TRANSPORTATION ELEMENT

6.1 BACKGROUND

Like many communities across the nation, Beaverton's development pattern evolved as a result of several economic and geographic circumstances that established the transportation framework of the City. The historic presence of a large beaver marsh in what is now central Beaverton, the advent of the railroad, and the community's early history as a commercial center of farming and logging activities all influenced its early settlement. The City's location within the Tualatin Valley and its proximity to Willamette River commerce in Portland destined Beaverton to become a regional transportation hub.

As the City grew, so did the demand for roads. The road systems of the various subareas reflect the transportation philosophies and attitudes during the times they were built. The central downtown area was the first to be officially platted and is characterized by the traditional grid pattern of streets. After the original traditional grid was established, subsequent street creation and extension patterns varied greatly as incremental development demanded. East Beaverton residential areas, such as Royal Woodlands, developed with a series of long local streets. In contrast, south Beaverton developed at a time when residents wanted to be protected from through traffic. The result was a maze of short, circuitous, dead-end streets that fulfilled this goal but overburdened the few connecting local streets and adjacent collector and arterial streets with high residential traffic volumes. The road system west of Murray Boulevard was initially designed to serve farming needs. It has proven to be inadequate in accommodating the travel needs of more recent residential development.

Over the years, the City has undertaken a number of efforts to evaluate and improve its transportation system. In l976, Comprehensive Plan amendments were adopted that eliminated many proposed major streets in favor of protecting neighborhoods from increased traffic congestion. Beginning in l978, the Beaverton Urban Renewal Agency undertook a number of improvements to the street circulation system of central Beaverton. In l979 through l983, the City participated with the region in planning for a future light rail transit system linking downtown Portland with eastern Washington County. The City updated its transit element and made other changes to the downtown plan, which included the provision for a new transit center in central Beaverton. In l988, Plan amendments were adopted to update the bikeway and pedestrian elements, and to provide for a functional classification of streets.

Beaverton and the Portland region grew significantly in the early 1990s. Legislative changes also occurred. In May 1991, the State adopted the Transportation Planning Rule (Oregon Administrative Rules Section 660 Division 12), which implements Oregon's Statewide Planning Goal 12 (Oregon Administrative Rules Section 660 Division 15) and mandates transportation system planning for Oregon cities, counties, and regions. The Oregon Department of Transportation responded by adopting the Oregon Transportation Plan (1992). Metro responded to state and federal mandates by developing its 2040 Land Use Concept (1995) and adopting its Urban Growth Management Functional Plan (1996), Regional Framework Plan (1997), 2020 and 2035 Regional Transportation Plan (2000 and 2010 respectively).

Beaverton complied with these mandates by adopting an updated Transportation Element (1999), which is based on the 1997 Transportation System Plan (1999) that accommodates the growth projected to occur by forecast year 2015. In 2001, the City updated its Transportation System Plan to forecast year 2020 to be consistent with State and Metro plans as required. Then starting in 2008, the City began updating its Plan to forecast year 2035 to be consistent with Metro's new forecast year.

This Transportation Element is based on the 2035 Transportation System Plan Update and changes and corrections that were subsequently adopted in the document. The 2035 Transportation System Plan Update is included in Comprehensive Plan, Volume IV. The updated goals, policies, and actions that helped shape the alternatives analysis are included in section 6.2. The analysis and discussion of 2035 system needs are summarized and the system improvements are listed and/or mapped in section 6.3. Section 6.4 summarizes the projected revenues and estimates the cost of the transportation plan. Policies, actions, maps, and projects specific to the South Cooper Mountain Community Plan area were added to this Transportation Element as part of the planning process for that area.

6.2 TRANSPORTATION GOALS AND POLICIES

There are eight transportation goals with related policies organized under each goal. The goals and policies are not prioritized, and reflect the City of Beaverton's citywide goals.

The goals are brief guiding statements that describe a desired result. The policies describe the actions needed to move the community toward the goal. Below many of the policies, italic text provides details of the implementing actions and clarifies the intent of the policy. The transportation goals and policies are implemented by these actions, by the improvement projects included in the master plans for each transportation mode, and by the Development Code. Construction standards for improvements are found in the Development Code and Engineering Design Manual. Additional transportation policies specific to the South Cooper Mountain Community Plan area are included in that Community Plan.

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

Policies:

a) Maintain the livability of Beaverton through proper location and design of transportation facilities.

Actions:

- *Design all transportation facilities to respect the characteristics of the surrounding land uses, natural features and natural hazards, and community amenities.*
- *Design transportation facilities consistent with habitat friendly development practices and low impact development techniques and water quality and quantity design principles, wherever practical and feasible Promote landscaping and pervious surfaces wherever practical and feasible.*
- *Continue to implement "green streets" designs.*

- *Recognizing that the magnitude and scale of transportation facilities also affect aesthetics and environmental quality, the City will continue to require design plans and impact analyses for transportation facilities as specified in the Development Code.*
- *Preserve right-of-way for improvements that are anticipated to be needed within a specified time period that is beyond the planning forecast year for this Transportation System Plan.*

b) Consider noise attenuation measures in the design and redesign of arterial streets immediately adjacent to residential development.

c) Protect residential neighborhoods from pollutants associated with nearby transportation facilities, industrial uses, and rail activities.

d) Locate and design multi-use paths to balance the needs of human use and enjoyment with resource preservation in areas identified on the Natural Resource Inventory Plan Map for their Significant Natural Resource values.

Action:

- *Proposals for multi-use paths through significant natural resource areas shall assess compatibility of the path with the resource. The assessment shall include the impacts of lighting, appropriate restrictions on uses of the path, and options available to mitigate the impacts of the path.*
- *Multi-use paths adjacent to stream reaches shall be designed to provide safe, convenient and pleasant pedestrian and/or bicycle connections that encourage use of alternative modes; recreational amenities; and visual and physical access to natural areas. Such paths shall be designed to run along the outer edge(s) of vegetated corridors wherever possible in order to avoid impacting protected resource areas.*

e) Protect neighborhoods from excessive through traffic and travel speeds while providing reasonable access to and from residential areas. Build streets to minimize speeding.

Actions:

- *Maintain street design standards and criteria for neighborhood traffic calming for use in new development and existing neighborhoods.*
- *Complete construction of the 125th Avenue extension prior to completing the Davies Road connection from Scholls Ferry Road to Barrows Road.*

f) New commercial and industrial development shall identify traffic plans for residential streets where increased cut-through traffic may occur due to the proposed development.

- 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.

g) Continually explore novel or transformative transportation designs, technologies, and integration, especially in the context of large-scale economic and redevelopment planning efforts.

6.2.2. Goal: A balanced multimodal transportation system that provides mobility and accessibility for users.

Policies:

a) Recognize that streets are important to community identity and provide a needed service. Implement Beaverton's public street standards that recognize the multi-purpose nature of the street right-of-way for a combination of utility, pedestrian, bicycle, transit, truck, auto uses, and railroad crossings.

b) Provide a seamless and coordinated transportation system that is barrier-free, provides affordable and equitable access to travel choices, and serves the needs of people and businesses.

c) Develop and provide a safe, complete, attractive, efficient, and accessible system of pedestrian ways and bicycle ways, including bike lanes, cycletracks, bike 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.

Actions:

- *Continue to coordinate with Washington County, Metro, Beaverton area schools, Oregon Department of Transportation, the cities of Tigard, Hillsboro, and Portland, Tualatin Valley Fire & Rescue, and the Tualatin Hills Park and Recreation District.*
- *Sidewalks will remain the responsibility of fronting property owners. The City shall consider funding sidewalk improvements when such improvements serve the greater public good (such as a transportation or safety purpose), and funding is available.*
- *Maintain the opportunity for resident groups to fund pedestrian and bicycle facilities through the local improvement district process.*
- *In the South Cooper Mountain Community Plan area, provide multi-use paths as identified on Figure 6.2a in order to support and encourage walking and biking as modes of transportation. Multi-use paths shall be the responsibility of the property owner and constructed through the development review process. Required right-of-way dedication and improvements shall follow the same procedures as local streets. The City shall consider funding multi-use path improvements when such improvements serve the greater public good and funding is available.*

d) Design sidewalks and the pedestrian access systems to City standards to enhance walkability: complete the accessible pedestrian network, provide safe direct access to transit and activity centers, and provide safe crossings at intersections with pedestrian friendly design.

Actions:

- *Adjust parking lot design standards to be more pedestrian-friendly.*
- *Develop a performance measure for pedestrian facilities, and develop targets for different areas of the city. Consider factors such as long wait times at selected stop lights, closed crosswalks, noise and pollution, debris and obstacles on sidewalks, speed of traffic, and other factors reducing pedestrian friendliness.*

e) Provide connectivity to each area of the City for convenient multimodal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, commercial, employment, and recreational areas, and destinations in station areas, regional and town centers by identifying and developing improvements that address connectivity needs.

f) Develop neighborhood and local connections to provide convenient circulation into and out of neighborhoods. Work to prevent and eliminate pedestrian and bicycle "cul-de-sacs" that require substantial out-of-direction travel for pedestrians and bicyclists.

g) Identify specific areas within the City where pedestrian needs and the pedestrian experience should be given highest priority in the design of streets, parking, intersections, connectivity, signal controls, mapping and signing, and other transportation facilities.

Actions:

- *Complete the accessible pedestrian network.*
- *Provide safe direct access to transit, employment and activity centers.*
- *Provide safe crossings with pedestrian friendly design.*
- *Complete bikeway improvements to close the gaps in the bicycle network.*

h) The permanent closure of an existing road in a developed neighborhood is not recommended and will be considered by the City only under the following circumstances: as a measure of last resort, when the quality of life in the neighborhood is being severely threatened by excessive traffic volumes or the presence of a traffic safety hazard; or, as part of a plan reviewed through the City's land use, site development, and/or capital improvement process(es). Maintain existing neighborhood connectivity by avoiding closures of existing streets except when the closure is part of a larger plan for improvements to the neighborhood.

Actions:

- *Jay Street is recommended to remain open between 158th Avenue and Burlington Drive.*

i) Design streets to accommodate transit while minimizing impacts to traffic flow.

Actions:

- *Improve transit service, pedestrian and bicycle facilities leading to transit waiting areas, and make the waiting areas themselves safe, comfortable, and attractive. Continue to work with TriMet, the Oregon Department of Transportation, and Washington County to develop and implement a transit shelter program, to place safe crossings at major transit stops, and to provide transit vehicle signal priority.*

j) Require developers to include pedestrian, bicycle, and transit-supportive improvements within proposed developments and adjacent rights-of-way in accordance with adopted policies and standards.

6.2.3. Goal: A safe transportation system.

Policies:

a) Improve traffic safety through a comprehensive program of education, enforcement, and engineering.

b) Design streets to serve anticipated function and intended uses as determined by the Comprehensive Plan.

Action:

- *Maintain a functional classification system that meets the City's needs and respects the needs of other agencies including, but not limited to, Washington County, Oregon Department of Transportation, the cities of Tigard, Hillsboro, and Portland, TriMet, Tualatin Valley Fire and Rescue, Tualatin Hills Park and Recreation District, and Metro.*

c) Enhance safety by prioritizing and mitigating high crash locations within the City.

Actions:

- *Work with Washington County to periodically review traffic collision and Safety Priority Index System information in an effort to systematically identify, prioritize, and remedy safety problems. The City should continue to expand its collision record evaluation program working cooperatively with Washington County and Oregon Department of Transportation*
- *Implement safety solutions for identified safety issues.*

d) Designate safe walkway and bikeway routes from residential areas to schools, parks, transit, and other activity centers.

Actions:

- *The City should continue to work with Beaverton area schools and the community in developing safe transit, pedestrian, and bicycle routes to schools, and educating users about available routes.*

- *Improvement projects near schools shall consider school access and safety during project development.*
- *The City shall coordinate with Beaverton area schools to notify students when designated routes are affected by construction or other activities.*

e) 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 converge at traffic-controlled intersections to provide for safe crossing, and paths should be separate and distant from major streets for most of their length. Mid-block crossings for trails access, such as the Denney Road Fanno Creek Trail crossing, will be considered as appropriate where findings for safety are met and such crossings are approved by the City.

Actions:

- *Identify trail crossing treatments for appropriate use at locations where out-of-direction travel by path users to an existing traffic-controlled intersection is significant.*
- *Consider mid-block crossings where safe and appropriate.*
- *When multi-use paths follow rear lot lines, use design treatments to minimize the impacts to private property.*

f) Provide satisfactory levels of maintenance to the transportation system in order to preserve user safety, facility aesthetics, and the integrity of the system as a whole.

g) Maintain access management standards for streets consistent with City, County, and State requirements to reduce conflicts among vehicles, trucks, rail, bicycles, and pedestrians. Preserve the functional integrity of the road system by limiting access per City standards.

h) Ensure that adequate access for emergency services vehicles is provided throughout the City.

Actions:

- *Work cooperatively with Tualatin Valley Fire and Rescue and other Washington County emergency service providers to designate and periodically update Primary and Secondary Emergency Response Routes. Continue to work with these agencies to establish acceptable traffic calming strategies for these routes.*
- *Recognize the route designations and associated acceptable traffic calming strategies in the City's Traffic Calming Program.*

i) Meet federal and State safety compliance standards for operation, construction, and maintenance of the rail system.

j) Provide safe routing of hazardous materials consistent with federal guidelines, and provide for public involvement in the process.

Action:

- *Work with federal agencies, the Public Utility Commission, the Oregon Department of Environmental Quality, public safety providers, and Oregon Department of Transportation to assure consistent routes, laws, and regulations for the transport of hazardous materials.*

6.2.4. Goal: 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.

Policies:

a) Develop an energy efficient transportation system.

Actions:

- *Implement measures to reduce average trip distance, such as additional street connectivity, fostering more local retail and service business, and land use decisions.*
- *Reduce travel delay through signal timing and coordination and other intersection management techniques.*
- *Provide more multimodal access through improved transit, bicycle, and pedestrian facilities and access.*
- *Support dedicated local transit service, including rail as an option, to connect major employment areas with downtown.*
- *Provide support for systematic changes to transportation modes, such as the emergence of electric or alternative fuel vehicles.*
- *Explore new technologies to improve the operating efficiency of the transportation system, such as the use of light-emitting diode (LED) luminaires for street lighting.*

b) Support and implement trip reduction strategies developed regionally, including employment, tourist, and recreational trip reduction programs.

Actions:

- *Encourage implementation of travel demand management programs.*
  - *Work to shift traffic to off-peak travel hours.*
  - *Coordinate trip reduction strategies with Washington County, Metro, Westside Transportation Alliance, Oregon Department of Transportation, TriMet, neighboring cities, and the Oregon Department of Environmental Quality.*
  - *Seek to raise p.m. peak average vehicle occupancy (AVO) to 1.3 AVO or more in the evening peak and/or move 50 percent or more of the standard evening peak trip generation outside the peak hour.*
  - *Educate business groups, employees, and residents about trip reduction strategies.*
  - *Work with business groups, residents, and employees to develop and implement travel demand management programs.*
- *Support and implement strategies that achieve progress toward attaining Metro's 2040 Regional Non-Single Occupant Vehicle Modal Targets. 2040 Non-Single Occupant Vehicle Modal Targets are as follows:*
  - *Beaverton Regional Center: 45-55%;*
  - *Murray/Scholls Town Center: 45-55%;*
  - *Beaverton Main Streets, Station Communities, and Corridors: 45-55%;*

- *Beaverton Industrial Areas, Intermodal Facilities, Employment Areas, Inner and Outer Neighborhoods: 40-45%*

(Targets are subject to change with Metro Regional Transportation Plan Updates and apply to trips to, within, and out of each 2040 Design Type. The targets reflect conditions appropriate for the year 2040 and are needed to comply with Oregon Transportation Planning Rule objectives to reduce reliance on single-occupancy vehicles.)

- *Continue to implement the following action plan to work toward achieving these targets:*
  - *Encourage development that effectively mixes land uses to reduce vehicle trip generation.*
  - *Develop consistent conditions for land use approval that require future employment related land use developments to agree to reduce peak hour trips through transportation demand management strategies.*
  - *Support efforts by Washington County, Oregon Department of Transportation, Department of Environmental Quality, TriMet, and the Westside Transportation Alliance to develop productive demand management measures that reduce vehicle miles traveled and peak hour trips.*
  - *Coordinate with Oregon Department of Transportation and TriMet on development of sufficient park-and-rides, including sites at transit stations and freeway interchange locations. Transfer stations and interchange construction and reconstruction projects should be required to identify potential park-and-ride sites. Explore park-and-ride locations along existing bus routes to minimize commuter parking impacts in neighborhoods.*
  - *Build on existing percentage of Regional Center employers (seven percent) who provide transit pass discounts to achieve 25 percent by 2020.*
  - *Work with Washington County, Westside Transportation Alliance, and TriMet to develop and implement a downtown Beaverton fareless transit area, a regional center transportation management agency, and reduced transit fare programs based on increased demand and funding availability.*
  - *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.*

c) Limit the provision of parking to meet regional and State standards.

Actions:

- *Reduce parking per capita in accordance with Metro and State requirements, while minimizing impacts to neighborhoods.*
- *Encourage shared parking arrangements.*
- *Encourage public private partnerships to develop structured parking.*
- *Reduce parking in habitat benefit areas and other areas where parking can be provided in other locations including off-site, on the street, through shared uses, or in parking structures.*
- *Continue to implement the motor vehicle and bicycle parking ratios in new development.*

- *Continue to develop and implement a Regional Center parking plan.*
- *Implement residential parking permit districts in neighborhoods as requested and approved by City Council.*
- *Implement other parking-based transportation demand management strategies, such as metered and structured parking, to help achieve Metro's 2040 Non-Single Occupant Vehicle mode split targets.*

d) Manage parking in the Regional Center Old Town area.

Action:

- *Apply the following principles from the Beaverton Downtown Parking Solutions study.*
  - *Make the Old Town area accessible to all users through multiple modes.*
  - *Provide sufficient and convenient parking.*
  - *Make the Old Town area conveniently accessible for the priority user of the public parking system – the customer.*
  - *Provide adequate employee parking and encourage implementation of meaningful public and private sector programs that encourage employee use of modes other than the single-occupant vehicle.*
  - *Make parking user-friendly – easy to access, easy to understand.*
  - *Provide clear and strategic direction to new development to assure that new growth improves the overall system of access.*
  - *Manage the public parking supply using the 85% Rule[1] to inform and guide decision-making.*

e) Maintain mobility and performance standards that meet the needs of the City and are consistent with regional and State standards.

Action:

- *Maintain levels of service consistent with Metro's Regional Transportation Plan and the Oregon Transportation Plan. Applications for Comprehensive Plan Amendments shall comply with the requirements of OAR 660-012-0060 and as appropriate include a Transportation Impact Analysis that shows that the proposal will not degrade system performance below the acceptable two-hour peak demand-to-capacity ratio of 0.98. If the adopted Comprehensive Plan forecasts a two-hour peak demand-to-capacity ratio greater than 0.98 for a facility, then the proposed amendment shall not degrade performance beyond the forecasted ratio.*

- *System performance criteria and measures of effectiveness used to determine impacts and potential degradation of system performance in the Beaverton Regional Center (designated as an "area of special concern" in the Regional*

[1] The 85% Rule is a measure of parking utilization that acts as a benchmark against which parking management decisions are based. It is assumed that when an inventory of parking shows more than 85 percent occupancy in the peak hour, the supply becomes constrained and may not provide full and convenient access to its intended user. Once a supply of parking routinely exceeds 85 percent occupancy in the peak hour, the 85% Rule would require that parking management strategies be evaluated and/or implemented to bring peak hour occupancies to a level below 85 percent to assure intended uses are conveniently accommodated. (Ordinance 4470)

Transportation Plan) will be based on measures defined in the City of Beaverton Transportation System Plan.

f) Reduce traffic congestion and enhance traffic flow through such system management measures as intersection improvements, intelligent transportation systems, incident management, signal priority, optimization, and synchronization, and other similar measures.

g) Plan land uses to increase opportunities for multi-purpose trips (trip chaining).

Action:

- *Encourage mixed-use development where allowed to promote trip chaining in an effort to reduce vehicle trips, cold starts, and air pollution.*
- *Encourage the development and operation of neighborhood retail and service business in more locations to support local service needs.*
- *Encourage the use of alternative trip generation methodologies in transit-oriented developments and districts, where traditional trip generation expectations can be shown to be inflated.*

h) Require land use approval of proposals for new or improved transportation facilities. The approval process shall consider the project's identified impacts.

i) Support mixed-use development in appropriate locations and encourage local job creation in order to reduce the number of locally generated regional commuting and shopping trips.

j) Coordinate with TriMet and other agencies to implement transit improvements concurrent with roadway improvements, to improve access and frequency of service, to provide parking as appropriate at transit centers, and to increase ridership and service area. Encourage development of regional high capacity transit, including light rail transit, streetcar, and commuter rail.

