail areas have direct access to a bikeway. Table 6-1 summarizes the bicycle corridors created by overlaying the bicycle network over the arterial and collector system in Tigard.

Since bicyclists can generally travel further than pedestrians, connections that lead to regional destinations such as Portland, Beaverton, Tualatin and Lake Oswego are important. Tigard's bicycle network should connect to Washington County's, Beaverton's, Tualatin's and Lake Oswego's bicycle networks and be consistent with the Regional Bicycle System. Key locations where connections should be made to these other jurisdiction's networks are shown in Table 6-2.

STRATEGIES

Several strategies were considered for construction of future bikeway facilities in Tigard. These strategies were studied to provide the City with priorities since it is likely that the available funding will be insufficient to address all of the projects identified in the Bikeway Master Plan.

Strategy 1 - "Fill in Gaps in the Network where Some Bikeways Exist"

This strategy provides bikeways which fill in the gaps between existing bikeways where a significant portion of a bikeway corridor already exists. This strategy maximizes the use of existing bicycle facilities to create complete sections of an overall bikeway network. Examples would include ORE 99W, Hall Boulevard, Bull Mountain Road, Greenburg Road and 121st Avenue, where short segments would complete routes.

**Table 6-1
Corridors in Proposed Bikeway Network**

North-South Corridors	East-West Corridors	
Beef Bend Road	Taylor's Ferry Road	Walnut Street
121 st Avenue	Barrows Road	Bull Mountain Road
Greenburg Road	Nimbus/Oak Street	Beef Bend Rd./Durham Rd./ Carman Drive
ORE 99W	North Dakota/Greenburg/ Hunziker	Gaarde St/McDonald St./ Bonita Road
Hall Boulevard	Pfaffle/Dartmouth Street	
72 nd Avenue		

**Table 6-2
Bicycle Connectivity to Adjacent Jurisdictions**

City	Interface Street	Link Included in Tigard Master Plan?
Lake Oswego	Haines Street	Atlanta
	Kruse Way multi-use pathway	Hunziker
	Bonita Road	Bonita
	Carman Drive	Carman
Beaverton	Scholls Ferry Road	Scholls Ferry
	Barrows Road	Barrows
	Powerlines multi-use path	Powerlines off-street path
	Murray Boulevard	Walnut
	Davies Road	Barrows
	125 th Avenue	North Dakota
	Nimbus Avenue	Nimbus to Locust
Portland	Hall Boulevard	Hall
	Taylor's Ferry	Taylor's Ferry
	Barbur Boulevard	ORE 99W
Tualatin	Oleson Road	Greenburg
	Tualatin Road/Boones Ferry Rd.	Hall Boulevard
	Upper Boones Ferry Road	Upper Boones Ferry
Washington County	Lower Boones Ferry Road	72nd
	Elsner Road	Beef Bend

Strategy 2 – “Connect Key Bicycle Corridors to Schools, Parks and Activity Centers (public facilities, etc.)”

This strategy provides bikeway links to schools, parks, recreational facilities and activity centers from the arterial/collector bikeway network. This alternative provides added safety to likely bicyclist destinations as well as destinations where children are likely to travel. Examples would include Hall Boulevard, Durham Road, Walnut Street, Tiedeman Avenue, Bull Mountain and the off-street multi-use paths throughout Tigard.

Strategy 3 – “Develop Bicycle Network on Flat Routes”

This strategy focuses on providing bicycle lanes on “flat” routes, or those routes without significant grade changes. This strategy provides bicycle facilities where a larger percentage of the population is likely to travel. Examples would include routes such as Walnut Street, Hall Boulevard, Durham Road, North Dakota Street, etc.

Strategy 4 – “Develop a Bike Sign Program—Focus on Low Volume Streets”

This strategy would provide signs to guide bicyclists to appropriate bicycle routes in the City

Strategy 5 – “Bicycle Corridors that Connect to Major Recreational Facilities”

This strategy provides a connection between the bikeway network and major recreational facilities, such as the Greenway Trail. Examples would be the Greenway Trail, Fanno Creek Trail and the proposed powerline corridor in the western part of the City.

Strategy 6 – “Develop Maintenance Program to Clean Bike Lanes”

This strategy establishes a program to provide maintenance services to clean the bike lanes. Debris in bike lanes is one of the biggest complaints (deterrents) of bicyclists.