Action:

- *Support light rail, commuter rail, streetcar, and feeder bus service, and bicycle and pedestrian access to and from transit service.*

6.2.5. Goal: Transportation facilities that serve and are accessible to all members of the community.

Policies:

a) Construct transportation facilities, including access to and within transit waiting areas, to meet the requirements of the Americans with Disabilities Act.

Action:

- *Identify, assess, and remove access barriers to persons with disabilities.*

b) Support TriMet, other transit service providers, and employers' and social service agencies' efforts that respond to the transit and transportation needs of elderly, economically disadvantaged, and disabled persons.

c) The totality of all projects and programs should benefit all populations equally.

6.2.6. Goal:Transportation facilities that provide safe efficient movement of goods.

Policies:

a) Designated arterial routes and freeway access are essential for efficient movement of goods. Design these facilities and adjacent land uses to reflect these needs.

b) Reflect the needs of rail and air transportation facilities and regional mobility corridors in land use decisions.

c) Maintain traffic flow and mobility on arterial and collector roadways. Examples that may be pursued include Transportation System Management (TSM) strategies such as access spacing, intelligent transportation systems (ITS), and signal systems or operational enhancements such as adaptive signal systems.

d) Ensure a safe and efficient freight system that facilitates the movement of goods to, from, and through Beaverton, the region, and the state while minimizing conflicts with other travel modes.

6.2.7 Goal: Implement the transportation plan by working cooperatively with federal, State, regional, and local governments, the private sector, and residents.

Policies:

a) Coordinate transportation projects, policy issues, and development actions with all affected governmental units in the area. Key agencies for coordination include Washington County, Oregon Department of Transportation, TriMet, Metro, Tualatin Hills Park and Recreation District, Tualatin Valley Fire and Rescue, and the adjacent cities of Tigard, Hillsboro, and Portland.

b) Participate in regional transportation, growth management, and air quality improvement programs. Work with agencies to assure adequate funding of transportation facilities to support these programs.

c) Monitor and update the Transportation Element of the Comprehensive Plan so that issues and opportunities are addressed in a timely manner.

d) Maintain a current capital improvement program that establishes the City's construction and improvement priorities, and allocates the appropriate level of funding.

e) Establish rights-of-way through development review and, where appropriate, officially

secure them by dedication or reservation of property.

6.2.8. Goal: Create a stable, flexible financial system.

Policies:

a) Plan for an economically viable and cost-effective transportation system.

b) Identify and develop diverse and stable funding sources to implement recommended projects in a timely fashion.

c) Use the System Development Charge, Traffic Impact Fees, and development exactions as elements of an overall program to pay for adding capacity to the transportation system and for making safety improvements related to development impacts.

Action:

- *Base the transportation system taxes and fees on the total expected cost of making extra capacity and safety improvements over a twenty-year period, allocated back to development on a pro rata formula taking into account the relative expected future transportation impact of the development in question.*

d) Develop a long-range financial strategy to make needed improvements to the transportation system and to support operational and maintenance requirements by working in partnership with Metro, Oregon Department of Transportation, Washington County, and other jurisdictions and agencies.

Actions:

- *The financial strategy should consider the appropriate shares of motor vehicle fees, impact fees, property tax levies, and development contributions to balance needs, costs, and revenue. View the process of improving the transportation system as that of a partnership between the public (through fees and taxes) and private sectors (through exactions and conditions of development approval), each of which has appropriate roles in the financing of these improvements to meet present and projected needs.*

e) Provide adequate funding for maintenance of the capital investment in transportation facilities.

Actions:

- *Develop a long-term financing program that provides a stable source of funds to ensure cost-effective maintenance of transportation facilities and efficient effective use of public funds.*
- *Apply low impact development techniques on a city-wide basis where projects can accommodate the techniques.*
- *Fund the increased cost of the water quality and quantity additions to the streets through the surface water management program fees and systems development charges and other funding sources, as appropriate.*

f) Track and report transportation funding receipts and expenditures for the purposes of keeping Beaverton residents and businesses informed about funding the big picture.

6.3 TRANSPORTATION NEEDS

To establish transportation system needs and guide the development of an updated transportation plan, each mode of travel was inventoried for existing conditions. Then future growth was used to forecast year 2035 conditions for each mode. In addition, revenue streams were analyzed to establish reasonable funding levels that can be anticipated for transportation investment in Beaverton. (Note: the city-wide analysis supporting the identification of transportation needs was not updated upon inclusion of specific policies and projects serving the South Cooper Mountain Community Plan area. However, analysis specific to the planned land uses and transportation improvements identified in the Community Plan was undertaken as part of the planning effort for the Community Plan.)

Existing Conditions

Existing travel activity was collected throughout the City and compared to the previous transportation plan to determine how existing conditions changed. Bicycle volumes were found to have increased during peak traffic hours on corridors where investment was made to provide bike lanes such as 5th Street, Hall Boulevard, Hart Road, Walker Road, Jenkins Road, and on most roadways in downtown Beaverton.

Pedestrian volumes were found to have increased the most near the Beaverton Transit Center, which reflects additional connectivity opportunities to public transit. Motor vehicle volumes were found to have decreased or stayed the same as year 2000 levels on major corridors in the City, which reflects the downturn in the economy as well as improvements in capacity and connectivity in the roadway network. Overall, the volume trends indicated a positive shift away from peak hour motor vehicle trips to other modes.

Since the year 2000 analysis conducted for the previous forecast year 2020 transportation plan, significant investment was made in roadway, pedestrian, and bicycle improvements. In addition, the WES commuter rail line is providing a new public transit mode and link to areas south of Beaverton. Combined with the positive volume shifts observed during peak hours, the transportation system investment has resulted in improved roadway operations in 2008 compared to the year 2000. While there continue to be deficiencies in mobility and connectivity that are yet to be addressed, the efforts of the City and the region to improve transportation conditions in Beaverton is positive and continues to be recognized in such ways as the continued designation of Beaverton as a Bicycle Friendly Community at the Bronze Level by the League of American Bicyclists.

Future Growth

Land use is a key factor in developing a functional transportation system. The amount of land that is planned to be developed, the type of land uses, and how the land uses are mixed together have a direct relationship to expected demands on the transportation system. Projected land uses were developed for areas within the urban growth boundary and reflect the Comprehensive Plan designations and coordination with Metro's 2035 land use projections. These land use projections

were used with Metro's travel demand model to project future travel volumes and determine future needs.

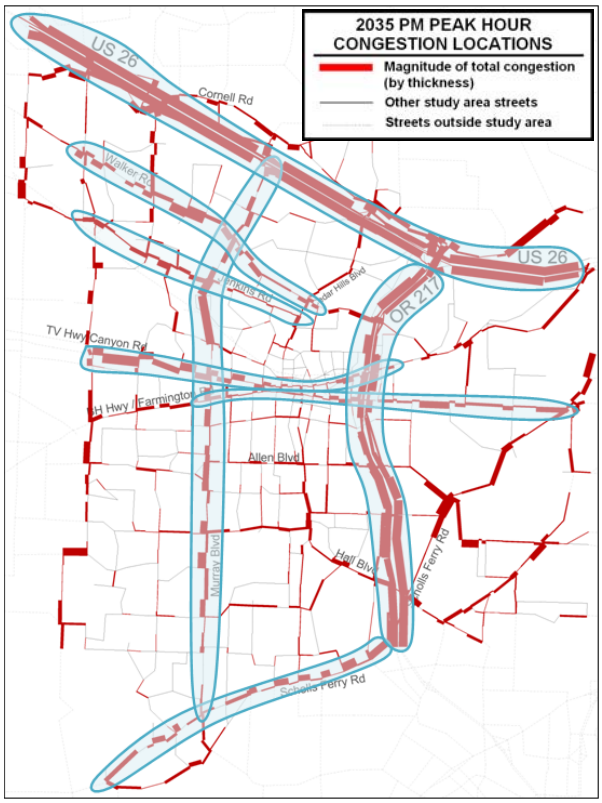
Beaverton Land Use Summary

Land Use	2005	2035	Increase	Percent Increase	Percent Annual Increase
Households (HH)	67,095	96,995	29,900	44%	1.2%
Retail Employees (RET)	23,395	36,240	12,845	55%	1.5%
Service Employees (SER)	30,342	64,732	34,390	113%	2.6%
Other Employees (OTH)	40,074	46,719	6,645	17%	0.5%

Source: Metro

Future Needs

Based upon land use and growth in the City and the increase in regional travel coming through Beaverton, future year 2035 conditions were evaluated. The impact of future growth would be severe without significant investment in transportation improvements. Corridors would become unmanageably congested resulting in travel speeds below five miles per hour over long stretches of road. The duration of congestion is likely to increase as a result of "peak spreading" and the additional demand on the transportation system that is already at or near capacity during the current peak periods. The greatest problem areas can be grouped into the following key deficiency areas:



Congestion Locations

- Lack of east-west capacity – Three of the key east-west routes (Tualatin Valley Highway, Cornell and Farmington) all experience significant congestion problems if improvements are not made.
- Lack of connectivity – Areas near OR 217 between Walker and Hall are the best examples, where all north-south movements must use local streets or divert to neighboring arterials. In addition, connections between Scholls Ferry Road and Oleson Road are limited.
- Lack of intersection turning capacity – Many intersections experience congested conditions and need additional right and left turning capacity.
- System performance issues – Traffic queues extending into upstream intersections along some corridors increase delay by blocking adjacent intersections so that only limited numbers of vehicles are able to travel through the intersection while the signal is green. This indicates the need for system management and considering corridor needs rather than individual intersections.

- The capacity deficiencies throughout the City indicate the need to not only invest in roadway operations and capacity, but also a need to balance investment with other modes of travel to provide improved travel choices and reduce the demand on the system. Projects to respond to these needs are identified in the transportation plan. In areas outside City limits, designations and projects included in the transportation plan are considered recommendations to the appropriate lead agency(ies) responsible for that area or facility.

Funding

Through previous planning efforts, transportation studies, and updates to the City's transportation plan, numerous transportation projects were identified to address future needs, creating an extensive set of system solutions in the 2015 and 2020 TSPs. While the majority of these projects identified in prior efforts remain applicable to existing and future needs of the transportation system, the large set of projects was not developed with financial constraints. The total for needed projects under City jurisdiction identified in the 2035 and 2020 TSPs is currently over $700 million. This level of transportation investment cannot be reasonably funded with anticipated City transportation revenues through 2035 of approximately $185 million.

Beaverton Funding Gap	
Item	**Total**
Capital Project Funding	$185 million
Previously Identified Projects (RTP & 2020 TSP)	$720 million
Funding Gap:	**$-535 million**

The costs of the transportation projects identified in the RTP and TSP exceed the reasonably expected funding levels by approximately $535 million. Since funding is not available for the entire set of identified projects, a subset of projects that can be reasonably funded was selected for prioritization and implementation. The purpose of the alternatives analysis performed for the 2035 TSP was to determine the needed projects and programs from current and past TSPs and the RTP that provide the greatest benefit to the transportation system using the estimated available funding resources.

6.4 DEVELOPING A FINANCIALLY CONSTRAINED TRANSPORTATION PLAN

To address system needs in the high-priority corridors, improvement projects from previous TSPs and other relevant studies were compiled and assessed for their potential to serve priority corridor travel patterns. Projects that were estimated to serve a priority corridor were then prioritized by mode to develop a high-priority list of projects that form the financially constrained Beaverton Action Plan.

All other projects continue to be recognized as needed Master Plan projects, meaning that the need remains, and if unanticipated funding sources become available, these projects will be pursued for implementation. **These RTP and City bicycle, pedestrian, street, and intersection improvement projects are included in the 2035 TSP, which is in Appendix IV**. They are not considered funded, however, for purposes of this Transportation Element.

Pedestrian Improvements

The existing pedestrian system network map was updated from the previous TSP to reflect recent improvements and the expanded study area. In most cases sidewalk improvements are aimed at closing gaps in the existing sidewalk network to provide connectivity rather than capacity. Generally, it is more important that a continuous sidewalk be available than it be of a certain type or size. Figure 6.1 Pedestrian Master Plan shows the existing gaps in the pedestrian system along arterial and collector roadways, as well as various activity generators that have the potential to attract pedestrian use.

Metro's RTP includes designations for pedestrian districts and transit/mixed use corridors. The RTP defines pedestrian districts as areas of high or potentially high pedestrian activity where regional policy places priority on creating a safe, direct, and attractive pedestrian environment. In general, these are areas planned for compact, mixed-use development served by transit and correspond to the following 2040 design type designations within the City of Beaverton: regional centers (RC), town centers (TC), station communities (SC), main streets, and corridors. The corresponding areas within the 2035 TSP boundary include the Beaverton Downtown RC, the Washington Square RC, Murray Scholls TC, Raleigh Hills TC, Cedar Mill TC, and the station communities including Sunset Transit Center, 185th and Baseline, Tektronix, Beaverton Creek, Elmonica/ Merlo. Areas such as these areas should be characterized by buildings oriented to the street and by boulevard street design features such as wider sidewalks with buffering from traffic, marked street crossing at intersections, pedestrian-scale lighting, benches, bus shelters, and street trees.

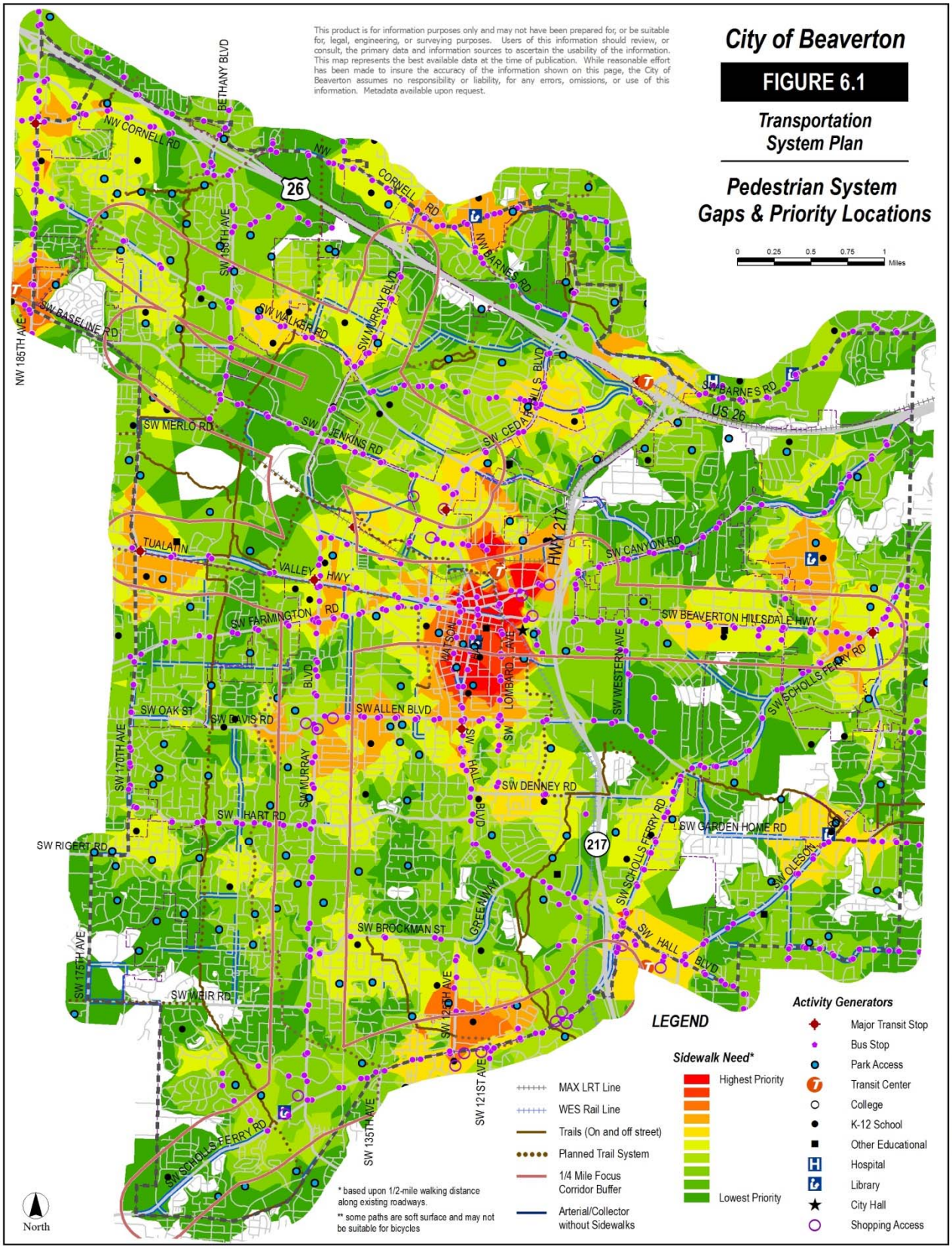
Transit/mixed-use corridors are defined as priority areas for pedestrian travel that are served by good quality transit service and that will generate substantial pedestrian traffic near neighborhood-oriented retail development, schools, parks, and bus stops. These corridors should include such design features as wide sidewalks with buffering from traffic, pedestrian scale-lighting, benches, bus shelters, and street trees. The 2040 design type designation for transit/mixed-use corridors is "Corridors." The corresponding corridor areas within the 2008 Beaverton TSP boundary include Murray Boulevard, Scholls Ferry Road, Hall Boulevard, Beaverton Hillsdale Highway/ Farmington Road, Canyon Road/ Tualatin Valley Highway, Cedar Hills Boulevard, Walker Road, and Cornell Road. The City of Beaverton Development Code regulations require new development in the pedestrian districts and transit/mixed use corridors to comply with the RTP descriptions listed above.

The most important existing pedestrian need in Beaverton is a well-connected pedestrian system within a half-mile grid of light rail transit (LRT) stations and key centers in Beaverton (parks, schools, retail, etc.). Additional needs include safe, direct and convenient access to transit and crossings of large arterial streets which act as barriers to pedestrian movement, marked crossings at major transit stops, as well as a sidewalk connectivity plan. A well-connected pedestrian system in the RTP designated pedestrian districts and transit/mixed use corridors will insure direct and logical pedestrian crossings at transit stops. The City of Beaverton coordinates with Washington County, TriMet, Metro, and ODOT to ensure that major transit stops are located at sites with a signalized and/or marked pedestrian crossing. In the future, additional activity centers will need to be considered and interconnected with the existing pedestrian system. The ranking of pedestrian strategies from the previous TSP is listed from most important to least important:

- Connect key pedestrian corridors to schools, parks, recreational uses and activity centers (public facilities, commercial areas, etc.)
- Fill in gaps in the network where some sidewalks exist
- Pedestrian corridors to transit stations and stops
- Signalized pedestrian crossings
- Pedestrian corridors that connect neighborhoods
- Improve streets having sidewalks on one side to two sides
- As development occurs, construction of sidewalks by developers
- Pedestrian corridors that commuters might use
- Reconstruct all existing substandard sidewalks to City standards

The transportation network was analyzed to determine potential sidewalk locations that would maximize the benefit of additional infrastructure by providing service to as many activity locations as possible. In Figure 6.1, areas that would serve the greatest number of activity generators (generally located in dense development) are indicated in red, while locations that lie outside the walking distance, assumed to be ½ mile, to activity generators (generally areas of sparse development) or would provide benefit to the least number of users are indicated in green. Sidewalk gaps that exist in red shading indicate potential locations for prioritizing sidewalk improvements or additions. The figure indicates that the highest priority need locations lie within the Beaverton Regional Center, around Walker Road/170th Avenue, and along 155th Avenue between Davis Road and Weir Road.