Strategy 7 – “Bicycle Corridors that Commuters Might Use”

This strategy focuses on providing bicycle facilities where commuters are likely to go such as local (within Tigard) or regional (i.e. Beaverton, Tualatin, Lake Oswego or downtown Portland) employment centers or leading to transit which provides access to regional employment centers. Examples would include ORE 99W, Scholls Ferry Road and Hall Boulevard.

Strategy 8 - "Bicycle Corridors that Connect Neighborhoods"

This alternative puts priority on bicycle lanes for routes which link neighborhoods together. Some of these could include paths crossing parks, schools or utility rights-of-way.

Strategy 9 – “Construct All Bikeways to City of Tigard/Washington County Standards”

This strategy focuses on upgrading any substandard existing bikeways to current city/county standards. Current standards are for six foot wide bike lanes with appropriate striping and signs for bicycle safety.

Strategy 10 – “Bicycle Corridors that Access Commercial Areas”

This strategy puts priority on bicycle lanes for arterials/collectors which provide access to commercial areas within the City. Examples would include ORE 99W, 72nd Avenue, Dartmouth Street and Hall Boulevard.

Table 6-3 summarizes the strategies in the priority order ranked by the TSP Task Force in terms of meeting the transportation goals and objectives.

**Table 6-3
Bikeway Facility Strategies Comparisons**

Strategy	Policies			
	2-3	2-5	2-6	3-3
1. Fill in gaps in the network where some bikeways exist	◐	○	○	○
2. Connect key bicycle corridors to schools, parks and activity centers (public facilities, etc.)	◐	◐	◐	●
2. Develop bicycle network on flat routes	○	○	◐	◐
3. Develop a bike sign program—focus on low volume streets	○	○	○	◐
4. Bicycle corridors that connect to major recreational facilities	◐	●	◐	◐
5. Develop maintenance program to clean bike lanes	✘	✘	✘	✘
7. Bicycle corridors that commuters might use	◐	○	○	○
8. Bicycle corridors that connect neighborhoods	○	○	◐	○
8. Construct all bikeways to City of Tigard standards	○	○	○	○
10. Bicycle corridors that access commercial areas	◐	○	◐	◐

✘ Does not meet criteria ◐ Mostly meets criteria
○ Partially meets criteria ● Fully meets criteria

ALTERNATIVES

Two basic alternative bicycle networks were developed through the TSP Task Force discussion. The first option was to place bicycle lanes on every existing arterial and collector street. Figure 6-1 summarizes the All Arterial and Collector alternative. The end result is several redundant bicycle facilities on routes that will no longer be collectors or arterials in the new functional classification. Additionally the cost and right-of-way impact is so significant that this alternative may be difficult to successfully implement. A second alternative was developed by the TSP Task Force that is build upon a framework of bicycle lanes through Tigard. This alternative provides framework grids of bicycle lanes with fewer lanes identified on lower classification streets (which typically have lower traffic volumes). Based upon the highest priority strategies the TSP Task Force recommended the framework option as the Tigard Bicycle Master Plan (Figure 6-2).

RECOMMENDED BIKEWAY FACILITY PLAN

A list of likely actions to achieve fulfillment of these priorities was developed into a Bicycle Master Plan. The Bicycle Master Plan (Figure 6-2) is an overall plan and summarizes the “wish list” of bicycle-related projects in Tigard, providing a long-term map for planning bicycle facilities. From this Master Plan, a more specific, shorter term, Action Plan was developed. The Action Plan (Figure 6-3) consists of projects that the City should actively try to fund. These projects form a basic bicycle grid system for Tigard. As development occurs, streets are rebuilt and other opportunities (such as grant programs) arise, projects on the Master Plan should be pursued as well.