The existing gap locations shown in Figure 6.1 represent the ultimate Pedestrian Master Plan of pedestrian system needs and projects. Those projects that were selected as high priority locations and are reasonably likely to be funded by 2035 are included in Table 6-1 Action Plan with other modal Action Plan projects. Figure 6.5 indicates the locations for these high priority projects.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City of Beaverton
FIGURE 6.1
Transportation System Plan
Pedestrian System Gaps & Priority Locations
0 0.25 0.5 0.75 1 Miles
BETHANY BLVD
NW CORNELL RD
26
NW 185TH AVE
SW BASELINE RD
SW 198TH AVE
SW WALKER RD
SW MURRAY BLVD
NW BARNES RD
SW BARNES RD
US 26
SW MERLO RD
SW JENKINS RD
SW CEDAR HILLS BLVD
TUALATIN VALLEY HWY
SW FARMINGTON RD
HWY 217
SW CANYON RD
SW BEAVERTON HILLSDALE HWY
SW WESTERN AVE
SW SCHOLLS FERRY RD
SW OAK ST
SW DAVIS RD
SW ALLEN BLVD
SW LOMBARD AVE
SW HALL BLVD
SW 170TH AVE
SW MURRAY BLVD
SW HART RD
SW DENNEY RD
SW GARDEN HOME RD
SW RIGERT RD
217
SW BROCKMAN ST
GREENWAY
SW 175TH AVE
SW WEIR RD
SW 125TH AVE
SW 121ST AVE
SW 135TH AVE
SW HALL BLVD
LEGEND
MAX LRT Line
WES Rail Line
Trails (On and off street)
Planned Trail System
1/4 Mile Focus Corridor Buffer
Arterial/Collector without Sidewalks
Sidewalk Need*
Highest Priority
Lowest Priority
Activity Generators
Major Transit Stop
Bus Stop
Park Access
Transit Center
College
K-12 School
Other Educational
Hospital
Library
City Hall
Shopping Access
* based upon 1/2-mile walking distance along existing roadways.
** some paths are soft surface and may not be suitable for bicycles
North
10_0274 S:_TRANSPORTATION_2010\10_0274\FIG_6.1.mxd GIS-MRJ 20110128

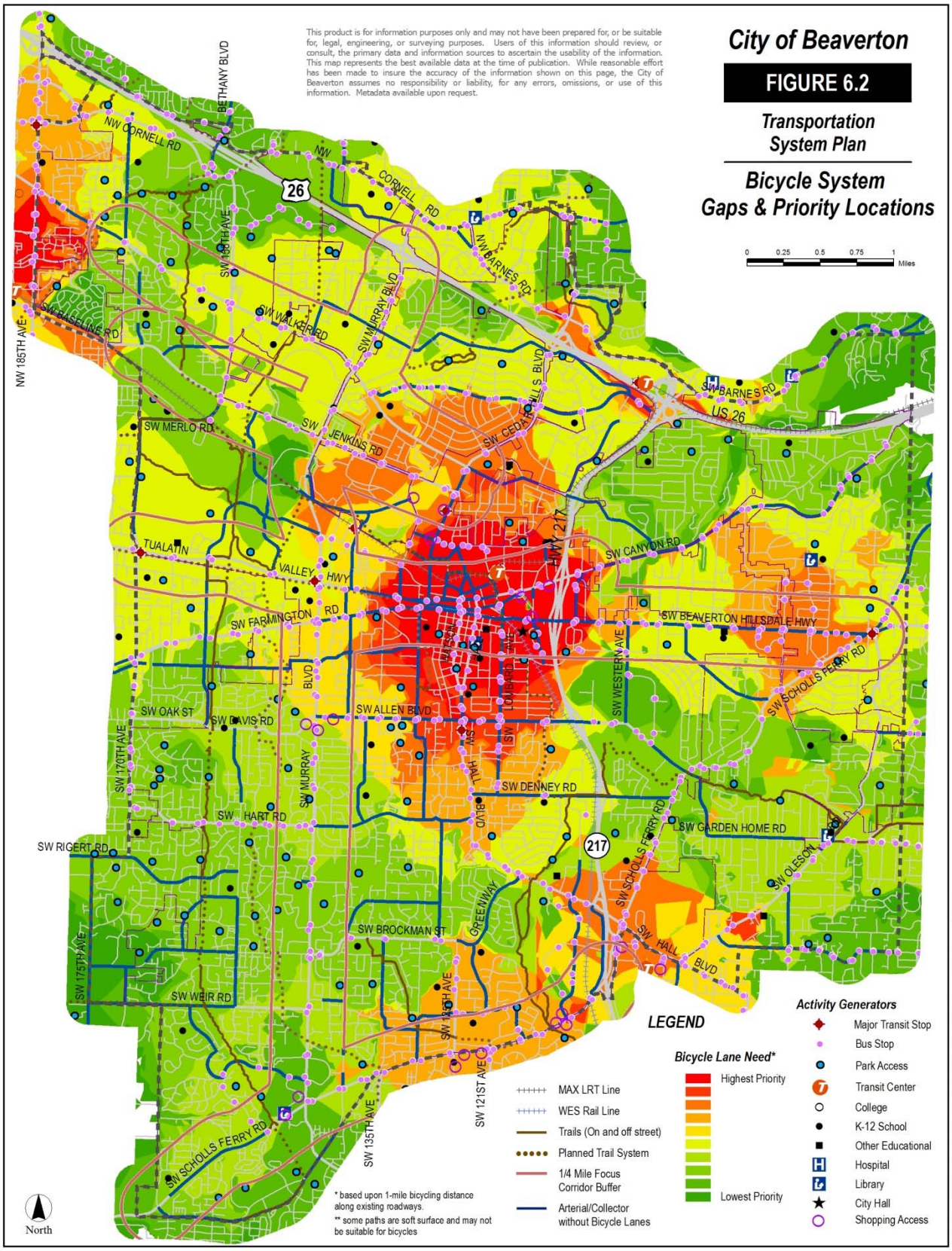
Bicycle Improvements

The Bicycle Master Plan has been updated from the previous TSP to include completed improvement projects and the expanded study area. Bikeway improvements are aimed at closing the gaps in the bicycle network along arterial and collector roadways. The ranking of the bicycle strategies from the previous transportation plan is listed from most important to least important:

- Connect key bicycle corridors to schools, parks, recreational uses and activity centers (public facilities, commercial areas, transit centers, etc.)
- Fill in gaps in the network where some segments of bikeway exist
- Bicycle corridors that connect neighborhoods
- Construct bike lanes with roadway improvement projects
- Bicycle corridors that commuters might use
- Bicycle corridors providing mobility to and within commercial areas

State policy from the Transportation Planning Rule and City of Beaverton policy require that all arterial and collector roads have bikeways. City standards require that all arterials and collectors have bike lanes. Figure 6.2 Bicycle Master Plan shows the existing gaps in the bicycle system along arterial and collector roadways, as well as various activity generators that have the potential to attract bicycle use. As with the pedestrian system, the transportation network was analyzed to determine potential bicycle lane locations that would maximize the benefit of such widening or striping by providing service to as many activity locations as possible. In Figure 6.2, areas that would serve the greatest number of activity generators (generally located in dense development) are indicated in red, while locations that lie outside the cycling distance (assumed to be two miles) to activity generators or would provide benefit to the least number of users, are indicated in green. Bicycle lane gaps that exist in red shading indicate potential locations for prioritizing improvements such as striping or widening.

The highest priority locations for filling bicycle lane gaps are along Beaverton Hillsdale Highway between White Pine Lane and 107th Avenue, and Western Avenue and Jamieson Road south of Beaverton Hillsdale Highway. The existing gap locations shown in Figure 6.2 represent the ultimate master plan of bicycle system needs and projects. Those projects that were selected as high priority locations and are reasonably likely to be funded by 2035 are included in Table 6-1, the financially constrained improvement plan, with other modal projects. Figure 6.2a represents the bicycle and pedestrian needs for the South Cooper Mountain Community Plan Area. Figure 6.5 shows the locations for these high priority projects.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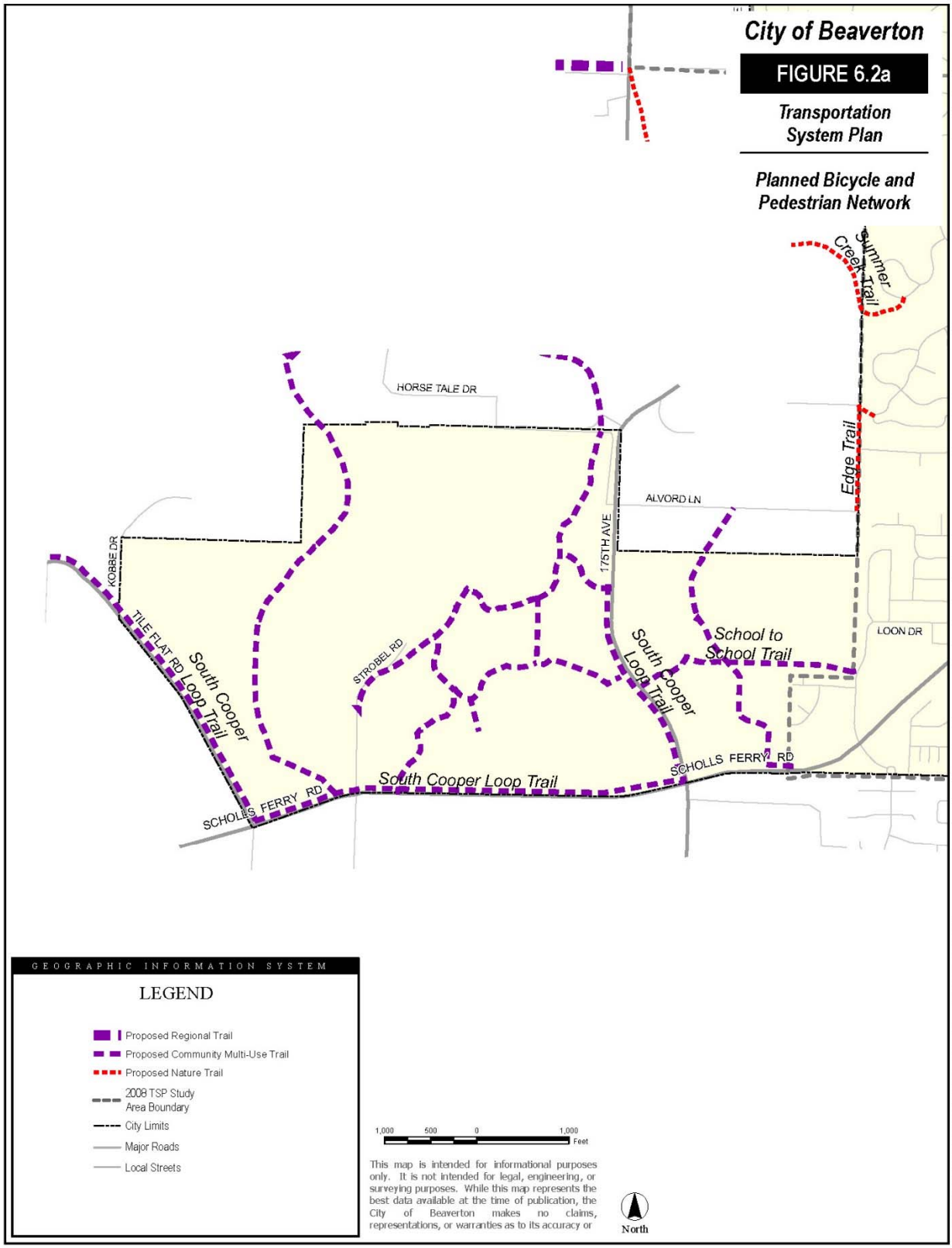
City of Beaverton
FIGURE 6.2
Transportation System Plan
Bicycle System Gaps & Priority Locations
0 0.25 0.5 0.75 1 Miles
BETHANY BLVD
NW CORNELL RD
NW CORNELL RD
26
NW BARNES RD
SW 185TH AVE
SW WALKER RD
SW MURRAY BLVD
SW BARNES RD
US 26
SW MERLO RD
SW JENKINS RD
SW CEDAR HILLS BLVD
TUALATIN VALLEY HWY
HWY 217
SW CANYON RD
SW FARMINGTON RD
SW BEAVERTON HILLSDALE HWY
SW WESTERN AVE
SW SCHOLLS FERRY RD
SW OAK ST
SW DAVIS RD
SW ALLEN BLVD
SW 170TH AVE
SW MURRAY BLVD
SW DENNEY RD
SW HART RD
SW GARDEN HOME RD
SW RIGERT RD
217
SW OLESON RD
SW BROCKMAN ST
SW HALL BLVD
SW 175TH AVE
SW WEIR RD
SW 135TH AVE
SW 121ST AVE
SW SCHOLLS FERRY RD
North
LEGEND
MAX LRT Line
WES Rail Line
Trails (On and off street)
Planned Trail System
1/4 Mile Focus Corridor Buffer
Arterial/Collector without Bicycle Lanes
Bicycle Lane Need*
Highest Priority
Lowest Priority
Activity Generators
Major Transit Stop
Bus Stop
Park Access
Transit Center
College
K-12 School
Other Educational
Hospital
Library
City Hall
Shopping Access
* based upon 1-mile bicycling distance along existing roadways.
** some paths are soft surface and may not be suitable for bicycles
10_0274 S:_TRANSPORTATION_2010\10_0274\FIG_6.2.mxd GIS-MRJ 2011-0-28


City of Beaverton
FIGURE 6.2a
Transportation System Plan
Planned Bicycle and Pedestrian Network
Summer Creek Trail
HORSE TALE DR
Edge Trail
ALVORD LN
175TH AVE
KORBE DR
TILE FLAT RD
South Cooper Loop Trail
STROBEL RD
School to School Trail
LOON DR
SCHOLLS FERRY RD
South Cooper Loop Trail
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
Proposed Regional Trail
Proposed Community Multi-Use Trail
Proposed Nature Trail
2008 TSP Study Area Boundary
City Limits
Major Roads
Local Streets
1,000 500 0 1,000 Feet
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North
S:_CDD_2014_14_0871114_0871_BikePedFIG_6-2a.mxd GIS-DT 11/26/2014

Transit Improvements

The existing TriMet services corridors were reviewed to determine which corridors may potentially be underserved in the future as development occurs if transit frequencies are not increased. To support TriMet investment in the potentially underserved corridors, pedestrian and bicycle connectivity was prioritized within one-quarter mile of major corridors. In addition to current transit service, WES Commuter Rail service connecting Beaverton to Wilsonville will enhance the area's access to employment. The service is focused on peak commute periods and will potentially reduce the congestion of adjacent frequent or regional bus routes and Highway 217. The importance of the frequent and regional bus lines in Beaverton will be enhanced as more passengers travel through Beaverton on both the MAX and WES lines leading to more passenger transfers throughout the city.

The existing transit system coverage area includes approximately 77 percent of the modeled transit supportive zones within the Beaverton TSP study area[2]. The future 2035 land use would increase the transit supportive area and the percentage of coverage to approximately 81 percent without an increase in service coverage.

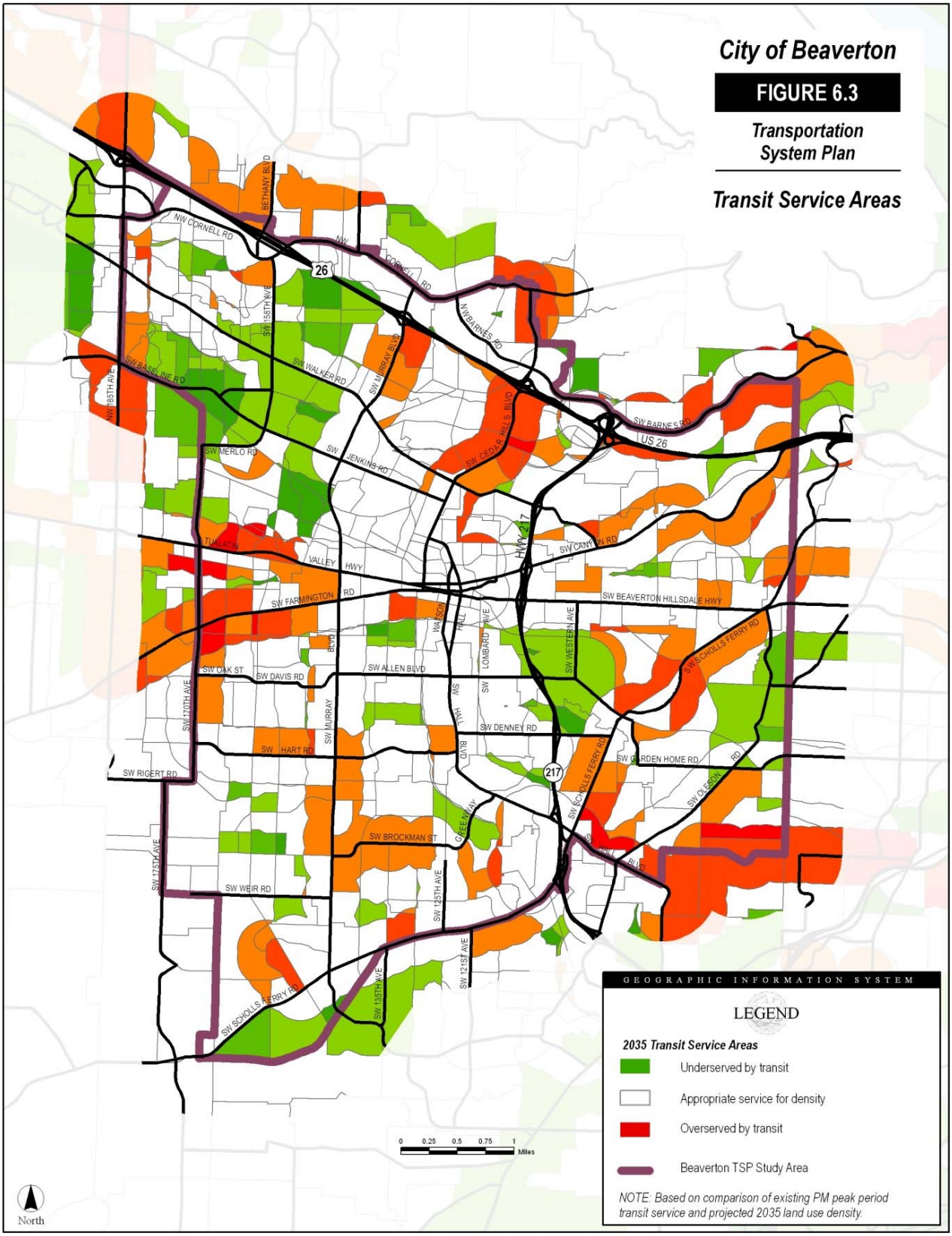
Corridors designated as frequent bus routes by the RTP in the 2035 TSP study area include Beaverton Hillsdale Highway, Tualatin Valley Highway, Cedar Hills Boulevard, and Hall Boulevard. Major Streets designated as regional bus routes in the 2035 TSP study area include Barnes Road, Murray Boulevard, 185th Avenue, Walker Road, Canyon Road, Farmington Road, Lombard Avenue, Allen Boulevard, Garden Home Road, Oleson Road, and Scholls Ferry Road.

Future transit stops along these streets would further improve the coverage of the transit supportive area in Beaverton:

- 173rd Avenue between Cornell Road and Walker Road
- Davis Road between 170th Avenue and Murray Boulevard
- Hart Road between Murray Boulevard and Hall Boulevard
- Weir Road between Murray Boulevard and Mount Adams Drive
- Scholls Ferry Road between Loon Drive and 155th Terrace
- Oleson Road between Garden Home Road and Scholls Ferry Road

Because TriMet is responsible for the region's transit master plan, it continually updates and reevaluates its coverage and routes, and adopts a five-year Transit Improvement Plan. The City reviews and comments on these and participates in the High Capacity Transit Plan and RTP development. Thus, the coverage area map, the RTP plans and projects, and the above recommendations to TriMet comprise the City's recommendations for transit improvements.

[2] Coverage is determined as the area within 0.25 miles of a bus stop or 0.50 miles of a light rail transit stop


City of Beaverton
FIGURE 6.3
Transportation System Plan
Transit Service Areas
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
2035 Transit Service Areas
Underserved by transit
Appropriate service for density
Overserved by transit
Beaverton TSP Study Area
NOTE: Based on comparison of existing PM peak period transit service and projected 2035 land use density.
0 0.25 0.5 0.75 1 Miles
North
BETHANY BLVD
NW CORNELL RD
SW BASELINE RD
SW MERLO RD
SW WALKER RD
SW MURRAY BLVD
NW BARNES RD
SW BARNES RD
US 26
SW CEDAR HILLS BLVD
SW JENKINS RD
SW CANYON RD
SW BEAVERTON HILLSDALE HWY
SW FARMINGTON RD
SW OAK ST
SW DAVIS RD
SW ALLEN BLVD
SW DENNEY RD
SW HART RD
SW RIGERT RD
SW BROCKMAN ST
SW WEIR RD
SW SCHOLLS FERRY RD
SW GARDEN HOME RD
SW 170TH AVE
SW 175TH AVE
SW 125TH AVE
SW 121ST AVE
SW 135TH AVE
217

Functional Classification Plan

The current functional classification of streets in Beaverton was updated to reflect the expanded TSP study area, on-going regional planning, the functional needs of Beaverton, and consistency with the RTP. Classifications of principal arterial, arterial, collector, neighborhood route, and local were developed based on connectivity (defined in the 2020 TSP), which is the best indicator of function. Figures 6-4 and 6.4a provide the functional classification of Beaverton streets. Streets designated in the RTP are to be designed with a modal orientation that reflects the function of the street and the character of surrounding land uses.

Freeways provide the highest level of connectivity. These roadways generally span several jurisdictions and are of regional and statewide importance.