POTENTIAL PROJECT LIST

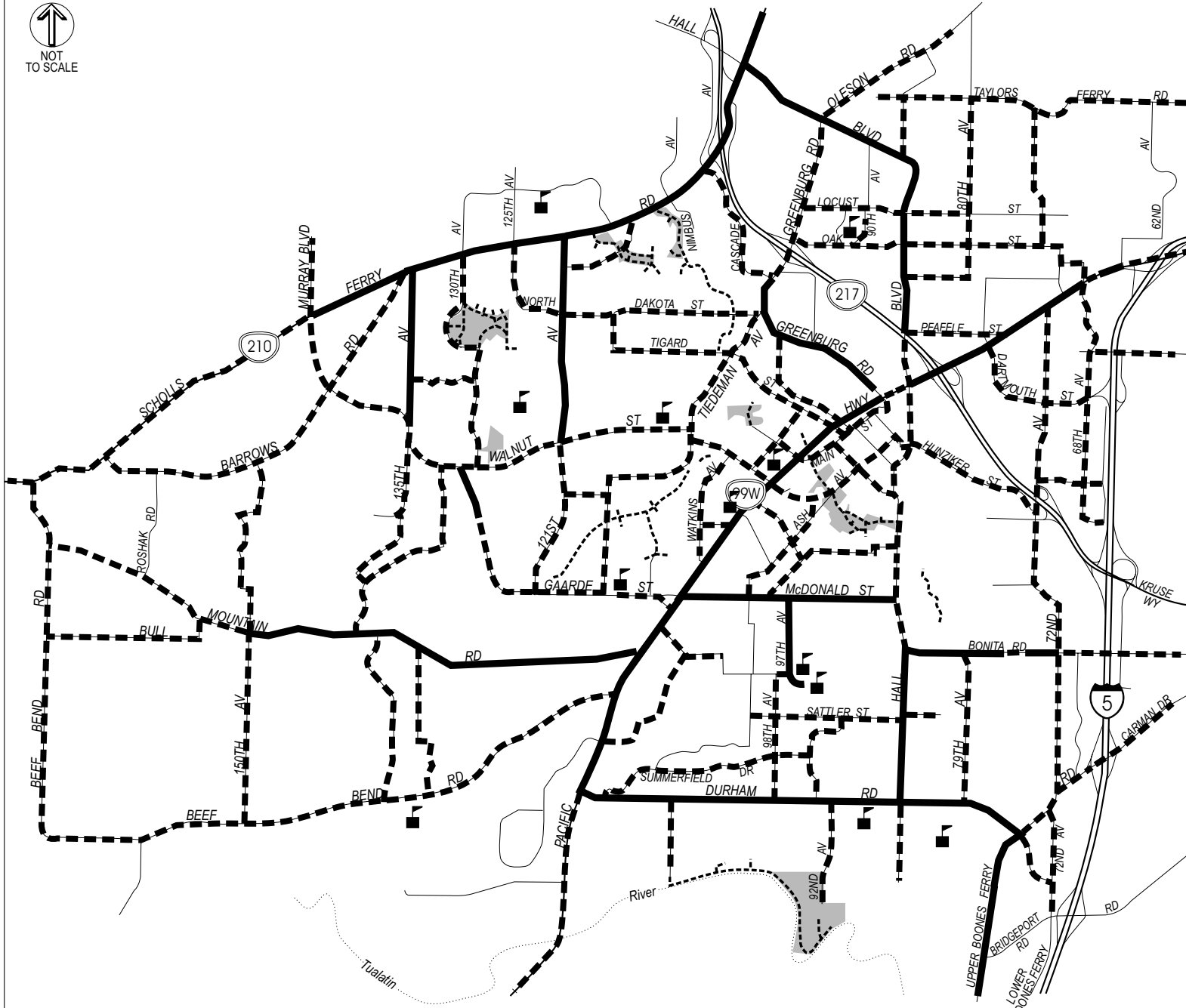
Table 6-4 outlines potential bicycle projects in Tigard. The City, through its Capital Improvement Program (CIP) and bond measure funding (along with joint funding with other agencies such as Washington County or Metro or development approval) would implement these projects. Figure 6-3 summarizes the Bicycle Action Plan. Multi-use paths identified on the bicycle plans should be aligned to cross roadways at intersections for safe crossing rather than crossing roadways at mid-blocks without traffic control.

There is an off-street multi-use trail shown along the powerline corridor in the western part of Tigard. This corridor is designated as a proposed *Off-Street Multi-Use Path* in Metro’s Regional Bicycle System⁶, however, the corridor follows a very steep grade and would be extremely difficult for most bicyclists. The corridor could be developed as a multi-use path that could be used by serious bicyclists as well as pedestrians.






⁶ Regional Bicycle System Map, Version 4.0, Metro, December 1, 1997.



CITY OF TIGARD
Transportation
Systems Plan



Legend

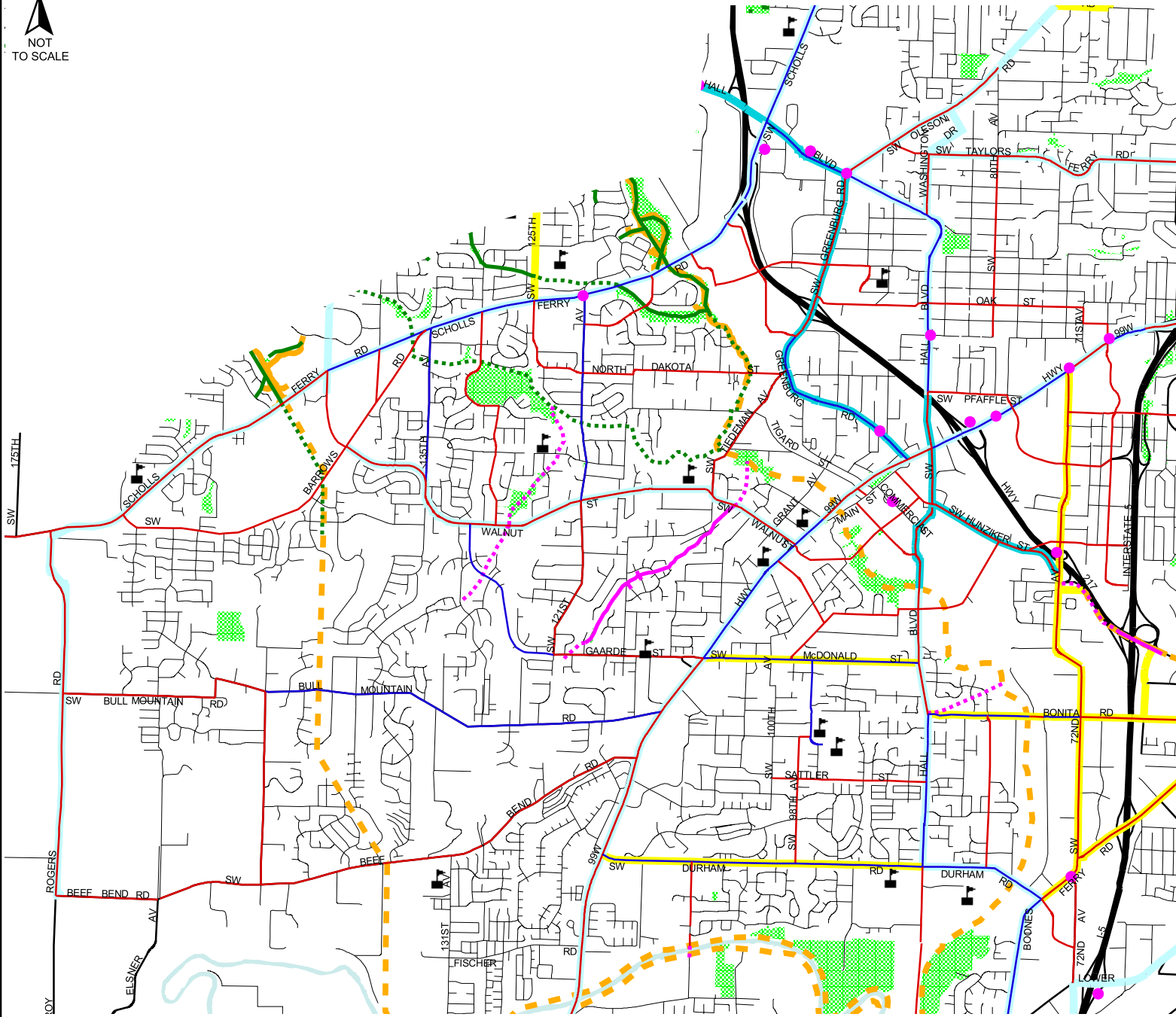
-  - Existing Bike Lanes
-  - Proposed Bike Lanes *
-  - Off Street Paths
-  - Parks
-  - Schools

* Note: There may be existing bike lanes on one side of street - see Existing Bike Lanes graphic for clarification.

Figure 6-1
BICYCLE PLAN
ALTERNATIVE
(All Arterials/Collectors Option)



Transportation Systems Plan



Legend

- RTP Major Transit Stop
- Schools
- Parks**
- Existing Park
- Bike Lanes**
- Existing
- Proposed
- Tigard Off-Street Multi-Use Paths**
- Proposed
- Existing
- THRPD Trails**
- Existing
- Proposed
- RTP Bicycle System Designations**
- Regional Access Bikeway
- Regional Corridor on-street bikeway
- Community Connector
- RTP Regional Corridor Off-Street Regional Multi-Use Path**
- Existing
- Proposed