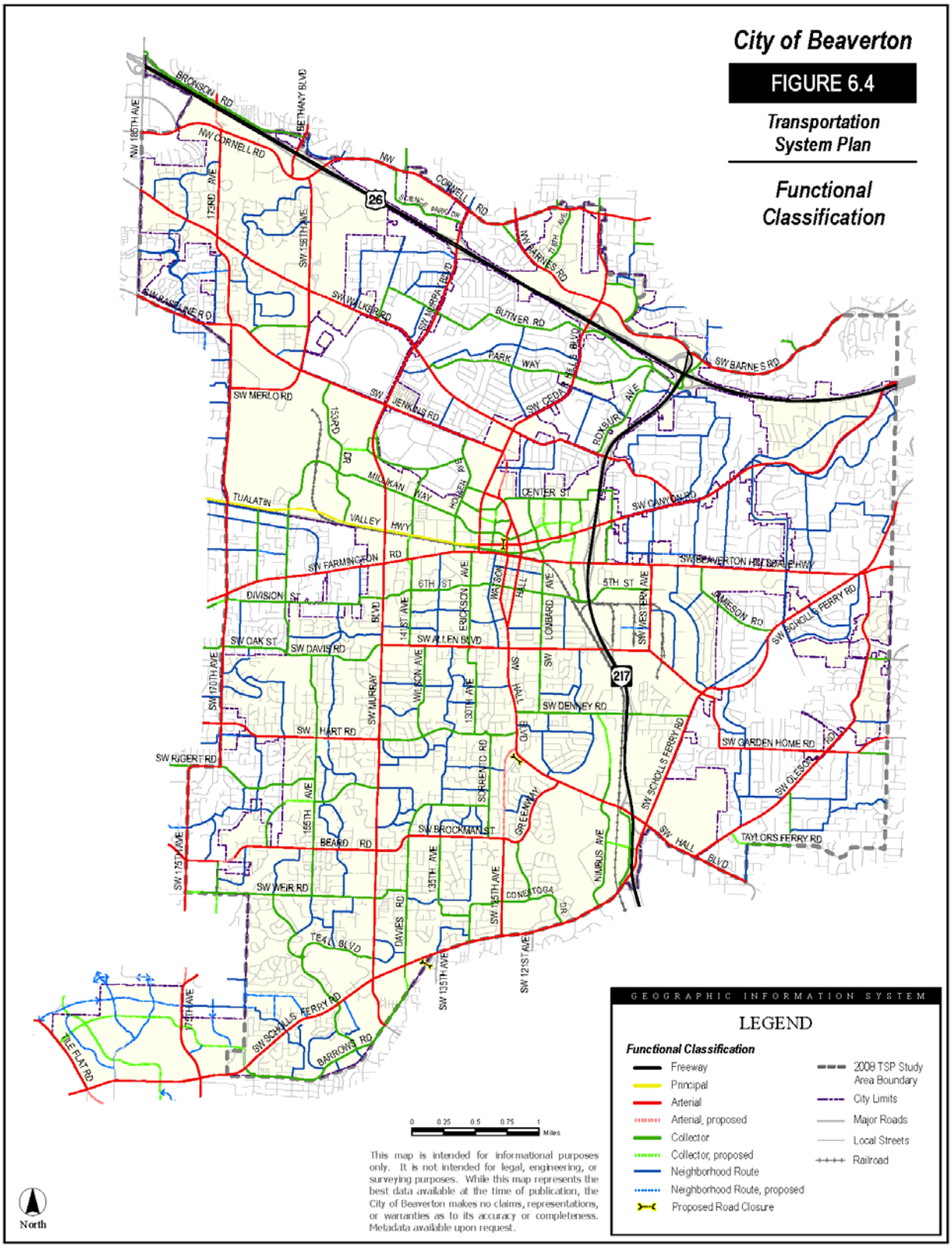
Principal arterial streets serve to connect neighboring cities and urban areas. They are of regional significance and often of statewide importance as well.

Arterial streets serve to interconnect and support principal arterials and freeways. They link major commercial, residential, industrial, and employment areas. Arterials are typically spaced about one mile apart to assure access to through routes and to reduce the incidence of traffic using collectors or local streets in lieu of a well-placed arterial street.

Collector streets balance access and circulation within residential, commercial, and industrial areas. Collectors differ from arterials in that they provide circulation within the city and distribute trips onto neighborhood routes and local streets.

Neighborhood routes are usually longer than local streets and provide connectivity to collectors or arterials. Because they have greater connectivity, they generally have more traffic than local streets and are used by residents to get into and out of their neighborhoods.

Local streets have the sole function of providing access to adjacent land. Local street design deliberately discourages through traffic and is important to neighborhood identity.


City of Beaverton
FIGURE 6.4
Transportation System Plan
Functional Classification
BRONSON RD
BETHANY BLVD
NW CORNELL RD
NW 185TH AVE
NW 173RD AVE
SW 185TH AVE
SW WALKER RD
SW PACIFIC HWY
NW CORNELL RD
NW BARNES RD
BUTNER RD
SW BARNES RD
PARK WAY
SW CEDAR HILLS BLVD
SW MERLO RD
SW JENKINS RD
SW 155TH AVE
MILLIKAN WAY
TUALATIN VALLEY HWY
CENTER ST
SW CANYON RD
SW FARMINGTON RD
SW BEAVERTON HILLSDALE HWY
DIVISION ST
6TH ST
5TH ST
SW 141ST AVE
SW ALLEN BLVD
SW OAK ST
SW DAVIS RD
SW 170TH AVE
SW MURRAY BLVD
SW WILSON AVE
SW 130TH AVE
SW HALL BLVD
SW LOMBARD AVE
SW WESTERN AVE
JAMESON RD
SW SCHOLLS FERRY RD
SW DENNEY RD
SW HART RD
SW RIGERT RD
SW GARDEN HOME RD
SW OLESON RD
SW 175TH AVE
SW 165TH AVE
SORRENTO RD
SW BROCKMAN ST
GREENWAY
NIMBUS AVE
TAYLORS FERRY RD
SW HALL BLVD
BEARD RD
SW WEIR RD
SW 135TH AVE
SW 125TH AVE
CONESTOGA DR
DAVIES RD
TEAL BLVD
SW 121ST AVE
SW 135TH AVE
SW 74TH AVE
TILE FLAT RD
SW SCHOLLS FERRY RD
BARROWS RD
217
26
0 0.25 0.5 0.75 1 Miles
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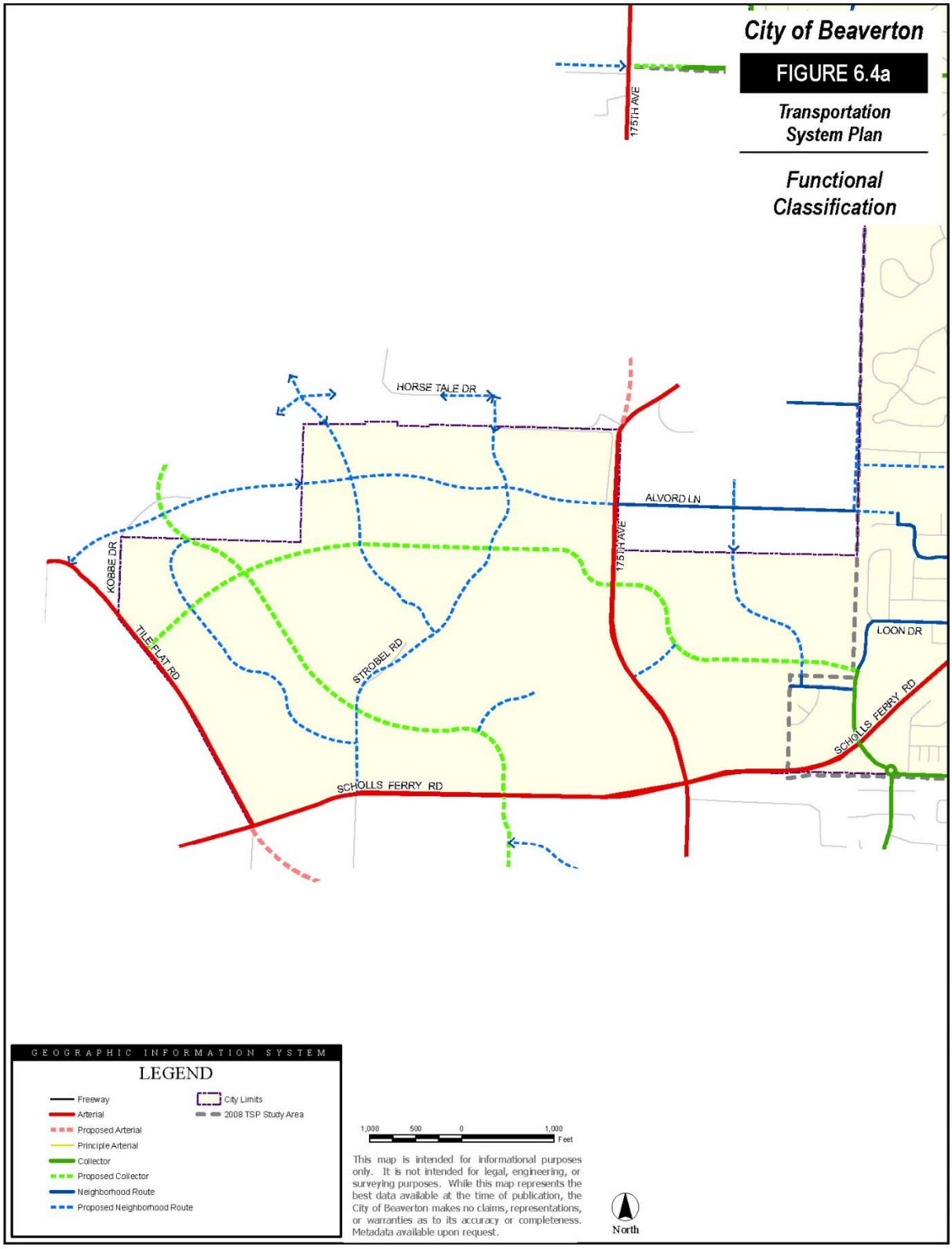
North
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
Functional Classification
Freeway
Principal
Arterial
Arterial, proposed
Collector
Collector, proposed
Neighborhood Route
Neighborhood Route, proposed
Proposed Road Closure
2008 TSP Study Area Boundary
City Limits
Major Roads
Local Streets
Railroad
S:_CDD_2014_14_0859\14_0859_FunctionalClassification\FIG_6-4.mxd GIS-DT 11/26/2014


City of Beaverton
FIGURE 6.4a
Transportation System Plan
Functional Classification
HORSE TALE DR
ALVORD LN
175TH AVE
KORBE DR
TILE FLAT RD
STROBEL RD
LOON DR
SCHOLLS FERRY RD
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
Freeway
Arterial
Proposed Arterial
Principle Arterial
Collector
Proposed Collector
Neighborhood Route
Proposed Neighborhood Route
City Limits
2008 TSP Study Area
1,000 500 0 1,000 Feet
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North
S:_CDD_2014_14_067114_0871_Functional\ClassificationFIG_6-4a.mxd GIS-DT 11/26/2014

Transportation Demand Management

Transportation Demand Management (TDM) is the general term used to describe any action that removes single occupant vehicle trips from the roadway network during peak travel demand periods. As growth in the Beaverton area occurs, the number of vehicle trips and travel demand in the area will also increase. The ability to change a user's travel behavior and provide alternative mode choices will help accommodate this growth.

Generally, TDM focuses on reducing vehicle miles traveled and promoting alternative modes of travel for large employers of an area. This is due in part to the Employee Commute Options (ECO) rules that were passed by the Oregon Legislature in 1993 to help protect the health of Portland area residents from air pollution and to ensure that the area complied with the Federal Clean Air Act.[3]

Research has shown that a comprehensive set of complementary policies implemented over a large geographic area can have an effect on the number of vehicle miles traveled to/from that area.[4] However, the same research indicates that in order for TDM measures to be effective, they should go beyond the low-cost, uncontroversial measures commonly used such as carpooling, transportation coordinators/associations, priority parking spaces, etc. The more effective TDM measures include elements related to parking, improved services for alternative modes of travel, and other market-based measures. However, TDM includes a wide variety of actions that are specifically tailored to the individual needs of an area.

Redevelopment in the Beaverton area will also allow for TDM friendly development. With many regional trips destined to, or traveling through, the Beaverton area, region wide TDM measures should help to reduce congestion. Metro has established non-SOV (Single Occupancy Vehicle) mode share targets by 2040 for regional centers. These targets may also serve as performance measures for areas that have been designated as "Areas of Special Concern" The Beaverton Regional Center is classified by Metro as this type of area.[5] The 2040 non-SOV modal target for regional centers, town centers, station communities, main streets, and corridors is 45-55%.[6]

Transportation System Management

Transportation System Management (TSM) focuses on lower cost strategies to enhance operational performance of the transportation system by seeking solutions to immediate transportation problems, finding ways to better manage transportation, maximizing urban mobility, and treating all modes of travel as a coordinated system. These types of measures include such things as signal improvements, ramp metering, traffic calming, access management, intelligent transportation systems (ITS) and programs that enhance and smooth transit operations. Typically, the most significant measures that can provide tangible benefits to the traveling public are traffic signal coordination and systems.

---

[3] Oregon Administrative Rules, Chapter 340, Division 30.

[4] *The Potential for Land Use Demand Management Policies to Reduce Automobile Trips*, ODOT, by ECO Northwest, June 1992.

[5] Based on the *2000 Metro Regional Transportation Plan*, Ordinance No. 00-869A (August 10, 2000), page 1-32.

[6] Based on the *2000 Metro Regional Transportation Plan*, Ordinance No. 00-869A (August 10, 2000), page 1-62.

TSM measures focus primarily on region wide improvements; however there are a number of TSM measures that are used in a smaller scale environment such as the Beaverton area. The following are TSM strategies appropriate for Beaverton to continue implementing:

- Traffic monitoring: The City and Washington County routinely collect traffic volume data in the area. The data is used as a tool to compare historical growth. The use of closed circuit television cameras and vehicle detection systems are used to help monitor the network during peak hours in order to make adjustments to signal timing to help improve flow and decrease delay, travel time, fuel consumption, and vehicle emissions.

- Signal coordination and optimization, and adaptive signal systems: The state-of-the-art traffic signal systems, using a central computer to communicate and coordinate timing plans, have proven to produce substantial benefits in reducing congestion and travel time while increasing travel speeds. In Beaverton, a recent signal timing update on Canyon Road corridor showed a reduction of 12 percent in total delay during midday, and 11 percent during the weekend period. Overall, the new signal update resulted in up to a 10 percent reduction in stops in the corridors and up to 11 percent reduction in overall delay. The reduction in side street delay in the project corridor ranged from eight percent to 33 percent. The implementation of signal optimization helps to maximize the total cycle length of a signal to provide optimal timing patterns for both the main arterial and the side street traffic. Optimization can provide additional reliability and efficiency for the transportation network. Adaptive signals are most responsive to traffic conditions and improve flow by 10 percent to 30 percent.

- Signal priority: The provision of signal priority works for both transit vehicles and emergency vehicles. Both operate on the same principles, which are improving the reliability and speed of the vehicles. Implementation of transit signal priority may supplement bus rapid transit (BRT) to improve transit travel along a corridor, allowing a bus to clear an intersection and begin passenger boarding/alighting downstream of the signal. Studies indicate that with signal priority transit travel times have decreased from 15 percent to 18 percent, while service reliability has increased from 12 percent to 23 percent for on-time performance.[7] These improvements can help cost effectiveness for transit operations.

- Information availability: An uninformed public can make inefficient transportation choices that could place a strain on the limited available capacity of a transportation network. This could create more congestion in an area that is already highly congested. By providing travelers with real-time information, the ability to make a more informed and efficient transportation decision is available.

- Incident management: Incident management includes detection, verification, response, site management, traffic management, clearance time, and recovery. Each of these steps takes time, during which the transportation operations along the corridor decrease. Research indicates that effective incident management has the potential to reduce response times by 40

[7] *Intelligent transportation system initiatives in Clark County: VAST Program,* January 2001.

percent and decrease fatalities by 10 percent in urban areas.[8] In addition, incident management has the potential to reduce delay to users and reduce emissions from vehicles.

- Access management strategies: Access management is important, particularly on high volume roadways, for maintaining traffic flow and mobility. Where local and neighborhood streets function to provide access, collector and arterial streets serve greater traffic volume. Numerous driveways, or street intersections, increase the number of conflicts and potential collisions and decrease mobility and traffic flow. Beaverton, and every city, needs a balance between streets that provide access and streets that serve mobility.

  Based on the 1999 Oregon Highway Plan (OHP), access points should not be allowed within 1320 feet of freeway interchanges. Interchanges within the TSP study area exist with numerous access points within 1320 of the interchange. These access points are locations of potential conflict with vehicles queued from the freeway on ramps, especially with queues formed from ramp meters. The following recommendation addresses the need to reclaim vehicular access control near the freeway interchanges to meet ODOT spacing standards:

  - As property redevelops, an evaluation of compliance with relevant access management policies is made for areas proximate to freeway interchanges.
  - If an existing access point is found non-compliant and it is the sole vehicular access for the property, a temporary access permit is issued that allows the property owners to continue access until such a time that alternative means can be made available.
  - In addition, the applicant will agree to potential cross-easements for circulation between adjoining properties.
  - When adjoining property re-develops that has compliant alternatives for vehicular access, the temporary permit of the first property owner is terminated and the noncompliant access is closed.
  - Intelligent Transportation System (ITS): ITS involves the application of advanced technologies and proven management techniques to relieve congestion, enhance safety, provide services to travelers, and assist transportation system operators in implementing suitable traffic management strategies. ITS focuses on increasing the efficiency of existing transportation infrastructure, which enhances the overall system performance and reduces the need to add capacity. Efficiency is achieved by providing services and information to travelers so they will make better travel decisions and to transportation system operators so they can better manage the system and improve system reliability. A regional ITS framework plan[9] has been developed by Washington County, ODOT, City of Beaverton, City of Tualatin, City of Tigard, City of Hillsboro, City of Portland, TriMet, FHWA, Washington County Consolidated Communications Agency (WCCCA) and Tualatin Valley Fire and Rescue that includes projects in the Beaverton area such as traffic monitoring, signal controller interconnect, information availability, incident management, weather data collection, traffic data retrieval, and advanced rail warning systems.

[8] *Intelligent Transportation System Initiatives in Clark County: VAST Program*, January 2001.

[9] Washington County ITS Plan, prepared for ODOT by DKS Associates and ,

While the existing ITS infrastructure in Beaverton is moderate, projects planned through 2035 will greatly increase coverage and the type of ITS equipment used in Beaverton and throughout Washington County. Existing ITS equipment in Beaverton, future equipment that is included in the Washington County ITS Plan, and additional future equipment and projects can be used to improve operations in Beaverton. The following actions should be taken as follows:

- Implement ITS projects previously contained in the Washington County ITS plan, including:
  - Install fiber communication lines along US 26 from Highway 217 to the Helvetia interchange and along Tualatin Valley Highway from US 26 to Hillsboro.
  - Install an arterial management system along Scholls Ferry Road from Hall Boulevard to Murray Boulevard, along southwest 185th Avenue from US 26 to Baseline Road and along Cornell Road from Cornelius Pass Road to Hillsboro.
  - Installation of central signal system software that allows remote management of traffic signals and is integrated with other agencies throughout the region. Configure a virtual traffic operation center (TOC) at Washington County for the purpose of controlling regional traffic operations. To provide communication connections between Washington County and the City of Portland traffic signal systems server.
  - Configure a virtual TOC at the City of Beaverton for monitoring and control of City-maintained traffic operations. The connection between the City of Beaverton and the City of Portland traffic signal system server is already in place.
- Implement additional ITS projects not included in the Washington County ITS Plan to support the Beaverton transportation network, including installing fiber communication lines along all arterial roadways.
- Consider projects addressed in Metro's Transportation System Management and Operations (TSMO) strategic plan. The purpose of this plan is to identify and prioritize TSMO projects that will benefit the region. Revisions or additions to the regional ITS plan will require coordination with the agencies involved (including Washington County, ODOT, City of Beaverton, City of Tualatin, City of Tigard, City of Hillsboro, City of Portland, TriMet, FHWA, WCCCA and Tualatin Valley Fire and Rescue) to implement changes to the plan.

All of the previously mentioned TSM measures can work together in a transportation environment to help reduce congestion and decrease travel times for travelers. The following are the RTP projects that support Beaverton TSM. Beyond the RTP designated TSM projects, the City of Beaverton should continue to coordinate with TriMet, ODOT, and Washington County in providing signal priority at signalized intersections along rapid or frequent bus routes (Tualatin Valley Highway and Cedar Hills/Hall corridor – approximately 50 intersections) to increase transit efficiently, reduce transit travel times, and promote non-SOV person trips. Signal priority should be activated for transit vehicles that are operating behind schedule. The implementation of additional strategies should be on a case-by-case basis and evaluated for effectiveness.

- Scholls Ferry Road: Hall Boulevard to Murray Boulevard (RTP 10602); Install integrated advanced traffic monitoring systems (ATMS) and management equipment

- 185th Avenue: Baseline Road to US 26 (RTP 10604); Install integrated advanced traffic monitoring systems (ATMS) and management equipment
- Allen Boulevard, Cedar Hills Boulevard, Hall Boulevard, Farmington Road Beaverton-Hillsdale Highway (RTP 10642) Adaptive traffic signal systems; New signals and signal upgrades

Safety

The City monitors intersection collision history through its own safety index program and Washington County's Safety Priority Index System. Both are linked to the Oregon Department of Transportation's safety program. Intersections with high collision rates are given special attention for safety improvements. Safety improvement projects are developed and proposed for funding through various State and local sources.