**Figure 6-2
BICYCLE MASTER PLAN
(Framework Option)**



NOT TO SCALE



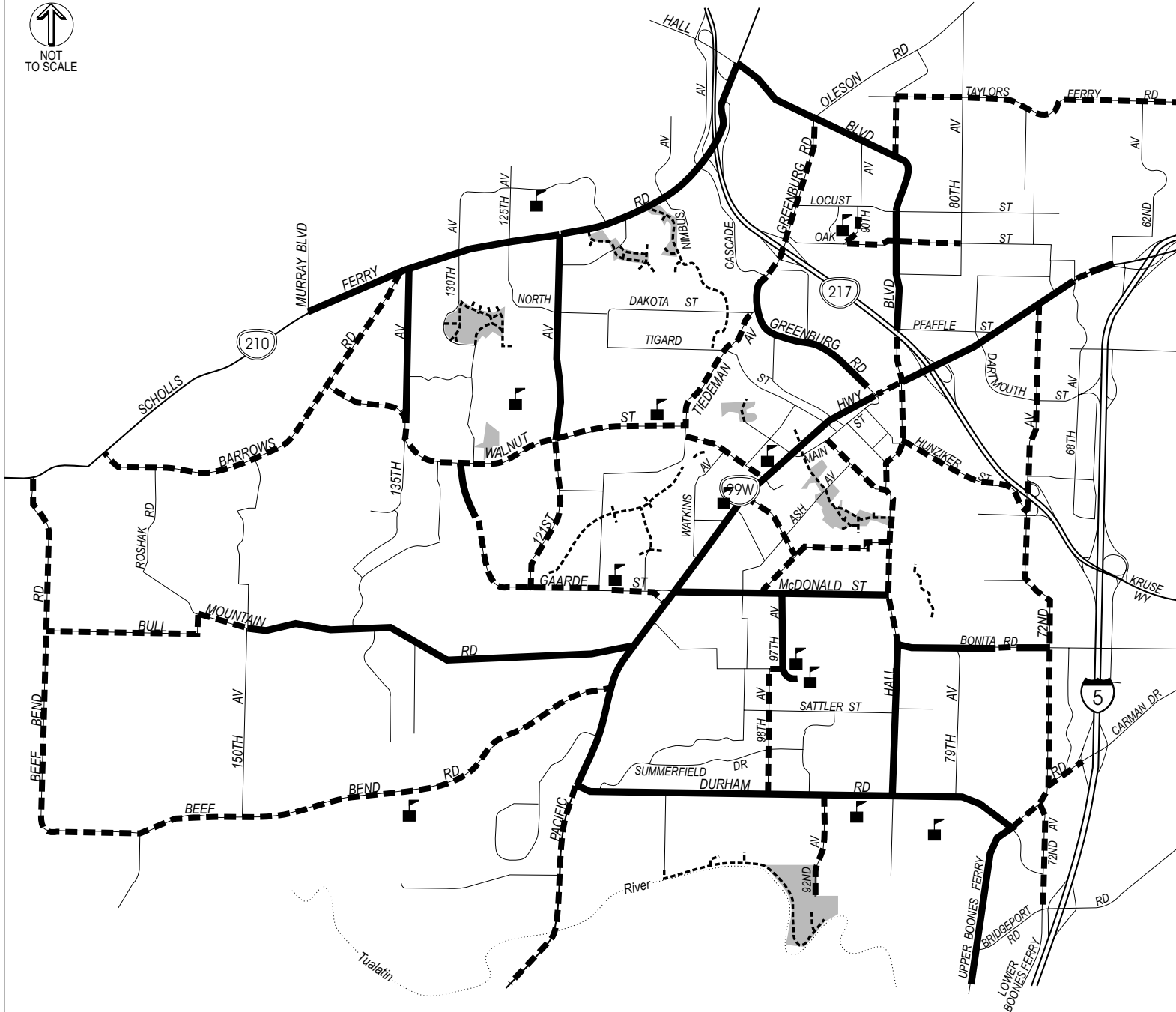
CITY OF TIGARD

Transportation Systems Plan

Legend

- Existing Bike Lanes
- Proposed Bike Lanes *
- Off Street Paths
- Parks
- Schools

* Note: There may be existing bike lanes on one side of street - see Existing Bike Lanes graphic for clarification.