6.5 TRANSPORTATION SYSTEM PLAN IMPROVEMENTS

Motor Vehicle Needs and Alternatives

Motor vehicle projects that were identified in the 2035 TSP as potentially meeting a need for a corridor in the initial screening process were summarized in a matrix and analyzed further for each corridor. The following three criteria were analyzed for each project that was considered:

- **Feasibility** - Includes issues such as right of way, land use impact, and overall cost. While not a fatal flaw analysis, it considers the likelihood that a project could be reasonably constructed. This measure favors projects that can be practically implemented. In some cases, projects may include factors that make implementation difficult, however given the magnitude of benefit the project is still considered feasible, even with the recognized challenges. In some cases regional projects are not considered feasible for the City of Beaverton due to total cost, and feasibility is contingent on funding partnerships with other regional agencies.
- **Grid and Function Consistency** – Considers issues related to system design such as connectivity, functional class of a facility, facility spacing, and consistency within the existing facility and regional design.
- **Congestion** – This considers if the project addresses an identified congestion issue. While identified projects generally address a specific operational need, in some cases these projects are local issues that do not impact the overall system or corridor need that has been identified as providing the greatest benefit to the system. In many cases a project may have been previously identified if the minor street delay was expected to exceed adopted performance standards. However, funding constraints do not allow every identified project to be constructed and only the specific focus corridor mobility is identified as the congestion need.

Each project was assigned a ranking of low, medium, or high based on the three criteria. Generally, projects that were not considered feasible were assigned a priority of "low" since they would not be a cost-effective solution to the problem, while projects that met all three criteria were considered high priority. A project that was considered "feasible" and met one of the other two criteria was listed as medium. **The Transportation System Solutions Report in the 2035 TSP Appendix contains additional detail for the alternatives analysis.** Additional right turn lane

channelization projects were identified based on capacity need and implementation feasibility in the TSP.

Financially Constrained Action Plan

Multimodal improvement projects that address the needs of the transportation system were selected based on the 2035 TSP alternatives analysis. Projects that were selected as high priority projects and are reasonably likely to be funded by 2035 are included in Table 6-1 with other modal Action Plan projects. Figure 6.5 shows the locations for these high priority Action Plan projects.

Table 6-1: Action Plan

RTP # or Orig. Ref#	2035 TSP ID	Location	Description	Juris.	Full Proj. Cost ($1,000s)	Phasing	City Cost ($1,000s)
2035 RTP Projects Funded by Others							
10546	2	170th Ave: Alexander St. to Merlo Rd.	Widen roadway to 4 lanes with left turn lanes at major intersections and bike lanes and sidewalks.	Wash Co	$30,095	2011-2015	$0
10561	7	Jenkins Rd: Murray Blvd. to 158th Ave.	Widen roadway from three to five lanes with bike lanes and sidewalks.	Wash Co	$16,635	2011-2015	$0
10570	9a	Walker Rd: 185th Ave. to Murray Blvd.	Widen from two to five lanes with bike lanes and sidewalks	Wash Co	$56,255	2016-2020	$ 0
10579	12	Barnes: Hwy. 217 to 119th (future)	Widen to five lanes with bike lanes and sidewalks	Wash Co	$32,475	2021-2025	$0
10602	15	Scholls Ferry: Hall Blvd. to Murray Blvd.	Install integrated ATMS and management equipment.	Wash Co	$1,190	2009-2010	$0
10607	18	Sunset Transit Center Station	Complete 9100 feet of sidewalk improvements.	Wash Co	$6,435	2011-2015	$0
10610	19	Saltzman Rd: Cornell Rd. to Barnes Rd.	Complete 950 feet of bike lanes in town center.	Wash Co	$885	2026-2030	$0
10613	20	Cornell Rd: Saltzman Rd. to 119th Ave.	Completes 1750 feet of bike lanes in town center.	Wash Co	$1,110	2026-2030	$0
10810	70	Westside Trail (Regional): Hwy 26 to THPRD Nature Park	To design and construct a regional trail multi-use segment in a utility corridor, 10'-12' wide paved.	THPRD	$4,285	2011-2015	$0
10811	71	Beaverton Creek Trail (Regional): SW 194th Ave. to Fanno Creek Trail	To design and construct a regional trail, 10'-12' wide paved and on street where appropriate.	THPRD	$7,500	2016-2020	$0
10813	72	Westside Trail (Regional): Farmington Rd. to Scholls Ferry Rd.	To design and construct a regional trail multi-use segment in a utility corridor, 10'-12' wide paved.	THPRD	$4,285	2011-2015	$0
10850	74	Beaver Creek Trail, Bronson Creek Trail	Construct Ped/Bike Trail	Hillsboro	$1,070	2016-2020	$0
10929	76	Frequent Bus: Line 76 – Beaverton / Tualatin: N/A to N/A	390 additional service hours upgrade and related bus stop and ROW improvements.	TriMet	$3,295	ongoing	$0
11122	80	OR 217: US 26 to OR 8	Widen OR 217 and structures. (Complete 2011)	ODOT	$40,360	2009-2010	$0
11124	81	US 26W: Cornell Rd to 185th Ave.	Widen US 26 to 6 lanes from Cornell Rd. to 185th Ave.	ODOT	$22,830	2011-2015	$0
TSM Projects							
		Walker Road: 173rd Ave to OR 217	Adaptive Signal Systems	Wash Co	$1,025	2016-2020	$0
		Walker Road: 173rd Ave to OR 217	Access Management Strategies	Wash Co	$1,000	2016-2020	$0

RTP # or Orig. Ref#	2035 TSP ID	Location	Description	Juris.	Full Proj. Cost ($1,000s)	Phasing	City Cost ($1,000s)
		Jenkins Road: 170th Ave to Cedar Hills Blvd	Adaptive Signal Systems	Wash Co	$1,115	2011-2015	$0
		Jenkins Road: 170th Ave to Cedar Hills Blvd	Access Management Strategies	Wash Co	$1,000	2011-2015	$0
		Canyon Road: 170th Ave to OR 217	Adaptive Signal Systems	ODOT	$1,410	2009-2010	$0
		Canyon Road: 170th Ave to OR 217	Access Management Strategies	ODOT	$1,000	2009-2010	$0
		Farmington Road/BH Hwy: Murray Blvd to Scholls Ferry Rd	Adaptive Signal Systems	Beaverton/ ODOT	$1,845	2011-2015	$1,845
		Farmington Road/BH Hwy: Murray Blvd to Scholls Ferry Rd	Access Management Strategies	Beaverton/ ODOT	$1,000	2011-2015	$1,000
		Scholls Ferry Road: Barrows Rd (west) to OR 217	Adaptive Signal Systems	Wash Co	$1,565	2009-2010	$0
		Scholls Ferry Road: Barrows Rd (west) to OR 217	Access Management Strategies	Wash Co	$1,000	2009-2010	$0
		Murray Boulevard: Scholls Ferry Rd to US 26	Adaptive Signal Systems	Wash Co	$2,165	2011-2015	$0
		Murray Boulevard: Scholls Ferry Rd to US 26	Access Management Strategies	Wash Co	$1,000	2011-2015	$0
Pedestrian Projects							
-	142	Downtown Beaverton Connectivity collector roadways: Hocken Avenue/ to 110th Avenue/	Add sidewalk	Beaverton	$1,365	2016-2020	$1,365
NA	514	Millikan Way: East Avenue to Lombard Avenue	Add sidewalk	Beaverton	$ 305	2011-2015	$ 305
NA	515	Watson Avenue: Millikan Way to Canyon Road	Add sidewalk (east side)	Beaverton	$ 325	2026-2030	$ 325
10646	48	Hall Blvd. / Watson Ave. pedestrian improvements: Cedar Hills Blvd.. to Allen Blvd.	Add pedestrian improvements at intersections and amenities (lighting, plazas).	Beaverton	$2,570	2021-2025	$2,570
-	110	Study and Improve unsignalized trail crossing of roadways in City jurisdiction	Add sidewalk	Beaverton	$13,170	ongoing	$13,170
-	143	Pedestrian Access to MAX: LRT Stations	Add sidewalk	Beaverton	$1,515	2011-2015	$1,515
-	171	170th/173rd Avenue: Baseline/Jenkins to Walker Road	Add sidewalk	Beaverton	$290	2009-2010	$290
Bicycle Projects							
-	200	Walker Road bike lanes: Cedar Hills Boulevard to Lynnfield Lane	Add bike lane	Wash Co/ Beaverton	$200	2026-2030	$200

RTP # or Orig. Ref#	2035 TSP ID	Location	Description	Juris.	Full Proj. Cost ($1,000s)	Phasing	City Cost ($1,000s)
10664	61	Watson Ave: Hall Blvd. to Farmington Rd..	Construct bike lanes.	Beaverton	$4,820	2021-2025	$4,820
10665	62	6th Ave: Murray Blvd. to Erickson Ave	Construct bike lanes.	Beaverton	$3,885	2011-2015	$3,885
-	176	Canyon Road: 110th Avenue to 91st Avenue	Add bike lane	ODOT	$1,725	2011-2015	$0
NA	566	114th Avenue: Center Street to MAX rail	Add signing and pavement marking for shared bike lane	Beaverton	$ 5	2009-2010	$ 5
NA	583	Hall Boulevard: Hocken Road to Cedar Hills Boulevard [private]	Add signing and pavement marking for shared bike lane	Beaverton	$ 10	2021-2025	$ 10
NA	584	Cedar Hills Boulevard: Hall Boulevard to Farmington Road	Add bike lane	Beaverton	$ 1,900	2026-2030	$ 1,900
NA	588	Hall Boulevard: Watson Avenue (north couplet) to Farmington Road	Add bike lane	Beaverton	$ 1,130	2026-2030	$ 1,130
NA	589	Millikan Way: Rose Biggi Avenue to Lombard Avenue	Add signing and pavement marking for shared bike lane	Beaverton	$ 25	2009-2010	$ 25
NA	590	Hall Boulevard: Watson Ave (north couplet) to Cedar Hills Blvd	Add bike lane	Beaverton	$ 1,270	2026-2030	$ 1,270
NA	591	Hocken Avenue: Millikan Way to Canyon Road	Restripe for designated bike lanes, and widen as needed at intersections	Beaverton	$ 275	2031-2035	$ 275
NA	592	Dawson Way: Hocken Avenue to Cedar Hills Boulevard	Add signing and pavement marking for shared bike lane	Beaverton	$ 10	2031-2035	$ 10
NA	593	Broadway Street: Canyon Road to Lombard Avenue	Add signing and pavement marking for shared bike lane	Beaverton	$25	2009-2010	$25
-	185	Beaverton-Hillsdale Hwy bike lanes: OR 217 to 91st Avenue	Add bike lane	ODOT	$685	2011-2015	$0
-	186	Beaverton-Hillsdale Hwy bike lanes: 91st Avenue to Multnomah. County Bound.	Add bike lane	ODOT	$1,350	2031-2035	$0
NA	568	Griffith Drive: 5th Street to Farmington Road	Add signing and pavement marking for shared bike lane	Beaverton	$ 20	2021-2025	$ 20
NA	569	Lombard Avenue 5th Street to Farmington Road	Add signing and pavement marking for shared bike lane. (Stripe bike lanes when financially feasible in future)	Beaverton	$ 15	2021-2025	$ 15
NA	570	Erickson Avenue: 6th Street to Farmington Road	Add signing and pavement marking for shared bike lane	Beaverton	$ 15	2021-2025	$ 15
NA	561	Cedar Hills Boulevard: Walker Road to Hall Boulevard	Add bike lane	Beaverton	$ 2,210	2026-2030	$ 2,210
NA	567	110th Avenue: BH Highway to Tualatin Valley Highway	Add bike lane	Wash Co	$ 765	2026-2030	$ 0
-	214	170th/173rd Avenue bike lanes: Baseline Road to Walker Road [complete]	Add bike lane	Beaverton	$455	2009-2010	$455
	594	Millikan Way at Murray Blvd to Cabot Street at 110th Avenue	Add signing for Regional Center bike route from Murray Boulevard via Millikan Way to Lombard Street, and connecting to Cabot Street at 110th Avenue via Lombard Street and Center Street. Add shared pavement markings where bike lanes do not exist.	Beaverton	$250	2011-2015	$250

RTP # or Orig. Ref#	2035 TSP ID	Location	Description	Juris.	Full Proj. Cost ($1,000s)	Phasing	City Cost ($1,000s)
Motor Vehicle Projects							
10616	22	Rose Biggi Ave: Crescent Street to Hall Blvd	Extend 2-lane Rose Biggi Ave. to Hall Blvd. (via Westgate Drive) to fill a gap; boulevard design; add sidewalks, bikeway (PE and ROW funded STIP Key #14400).	Beaverton	$3,750	2011-2020	$3,750
10617	23	Farmington Rd: Murray Blvd. to Hocken Ave	Construct turn lanes and intersection improvements; signalize where warranted; add bike lanes and sidewalks in gaps.	Beaverton	$9,320	2011-2015	$9,320
10618	24	Dawson/Westgate: Rose Biggi Avenue to Hocken Ave.	Extend 2 lane street from Hocken via Dawson and Westgate at Rose Biggi to fill a gap; realign Dawson/Westgate at Cedar Hills; add turn lanes at intersections, sidewalks, bikeway.	Beaverton	$9,535	2021-2025	$9,535
10619	25	Crescent St. multimodal extension: Rose Biggi Ave. to Cedar Hills Blvd.	Extend 2 lane Crescent from Cedar Hills to Rose Biggi Ave. to fill a gap; add sidewalks, bikeway.	Beaverton	$3,750	2031-2035	$3,750
10620	26	Millikan Way: Watson Ave. to 114th Ave.	Extend 2 lane Millikan Way to 114th to fill a gap; add turn lanes at intersections, sidewalks, bikeway.	Beaverton	$14,785	2026-2030	$14,785
10621	27	New street connection: Broadway to 115th Ave.	Construct new 2 lane street with bikeway and sidewalks.	Beaverton	$4,820	2031-2035	$4,820
10626	31	114th Ave./115th Ave.: LRT to Beaverton Hillsdale Hwy/Griffith Drive	Construct 2 lane street with bike and pedestrian improvements.	Beaverton	$10,710	2026-2030	$10,710
10628	33	Center Street and 113th Ave: Hall Blvd. to Cabot Street	Add sidewalks and bikelanes; add turn lanes where needed.	Beaverton	$5,785	2031-2035	$5,785
10631	35	141st/142nd/144th: 141st Ave. to 144th Ave.	Connect streets, add bikeways, sidewalks, turns lanes and signalize as warranted.	Beaverton	$6,855	2016-2020	$6,855
10636	40	Millikan Way: 141st Ave. to Hocken Ave.	Add turn lanes as needed, bike lanes and sidewalks, signalize as warranted.	Beaverton	$2,785	2016-2020	$2,785
10638	41	Davies Rd: Scholls Ferry Rd. to Barrows Rd.	Extend 2 lane street with turn lanes, bike lanes and sidewalks.	Beaverton	$5,250	2031-2035	$5,250
10635	39	125th Ave: Brockman St. to Hall Blvd.	Construct new multimodal street with bike lanes and sidewalks	Beaverton	$14,890	2011-2015	$14,890
10642	44	Allen Blvd., Cedar Hills Blvd., Hall Blvd., Farmington Rd BH	Adaptive Traffic Signal Systems. New signals and signal upgrades.	Beaverton	$10,710	2016-2020	$10,710
5037	82	170th Ave/173rd Ave: Baseline Rd to Walker Rd [complete]	Widen to 3 lanes with bike lanes and sidewalks.	Beaverton	$8,100	2009-2010	$8,100
11b	90	158th/Jenkins	overlap NB RT	Wash Co	$165	2011-2015	$0
104	91	Cornell/US 26 WB	add 2nd WB LT lane (structure work)	ODOT	$1,315	2021-2025	$0
113	104	Murray/Brockman	add WB RT lane, ROW	Wash Co	$130	2021-2025	$0
50b	106	Scholls Ferry/OR 217 NB on ramp	Add 2nd NB LT lane And a 2nd WB LT lane	ODOT	$1,315	2011-2015	$0
3060	222	Tualatin Valley Hwy: 117th Avenue to Hillsboro	Implement access management strategies	ODOT	$21,900	2016-2020	$0
3061	223	Tualatin Valley Hwy: 209th Avenue to OR 217	Interconnect traffic signals	ODOT	$2,190	2016-2020	$0

RTP # or Orig. Ref#	2035 TSP ID	Location	Description	Juris.	Full Proj. Cost ($1,000s)	Phasing	City Cost ($1,000s)
3063	224	Murray Blvd: Tualatin Valley Hwy to Allen Blvd	Interconnect traffic signals	Wash Co	$75	2011-2015	$0
3086	226	158th: Walker to Jenkins	Widen to 5 lanes including bike lanes	Wash Co	$655	2011-2015	$0
0	232	Scholls Ferry Rd: Teal to 175th	Widen to 5-lanes including sidewalks and bike lanes	Wash Co	$6,045	2026-2030	$0
0	235	Various	Addition of 50 traffic signals per plan	Beaverton	$18,890	ongoing	$18,890
4	238	Merlo/170th	Signal phase change to permitted/protected for NB/SB approaches and to protected phasing for EB/WB approaches; add NB right turn lane; add NB, SB, and EB left turn lanes	Wash Co	$2,265	2011-2015	$0
10	242	Walker/158th	NB/SB double left turn lanes; add EB right turn lane; NB right turn lane; WB through lane (2 through lanes in each direction); signal phasing change to EB/WB permitted/protected phasing	Wash Co	$3,400	2011-2015	$0
28	252	Scholls Ferry/Barrows	Close Barrows at Scholls Ferry east	Wash Co	$225	2031-2035	$0
43	264	Hall/Greenway	Signal phase change to permitted/protected phasing for EB and WB approaches	Beaverton	$190	2016-2020	$190
44	265	Hall/Nimbus	Signal phase change to protected/permitted phasing for NB and SB approaches	Beaverton	$190	2016-2020	$190
57	276	Allen/Scholls Ferry	Widen Allen to 5 lanes; restripe WB approach; signal phase change for all approaches to permitted/protected phasing	Beaverton	$190	2016-2020	$190
61	280	BH Highway/OR 217 SB	Dual SB left turn lane	ODOT	$755	2021-2025	$0
20	248	Murray/Farmington	Double left turn lanes on all approaches, SB, EB, and WB right turn lanes	Wash Co/ Beaverton	$3,780	2011-2015	$3,780
64	283	Allen/OR 217 NB	Add WB right turn lane; signal modifications to NB/SB split phasing	ODOT	$755	2021-2025	$0
2	236a	Walker/173rd	Add EB/WB right turn lanes	Wash Co	$500	2011-2015	$0
17	245a	Walker/Murray	Add right turn lanes on all approaches	Wash Co	$1,000	2016-2020	$0
17	245b	Walker/Murray	Add double left turn lanes on NW bound Walker approach to match SE bound leg	Wash Co	$500	2016-2020	$0
18	246a	Murray/Jenkins	Add southbound right turn lane	Wash Co	$250	2011-2015	$0
35	259b	Canyon/Cedar Hills	Add NB left turn lane; add SB left turn lane	Beaverton	$3,500	2021-2025	$3,500
47	267b	Scholls Ferry/125th	Add SB right turn lane	Beaverton	$250	2031-2035	$250
103	89c	Cornell/173rd	SB RT lane	Beaverton	$500	2026-2030	$500
NA	700	Greenway/ Hall	Add EB RT lane	Beaverton	$250	2016-2020	$250
NA	701	170th/ Farmington	Add SB RT lane	Wash Co	$250	2031-2035	$0
NA	702	Hall/ Scholls	Add WB RT lane	ODOT	$250	2021-2025	$0
NA	703	158th/ Walker	Add WB RT lane	Wash Co	$250	2011-2015	$0
NA	704	158th/ Jenkins	Add WB RT lane	Wash Co	$250	2011-2015	$0

RTP # or Orig. Ref#	2035 TSP ID	Location	Description	Juris.	Full Proj. Cost ($1,000s)	Phasing	City Cost ($1,000s)
NA	705	Hocken/ Farmington	Add SB RT lane	Beaverton	$250	2026-2030	$250
NA	706	Cedar Hills/ Walker	Add EB/WB RT lanes	Beaverton	$500	2011-2015	$500
NA	707	Hall/ Allen	Add EB RT lane	Beaverton	$250	2021-2025	$250
NA	708	Hocken/ Canyon	Add EB RT lane	ODOT	$250	2026-2030	$0
NA	709	Murray/ Allen	Add SB RT lane	Wash Co	$250	2016-2020	$0
NA	710	Hwy 217 SB Ramps/ Hall	Add SB RT lane	ODOT	$250	2016-2020	$0
NA	711	170th/ Bany	Add EB RT lane	Wash Co	$250	2031-2035	$0
NA	712	Center/ Hall	Add WB RT lane	Beaverton	$250	2031-2035	$250
NA	713	Cedar Hills/ Barnes	Add WB RT lane storage	Wash Co	$250	2016-2020	$0

Action Plan Cost by Mode

Other Projects	$0
TSM Projects	$2,845
Pedestrian Projects	$ 19,540
Bicycle Projects	$ 16,520
Motor Vehicle Projects	$140,035
Total Cost	**$178,940**

The Action Plan includes a mix of operational, capacity, and connectivity improvements for all modes of travel on City, County, and ODOT facilities. Table 6-2 summarizes the cost of the Action Plan by agency. As listed, the planned City of Beaverton funding amount (approximately $179 million) is significantly less than the prior unconstrained project list total (over $720 million) and is reasonable to achieve over the next 25 years.

Table 6-2: Action Plan Funding by Agency

Agency	Sum of Action Plan Projects ($1,000s)
ODOT	$98,340
Washington County	$172,425
Beaverton	$178,940
Hillsboro	$1,070
THPRD	$16,070
TriMet	$3,295
Total	$470,140

Action Plan priorities and funding recommendations for other agencies are recommendations from Beaverton on how best to invest limited resources to serve future travel needs within the City. While these recommended Action Plan projects are within the range of reasonable funding for the area, until implementing measures are taken through an update to Metro's RTP, the Action Plan projects are not considered "reasonably likely to be funded" for Transportation Planning Rule purposes. The City submitted the Action Plan for inclusion in Metro's RTP and it is currently acknowledged in the corridor plans.

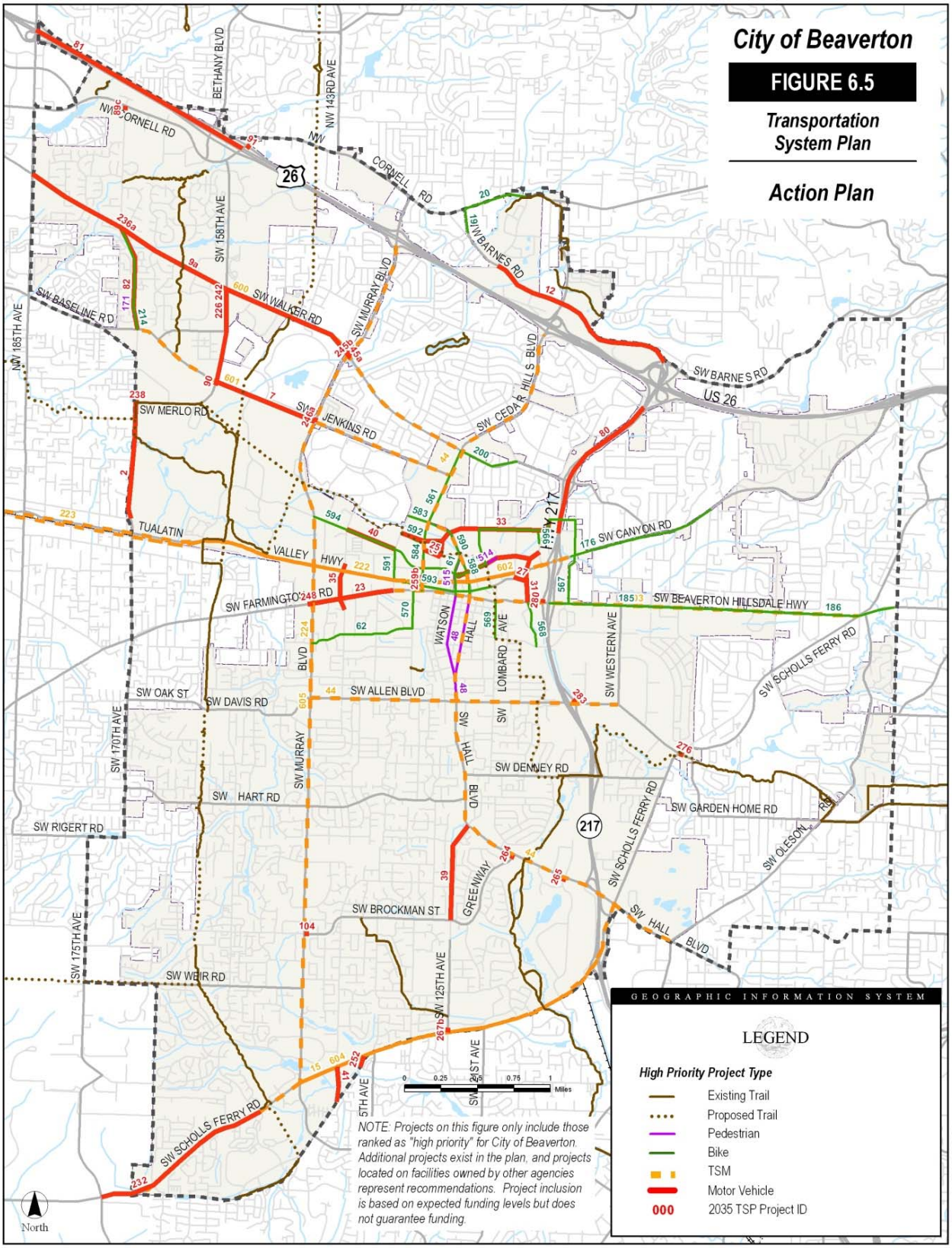
Project Implementation

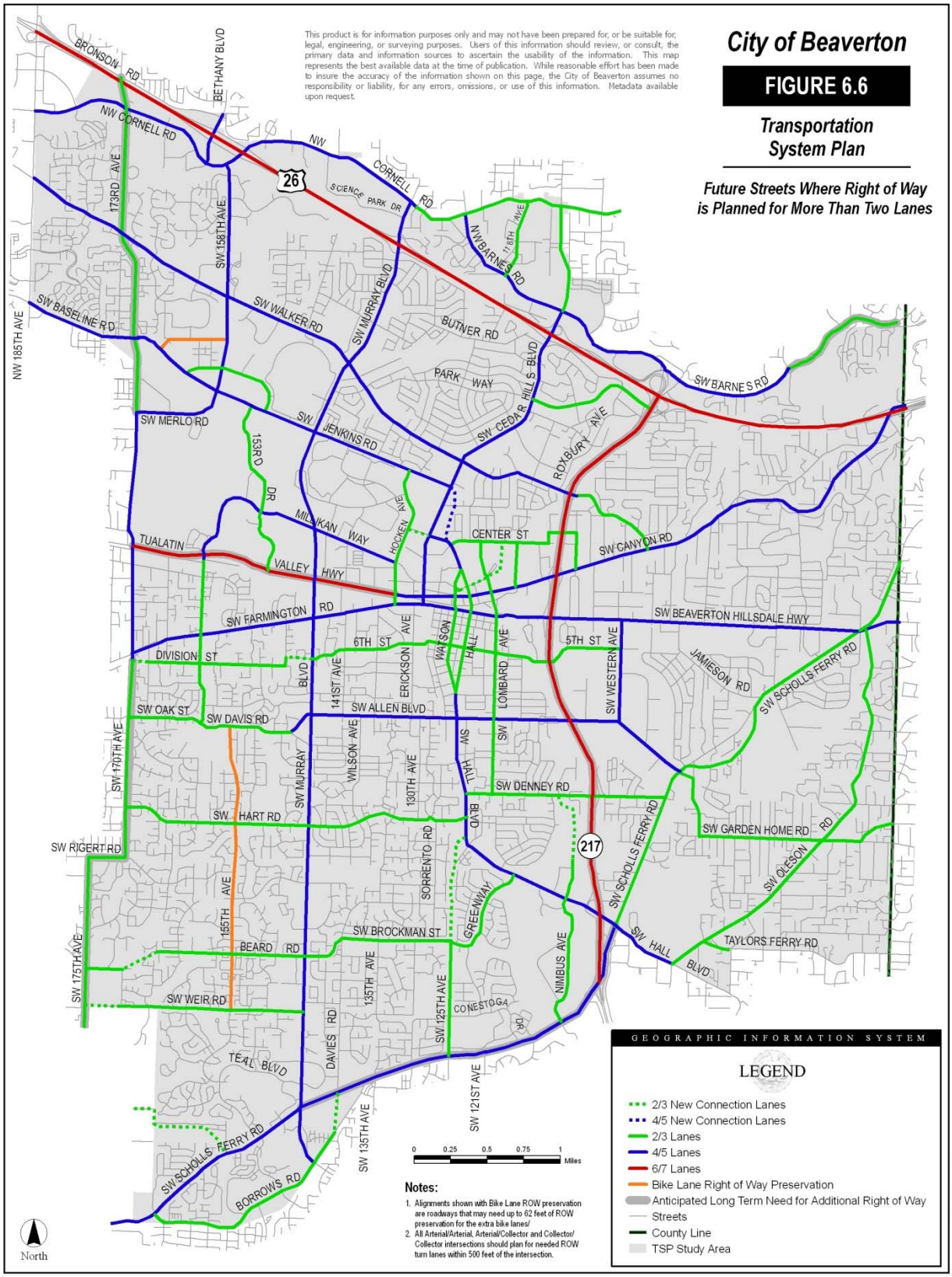
Transportation needs identified in the 2035 TSP analysis remain as unfunded needs though they are not all listed or mapped within this chapter. The figures and tables do not preclude implementing any project whether mapped or not mapped, listed or not listed, in order to take advantage of an opportunity provided by a proposed development or redevelopment, a roadway construction or reconstruction project, or any other project involving infrastructure improvements. The responsibility of new development to provide improvements and the standards to which all improvements must be built are identified in the Beaverton Development Code, the Engineering Design Manual, and the standards of 28 CFR Part 36 Nondiscrimination on the Basis of Disability by Public Accommodations and in Commercial Facilities (the Americans with Disabilities Act).

Any change within or adjacent to a transportation facility or public right-of-way represents an opportunity to expand or improve the system. To take advantage of such opportunities and make the most cost-effective use of public and private funds, the City may schedule and make financing provision for any transportation improvement that the City deems necessary or desirable, whether the improvement is specifically planned in the Comprehensive Plan or not, whether the improvement is funded publicly, privately, or in combination, whether the improvement is ultimate or interim, and regardless of the timing of the improvement relative to the priorities and timing in the Comprehensive Plan.

Correspondingly, the City Council may include a transportation improvement that it deems necessary in the capital improvement plan and budget. The City may seek state, regional, and federal funding assistance whether an improvement is specifically planned in the Comprehensive Plan or not, and whether the improvement is ultimate or interim. However, only those transportation improvements that comply with applicable provisions of the City's adopted codes, ordinances, and Comprehensive Plan shall be implemented.

Streets where future right-of-way is needed for more than two lanes are identified in Figures 6.6 and 6.6a. At times, right-of-way may be needed for construction of bike lanes on a collector or arterial to City standards. Such needs are also included in Figures 6.6 and 6.6a to preserve the right-of-way if new development is proposed or anticipated in the area or additional funds are accessed. In addition, arterial and collector intersections should plan for right-of-way for turn lanes within 500 feet of the intersection.


City of Beaverton
FIGURE 6.5
Transportation System Plan
Action Plan
NW CORNELL RD
BETHANY BLVD
NW 143RD AVE
CORNELL RD
SW 158TH AVE
NW BARNES RD
SW BARNES RD
US 26
SW BASELINE RD
NW 185TH AVE
SW WALKER RD
SW MURRAY BLVD
SW CEDAR HILLS BLVD
SW MERLO RD
SW JENKINS RD
TUALATIN VALLEY HWY
SW FARMINGTON RD
SW CANYON RD
SW BEAVERTON HILLSDALE HWY
SW SCHOLLS FERRY RD
SW OAK ST
SW DAVIS RD
SW ALLEN BLVD
SW WESTERN AVE
SW 170TH AVE
SW MURRAY BLVD
SW HALL BLVD
SW DENNEY RD
SW HART RD
SW GARDEN HOME RD
SW RIGERT RD
SW OLESON RD
SW GREENWAY
SW BROCKMAN ST
SW HALL BLVD
SW 175TH AVE
SW WEIR RD
SW 125TH AVE
SW 115TH AVE
SW SCHOLLS FERRY RD
North
0 0.25 0.5 0.75 1 Miles
NOTE: Projects on this figure only include those ranked as "high priority" for City of Beaverton. Additional projects exist in the plan, and projects located on facilities owned by other agencies represent recommendations. Project inclusion is based on expected funding levels but does not guarantee funding.
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
High Priority Project Type
Existing Trail
Proposed Trail
Pedestrian
Bike
TSM
Motor Vehicle
000 2035 TSP Project ID
10_0274 S:_TRANSPORTATION_2010\10_0274\FIG_6.5.mxd GIS-MRJ 20100729


City of Beaverton
FIGURE 6.6
Transportation System Plan
Future Streets Where Right of Way is Planned for More Than Two Lanes
This product is for information purposes only and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review, or consult, the primary data and information sources to ascertain the usability of the information. This map represents the best available data at the time of publication. While reasonable effort has been made to insure the accuracy of the information shown on this page, the City of Beaverton assumes no responsibility or liability, for any errors, omissions, or use of this information. Metadata available upon request.
BRONSON RD
BETHANY BLVD
NW CORNELL RD
NW CORNELL RD
SCIENCE PARK DR
NW BARNES RD
SW BARNES RD
SW BASELINE RD
SW WALKER RD
SW MURRAY BLVD
BUTNER RD
PARK WAY
SW CEDAR HILLS BLVD
SW MERLO RD
SW JENKINS RD
ROXBURY AVE
MILLIKAN WAY
HOCKEN AVE
CENTER ST
SW CANYON RD
TUALATIN VALLEY HWY
SW FARMINGTON RD
SW BEAVERTON HILLSDALE HWY
DIVISION ST
6TH ST
5TH ST
SW OAK ST
SW DAVIS RD
SW ALLEN BLVD
SW DENNEY RD
SW HART RD
SW GARDEN HOME RD
SW RIGERT RD
SORRENTO RD
GREENWAY
SW BROCKMAN ST
BEARD RD
SW WEIR RD
CONESTOGA DR
TEAL BLVD
SW SCHOLLS FERRY RD
BORROWS RD
TAYLORS FERRY RD
SW HALL BLVD
SW OLESON RD
JAMIESON RD
NIMBUS AVE
SW 121ST AVE
SW 125TH AVE
SW 135TH AVE
SW 141ST AVE
SW 155TH AVE
SW 158TH AVE
SW 170TH AVE
SW 175TH AVE
SW 185TH AVE
153RD DR
173RD AVE
176TH AVE
WILSON AVE
130TH AVE
ERICKSON AVE
HALL BLVD
LOMBARD AVE
SW WESTERN AVE
DAVIES RD
26
217
0 0.25 0.5 0.75 1 Miles
Notes:
1. Alignments shown with Bike Lane ROW preservation are roadways that may need up to 62 feet of ROW preservation for the extra bike lanes/
2. All Arterial/Arterial, Arterial/Collector and Collector/Collector intersections should plan for needed ROW turn lanes within 500 feet of the intersection.
North
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
2/3 New Connection Lanes
4/5 New Connection Lanes
2/3 Lanes
4/5 Lanes
6/7 Lanes
Bike Lane Right of Way Preservation
Anticipated Long Term Need for Additional Right of Way
Streets
County Line
TSP Study Area
10_0274 S:_TRANSPORTATION_2010\10_0274\FIG_6.6.mxd GIS:MRJ 20100826


City of Beaverton
FIGURE 6.6a
Transportation System Plan
Future Streets Where Right of Way is Planned for More Than Two Lanes
HORSE TALE DR
ALVORD LN
175TH AVE
KORBE DR
STROBEL RD
LOON DR
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
2/3 New Connection Lanes
4/5 New Connection Lanes
2/3 Lanes
4/5 Lanes
6/7 Lanes
Bike Lane Right of Way Preservation
Anticipated Long Term Need for Additional Right of Way
2009 TSP Study Area Boundary
City Limits
Major Roads
Local Streets
1,000 500 0 1,000
Feet
This map is intended for informational purposes only. It is not intended for legal, engineering, or surveying purposes. While this map represents the best data available at the time of publication, the City of Beaverton makes no claims, representations, or warranties as to its accuracy or
North
S:_CDD_2014_14_0871\14_0871_RightofWayFIG_6-6a.mxd GIS-DT 11/26/2014

Other Multimodal Improvements

Local Connectivity Maps

The Local Connectivity Maps identify recommended and adopted local bicycle, pedestrian, and multimodal street connections. As new development and redevelopment occur, there is an opportunity to work toward completion of the local circulation system by providing new, more direct and convenient connections within subareas for all modes. Such new connections can also help reduce out-of-direction and cut-through vehicle traffic in neighborhoods.

The 2035 updated Local Connectivity Maps (Figures 6.7 through 6.23) identify existing street stubs and potential future local connections that shall be evaluated and considered with new development. A new connection may be a local street, or if there are environmental or existing development constraints, a pedestrian and bicycle way can be considered. Each potential connection is numbered and an arrow points in the general direction of a possible new connection. A corresponding data table, Table 6-3, notes if a potential or definite environmental problem or another constraint has been identified and whether a multimodal street ("pursue multimodal") or a bicycle and pedestrian connection ("pursue non-auto") is recommended to be pursued or is already adopted. Adopted Washington County connections within Beaverton's planning area are also noted for information.

Beaverton's Development Code requires that additional street, bicycle, and pedestrian connections be considered and constructed where feasible. The Figure 6.7 and Table 6-3 recommendations address some of the existing local street stubs and additional identified potential connections in the study area. The fact that there are potential connections not noted on the map or in this table does not negate the Code requirements for additional multimodal connections. Numbers correspond to map locations. Arrow directions are general in nature and represent the recommended direction, though arrow direction may change with design. Additional collector and arterial connections are noted on the Functional Classification map.

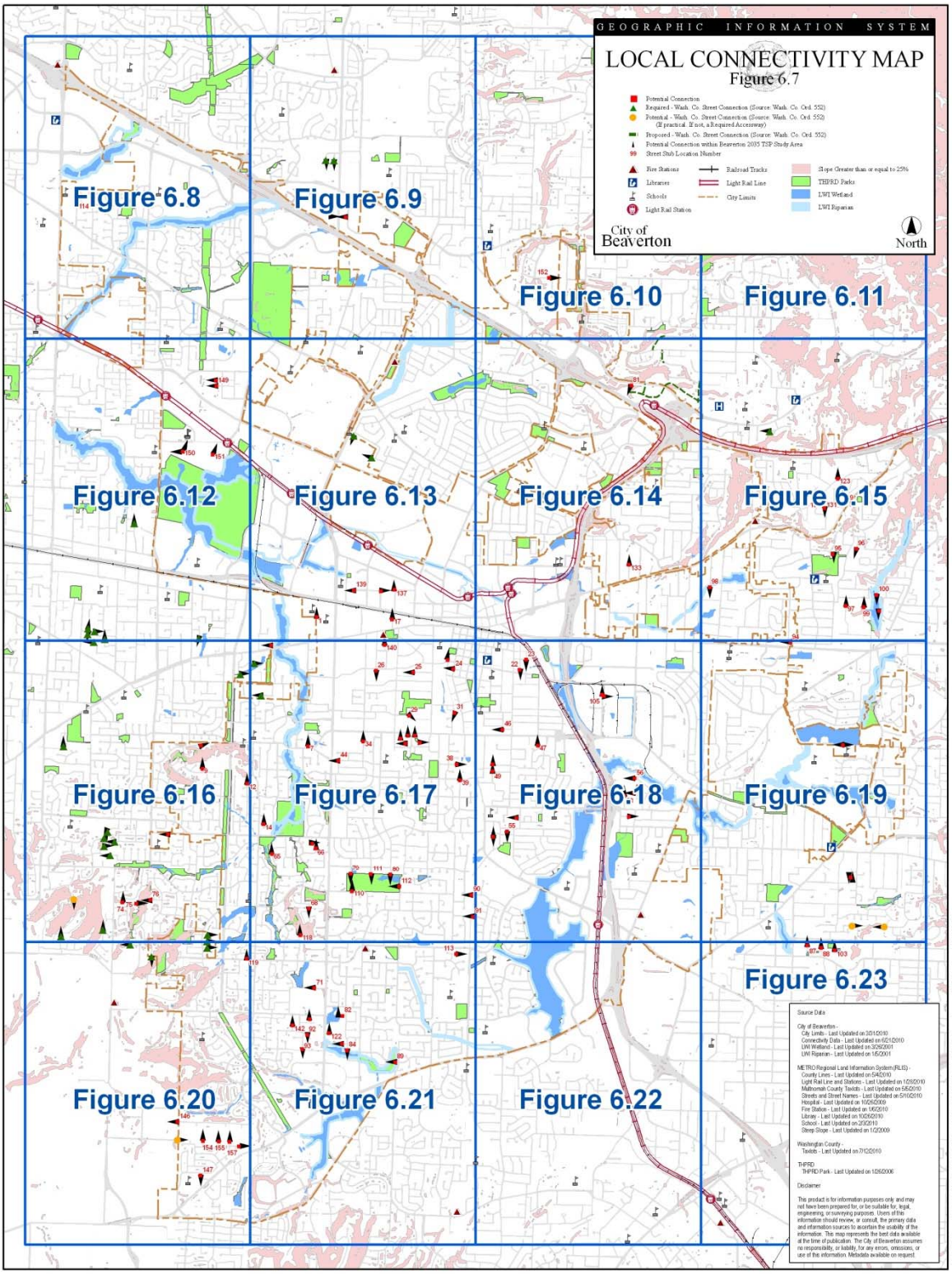
Table 6-3: Local Connectivity Recommendations