**Figure 6-3
BICYCLE
ACTION PLAN**

**Table 6-4
Bicycle Project Priorities**

Rank *	Project	From	To
Action Plan Projects			
H	Taylor's Ferry Road	Washington Drive	City Limits
H	Washington Drive	Hall Boulevard	Taylor's Ferry Road
H	Hall Boulevard	Pfaffle Street	Bonita Road
H	Greenburg Road	Hall Boulevard	Cascade Avenue
H	Oak Street (RTP 6019)	Hall Boulevard	80 th Avenue
H	Oak Street	Hall Boulevard	90 th Avenue
H	ORE 99W	East City Limits	South City Limits
H	72 nd Avenue	ORE 99W	South City Limits
H	Hunziker Street	Hall Boulevard	72 nd Avenue
H	Upper Boones Ferry Rd	I-5	Durham Road
H	Bonita Road	72 nd Avenue	West of 72 nd Avenue
H	Burnham Street	Main Street	Hall Boulevard
H	O'Mara Street	McDonald Street	Hall Boulevard
H	Frewing Street	ORE 99W	O'Mara Street
H	Murdock Street	98 th Avenue	97 th Avenue
H	98 th Avenue	Murdock Stret	Durham Road
H	92 nd Avenue	Durham Road	Cook Park
H	Tiedeman Avenue	Greenburg Road	Walnut Street
H	Walnut Street	ORE 99W	Barrows Road
H	121 st Avenue	Walnut Street	Gaarde Street
H	Gaarde Street	Walnut Street	ORE 99W
H	Barrows Road	Scholls Ferry Road (West)	Scholls Ferry Road (East)
H	Scholls Ferry Road	Hall Boulevard	Barrows Road
H	Bull Mountain Road	150 th Avenue	Beef Bend Road
H	Beef Bend Road	ORE 99W	Scholls Ferry Road
H			
Other Master Plan Projects			
M	80 th Avenue	Taylor's Ferry Road	Spruce Street
M	Oak Street	Greenburg Road	90 th Avenue
M	Oak Street	80th Avenue	71 st Avenue
M	71 st Avenue	Oak Street	Pine Street
M	Pine Street	71 st Avenue	69 th Avenue
M	69 th Avenue	Pine Street	ORE 99W
M	68 th Avenue	ORE 99W	South End of Street
M	Dartmouth Street	ORE 99W	68 th Avenue
M	Hampton Street	72 nd Avenue	68 th Avenue
M	Pfaffle Street	Hall Boulevard	ORE 99W
M	Haines Street	68 th Avenue	East City Limits

Rank *	Project	From	To
M	Bonita Road	72 nd Avenue	East City Limits
M	Scoffins Street	Hall Boulevard	Main Street
M	Sattler Street	100 th Avenue	Hall Boulevard
M	Ross Street	Hall Boulevard	East End of Street
M	Hall Boulevard	Durham Road	South City Limits
M	108 th Avenue	Durham Road	South End of Street
M	150 th Avenue	Bull Mountain Road	Beef Bend Road
M	130 th Avenue	Scholls Ferry Road	Winterlake Drive
M	Winterlake Drive	130 th Avenue	128 th Avenue
M	128 th Avenue	Winterlake Drive	Walnut Street
M	North Dakota Street	Scholls Ferry Road	Greenburg Road
M	Springwood Drive	Scholls Ferry Road	121 st Avenue
M	Cascade Avenue	Scholls Ferry Road	Greenburg Road
M	Durham Road	Upper Boones Ferry Road	72 nd Avenue
M	79 th Avenue	Durham Road	Bonita Road
M	Off-Street Multi-Use Path	Powerline corridor in west Tigard	
M	Off-Street Multi-Use Path	Southside ORE 217 from Hunziker to I-5 Bridge	
M	Off-Street Multi-Use Path	Adjacent to Tualatin River	
M	Off-Street Multi-Use Path	Bridge over Tualatin River at 108th	
M	Off-Street Multi-Use Path	Adjacent to Fanno Creek	

* H=High, M=Medium, L=Low Priority

COMPLEMENTING LAND DEVELOPMENT ACTIONS

The Transportation Planning Rule requires that bicycle parking facilities be provided as part of new residential developments of four units or more, new retail, office and institutional developments, and all transit transfer stations and park and ride lots.⁷ The City through its Community Development Code has in place requirements for bicycle parking.

It is important that, as new development occurs, connections or accessways are provided to link the development to the existing bicycle and pedestrian facilities in as direct manner as is reasonable. If a development fronts a proposed bikeway or sidewalk (as shown in the Bicycle or Pedestrian Master Plans), the developer shall be responsible for providing the bikeway or walkway facility as part of any half-street improvement required for project mitigation.

⁷ Transportation Planning Rule, State of Oregon, Department of Land Conservation and Development, Section 660-12-045(3)(a).