Map ID#	P = Potential or Definite Problems: problems may include existing development or environmental constraints M = Minimal Problems A = City Adopted Street Connections County = Washington County Adopted Connection	Recommendation
1	P	Feasibility Constraints
2	M	Pursue Multimodal
7	P	Pursue Non-auto
8	P	Pursue Non-auto
9	P	Pursue Non-auto
12	P	Pursue Multimodal
14	P	Pursue Multimodal
17	P	Feasibility Constraints

Map ID#	P = Potential or Definite Problems: problems may include existing development or environmental constraints M = Minimal Problems A = City Adopted Street Connections County = Washington County Adopted Connection	Recommendation
21	P	Pursue Non-auto
22	P	Feasibility Constraints
23	P	Consider Multimodal
24	P	Consider Multimodal
25	P	Consider Multimodal
26	P	Feasibility Constraints
29	P	Consider Multimodal
31	P	Consider Multimodal
33	P	Consider Multimodal
34	P	Pursue Multimodal
35	P	Feasibility Constraints
36	P	Consider Non-auto
38	M	Pursue Multimodal
39	M	Consider Multimodal
44	P	Pursue Multimodal
46	P	Consider Multimodal
47	P	Consider Non-auto
48	P	Feasibility Constraints
49	P	Pursue Multimodal
50	M	Consider Future Cul-de-sac, Pursue Non-auto
54	P	Pursue Non-auto
55	P	Feasibility Constraints
56	P	Consider Non-auto
58	P	Consider Non-auto
59	P	Feasibility Constraints
60	P	Feasibility Constraints
65	P	Consider Non-auto
66	P	Consider Multimodal
68	P	Pursue Multimodal
71	P	Pursue Multimodal
74	P	Pursue Multimodal
75	M	Consider Non-auto
76	P	Consider Non-auto
79	P	Pursue Non-auto
80	P	Pursue Non-auto
81	M	Pursue Multimodal (into Transit Center)
82	P	Pursue Multimodal
83	P	Consider Non-auto
84	P	Consider Non-auto
85	M	Pursue Non-auto

Map ID#	P = Potential or Definite Problems: problems may include existing development or environmental constraints M = Minimal Problems A = City Adopted Street Connections County = Washington County Adopted Connection	Recommendation
86	M	Pursue Non-auto
87	M	Pursue Non-auto
88	M	Pursue Non-auto
89	P	Pursue Non-auto
90	M	Pursue Non-auto
91	M	Pursue Multimodal east of 125th, Pursue Non-auto west of 125th
92	P	Consider Multimodal
93	P	Consider Non-auto
94	P	Consider Non-auto
95	County	Pursue Non-auto
96	County	Feasibility Constraints
97	County	Feasibility Constraints
98	M	Consider Multimodal
99	County	Consider Non-auto
100	County	Feasibility Constraints
101	County	Consider Non-auto
102	P	Pursue Non-auto
103	M	Pursue Non-auto
105	P	Consider Multimodal
106	P	Consider Non-auto
107	P	Consider Non-auto
108	P	Consider Non-auto
110	P	Pursue Non-auto
111	P	Pursue Non-auto
112	P	Pursue Non-auto
113	P	Potential Connection
114	P	Consider Non-auto
117	M	Pursue Multimodal
118	M	Pursue Non-auto
119	M	Pursue Multimodal
122	M	Pursue Multimodal
123	M	Pursue Multimodal
129	M	Pursue Multimodal
130	M	Pursue Multimodal
131	M	Pursue Multimodal
133	M	Pursue Multimodal
137	A	Adopted Street Connection
138	A	Adopted Street Connection
139	A	Adopted Street Connection

Map ID#	P = Potential or Definite Problems: problems may include existing development or environmental constraints M = Minimal Problems A = City Adopted Street Connections County = Washington County Adopted Connection	Recommendation
140	M	Consider Non-auto
142	M	Consider Non-auto
143	M	Pursue Multimodal
146	M	Pursue Multimodal
147	M	Pursue Multimodal
148	County	Pursue Multimodal
149	County	Pursue Multimodal
150	M	Pursue Multimodal
151	M	Pursue Multimodal
152	P	Pursue Multimodal
153	P	Pursue Non-auto
154	P	Pursue Non-auto
155	P	Pursue Non-auto
156	P	Pursue Non-auto
157	P	Pursue Non-auto
158	M	Pursue Multimodal
159	M	Pursue Multimodal
160	M	Pursue Multimodal
161	M	Pursue Multimodal


GEOGRAPHIC INFORMATION SYSTEM
LOCAL CONNECTIVITY MAP
Figure 6.7
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
City of Beaverton
North
Figure 6.8
Figure 6.9
Figure 6.10
Figure 6.11
Figure 6.12
Figure 6.13
Figure 6.14
Figure 6.15
Figure 6.16
Figure 6.17
Figure 6.18
Figure 6.19
Figure 6.20
Figure 6.21
Figure 6.22
Figure 6.23
Source Data
City of Beaverton -
City Limits - Last Updated on 3/31/2010
Connectivity Data - Last Updated on 6/21/2010
LWI Wetland - Last Updated on 3/26/2001
LWI Riparian - Last Updated on 1/5/2001
METRO Regional Land Information System (RLIS) -
County Lines - Last Updated on 5/4/2010
Light Rail Line and Stations - Last Updated on 1/25/2010
Multnomah County Taxlots - Last Updated on 5/6/2010
Streets and Street Names - Last Updated on 5/10/2010
Hospital - Last Updated on 10/26/2009
Fire Station - Last Updated on 1/6/2010
Library - Last Updated on 10/26/2010
School - Last Updated on 2/3/2010
Steep Slope - Last Updated on 1/2/2009
Washington County -
Taxlots - Last Updated on 7/12/2010
THPRD
THPRD Park - Last Updated on 12/6/2006
Disclaimer
This product is for information purposes only and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review, or consult, the primary data and information sources to ascertain the usability of the information. This map represents the best data available at the time of publication. The City of Beaverton assumes no responsibility, or liability, for any errors, omissions, or use of this information. Metadata available on request.
10_0274 S:\...\TRANSPORTATION_20100729\10_0274\FIG_6.7.mxd GIS-MRJ 20100729

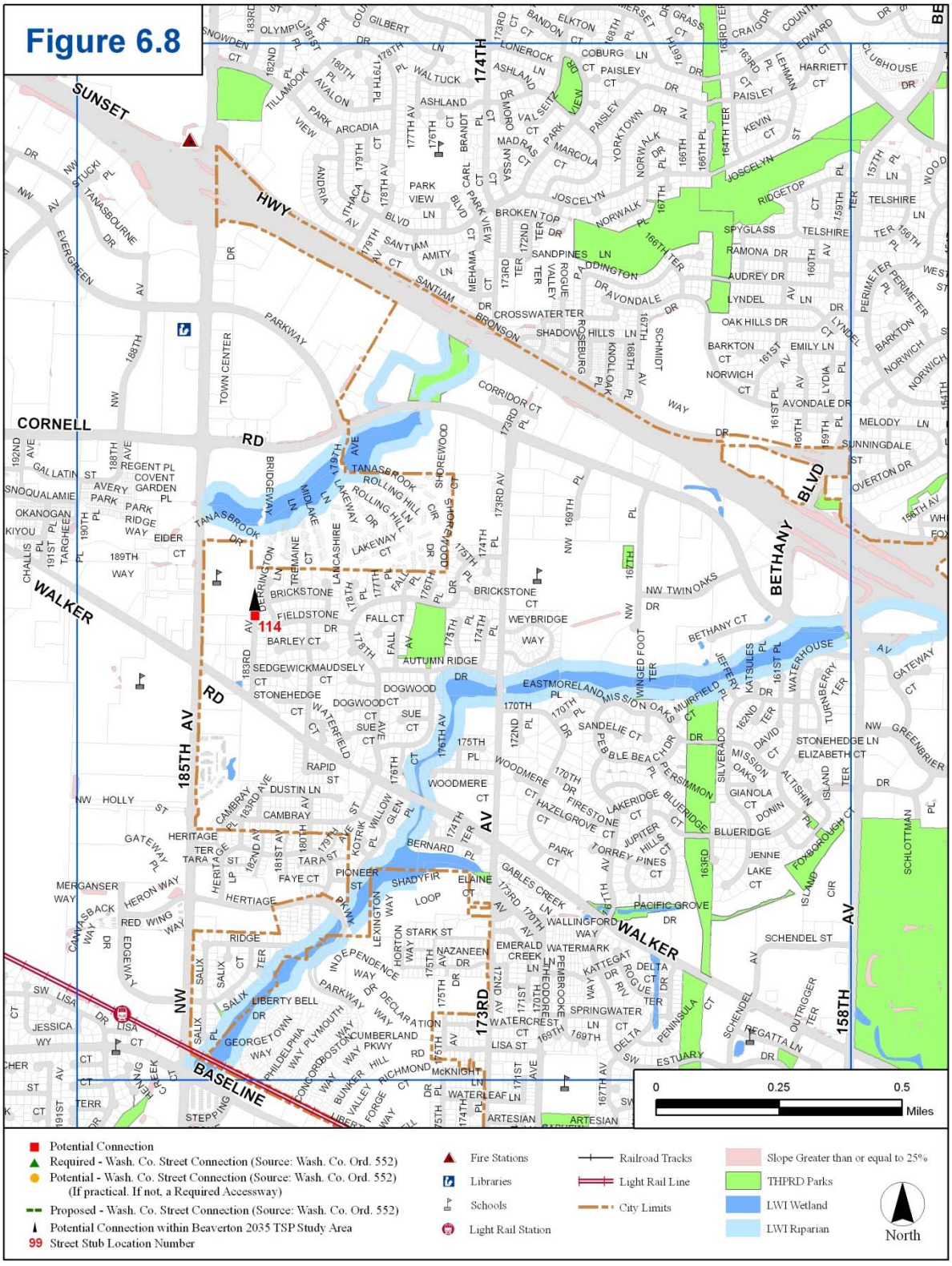


Figure 6.8
SUNSET
HWY
CORNELL
RD
WALKER
RD
185TH AV
NW
BASELINE
174TH
BETHANY
BLVD
173RD AV
158TH AV
114
0
0.25
0.5
Miles
North
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian

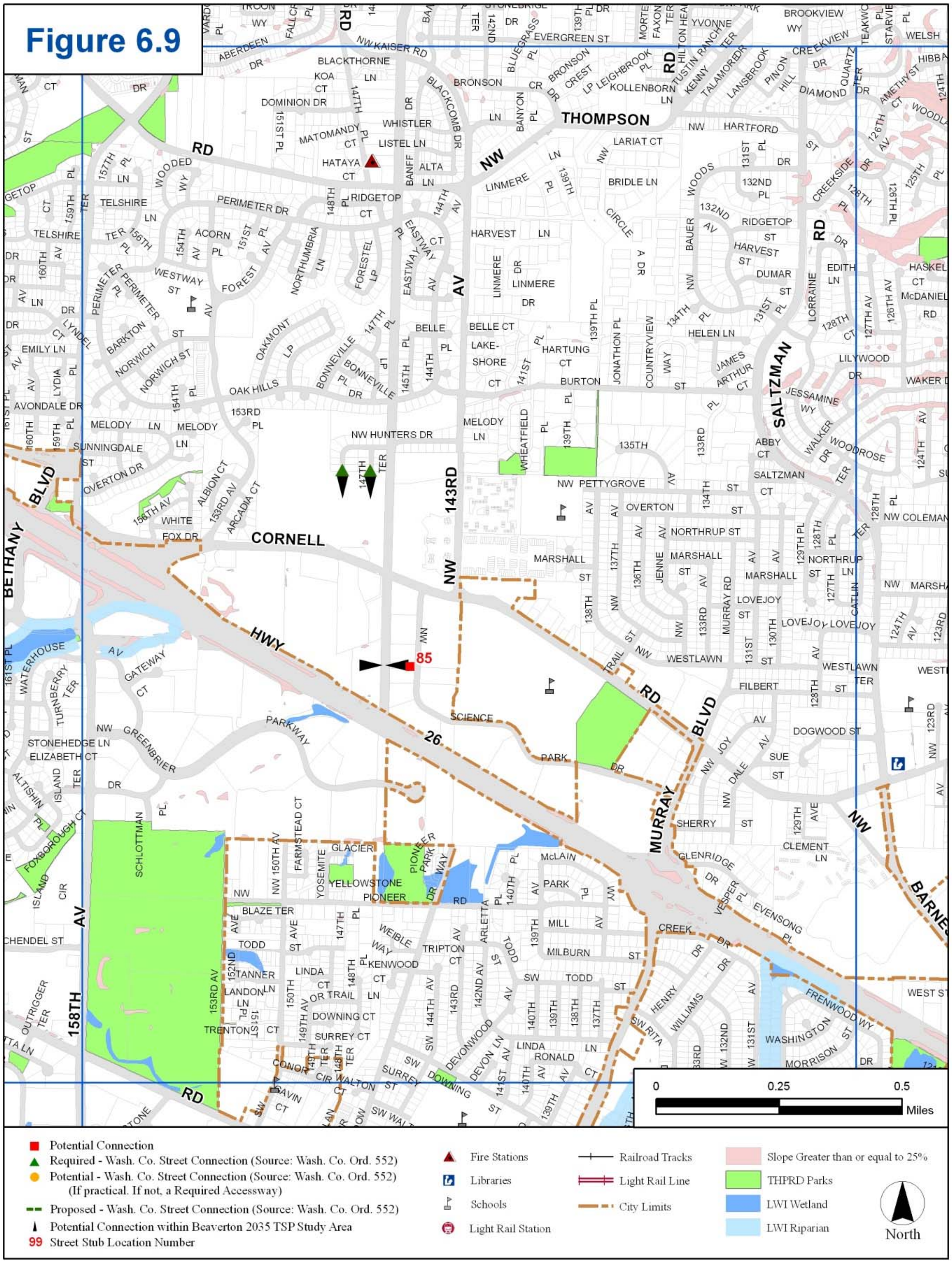


Figure 6.9
THOMPSON
CORNELL
SALTZMAN
MURRAY BLVD
BETHANY BLVD
HWY 26
NW 143RD AV
158TH AV
85
0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552) (If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North

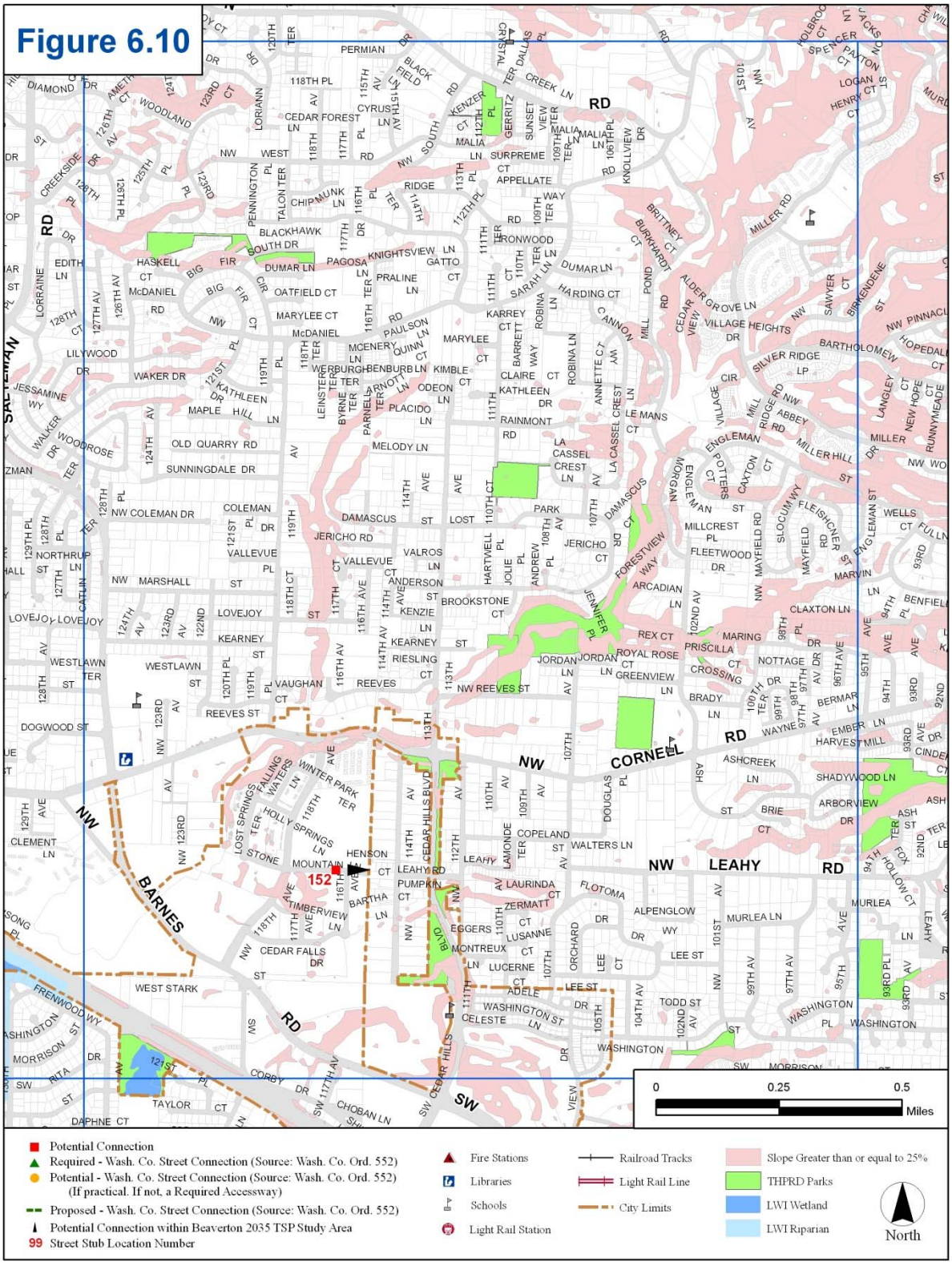


Figure 6.10
0
0.25
0.5
Miles
North
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian

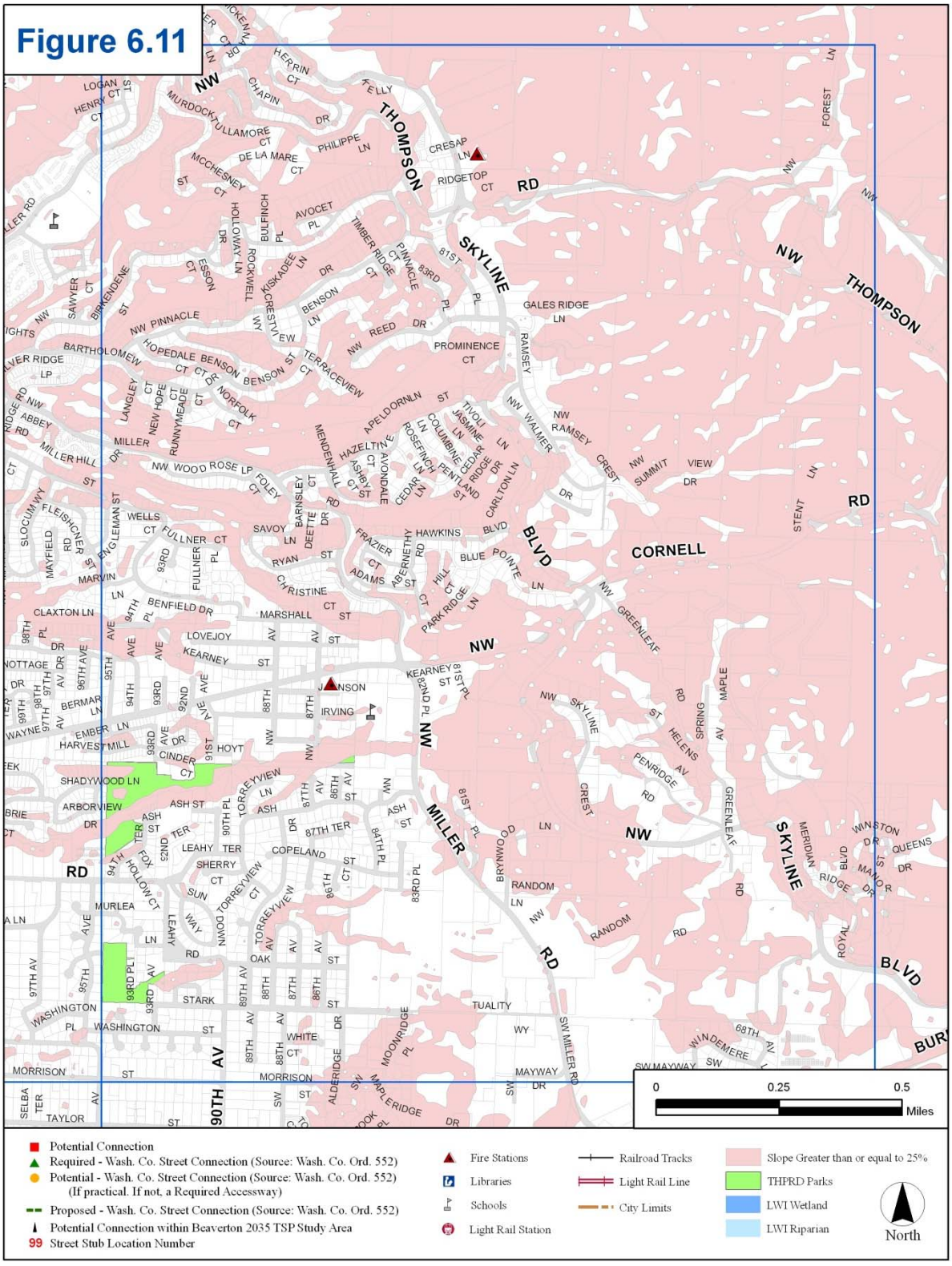


Figure 6.11
THOMPSON
SKYLINE
CORNELL
MILLER
RD
BLVD
NW
0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North

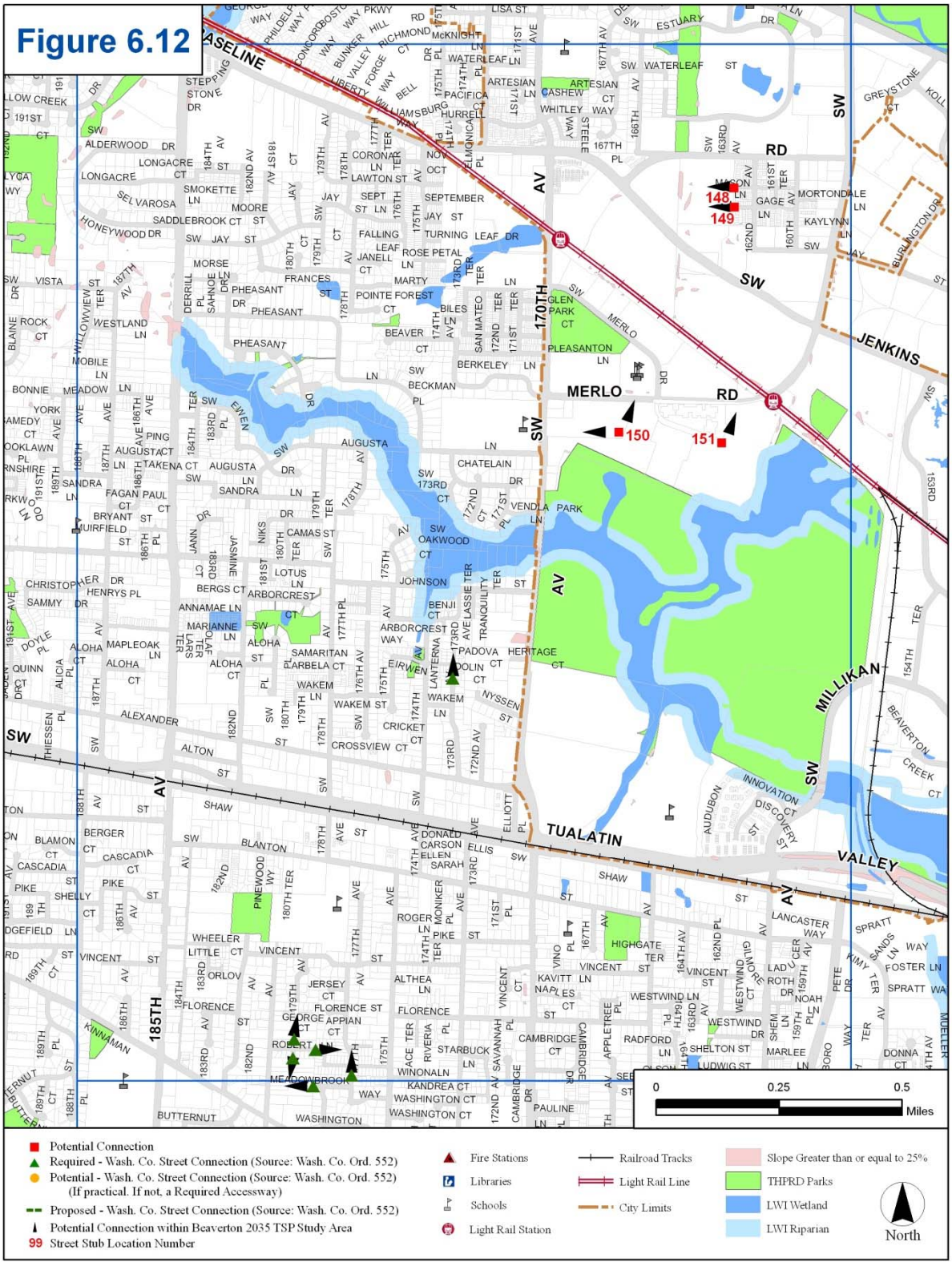


Figure 6.12
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
0
0.25
0.5
Miles
North
148
149
150
151
MERLO RD
TUALATIN VALLEY
185TH
170TH
MILLIKAN
JENKINS
BEAVERTON CREEK

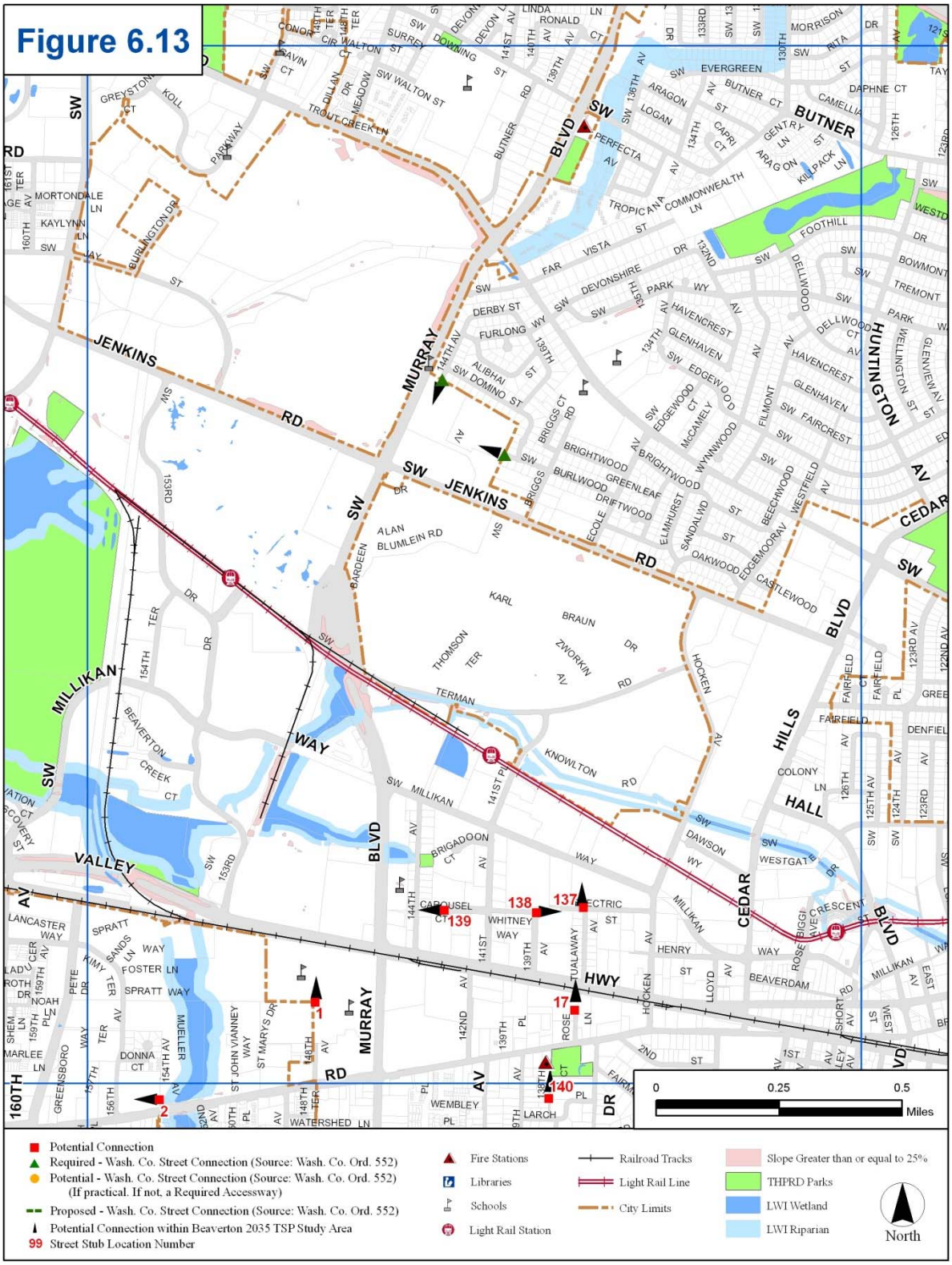


Figure 6.13
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
0
0.25
0.5
Miles
North

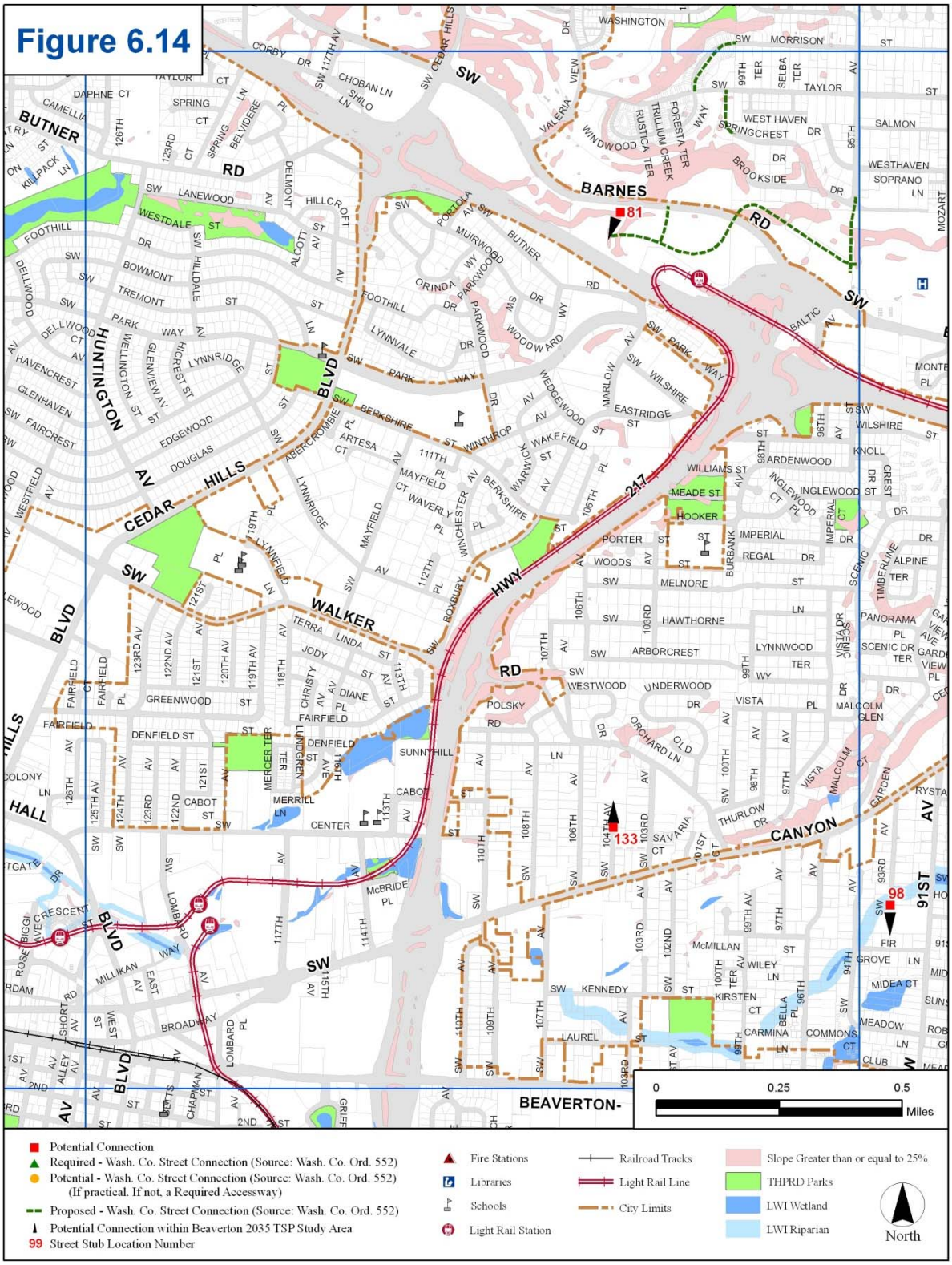
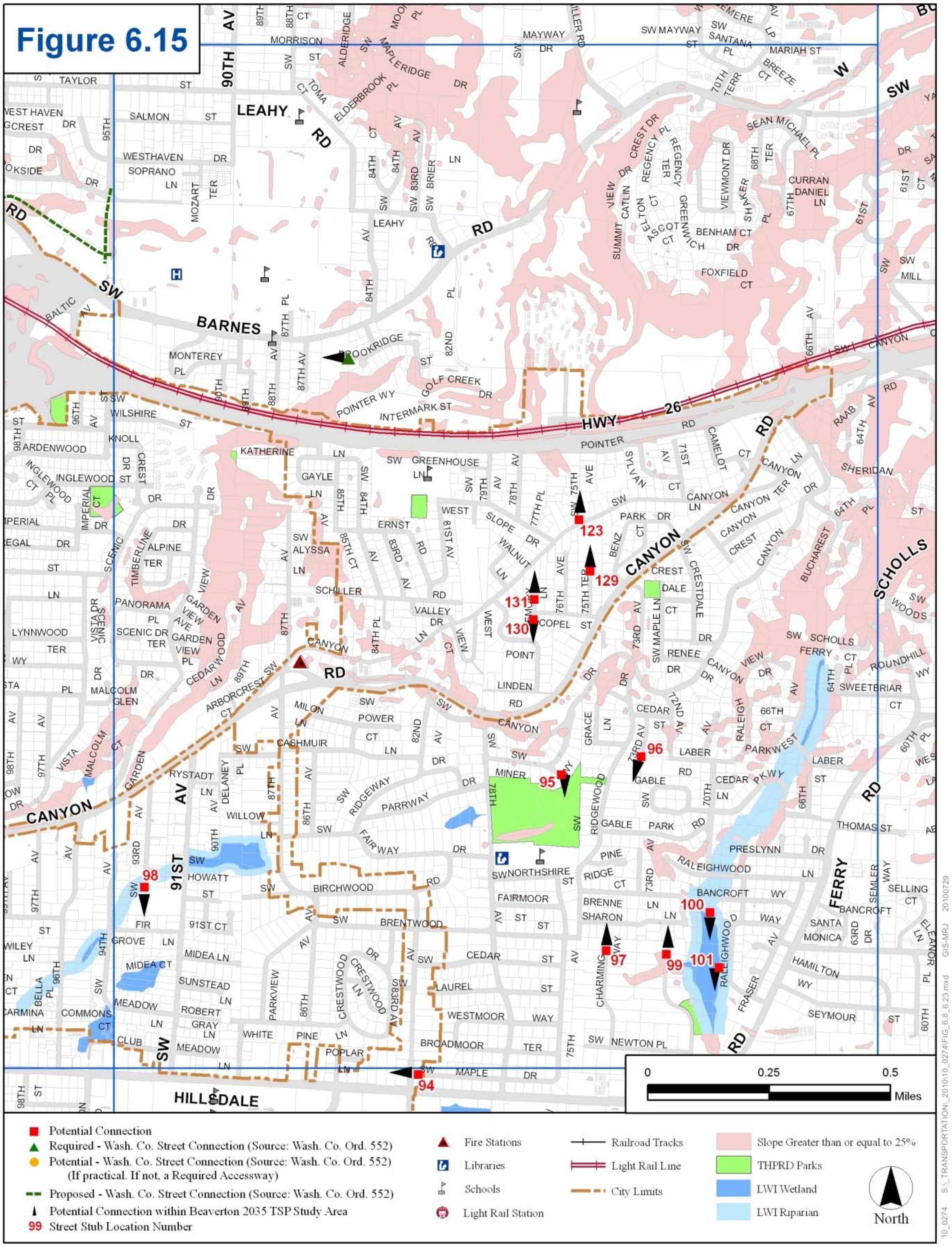


Figure 6.14
BARNES
BEAVERTON-
HALL
CANYON
HWY 217
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552) (If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
0 0.25 0.5 Miles
North

Figure 6.15


Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552) (If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North
0
0.25
0.5
Miles

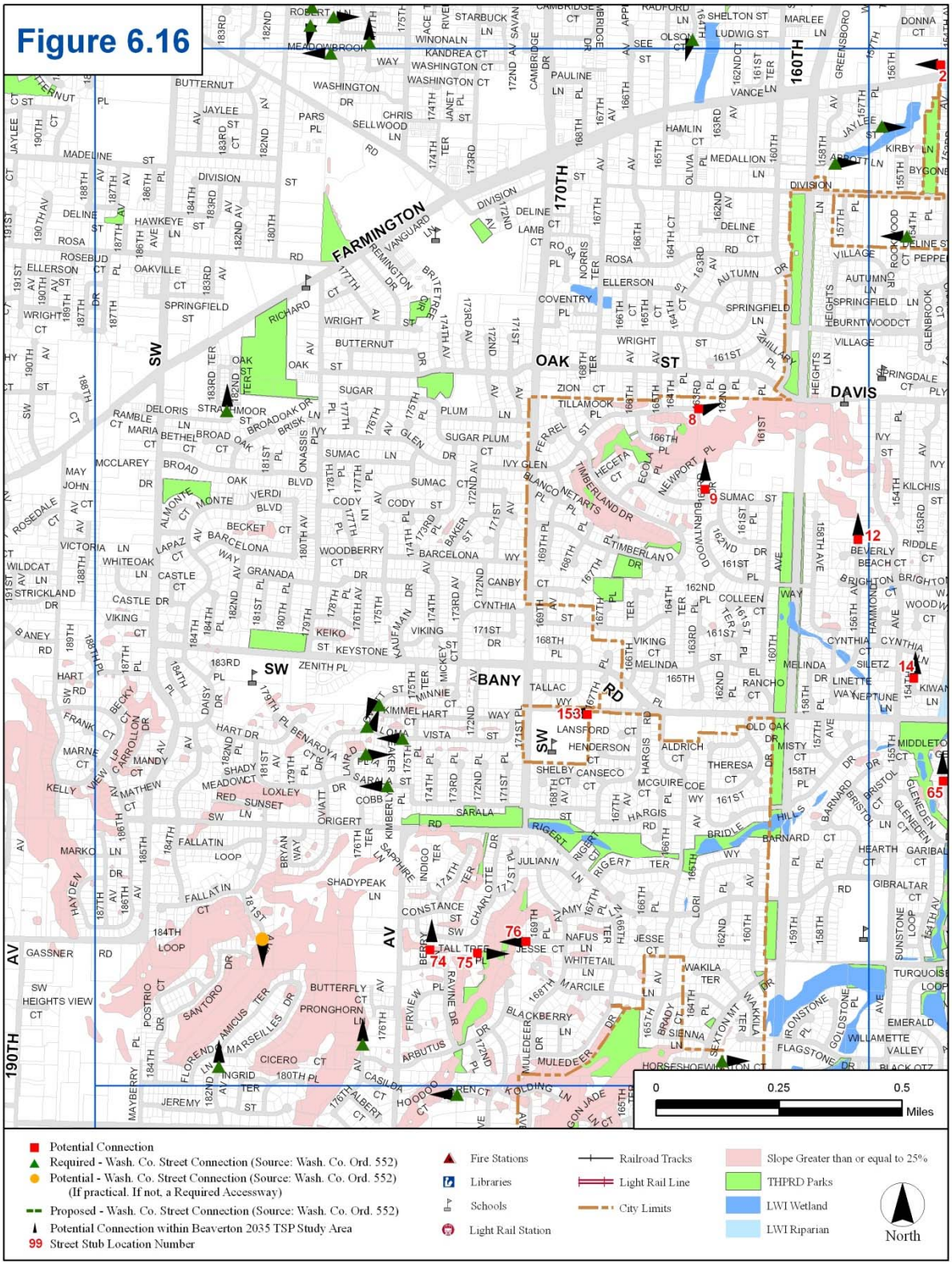


Figure 6.16
FARMINGTON
OAK
BANY
DAVIS
SW
AV
160TH
170TH
190TH
0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North

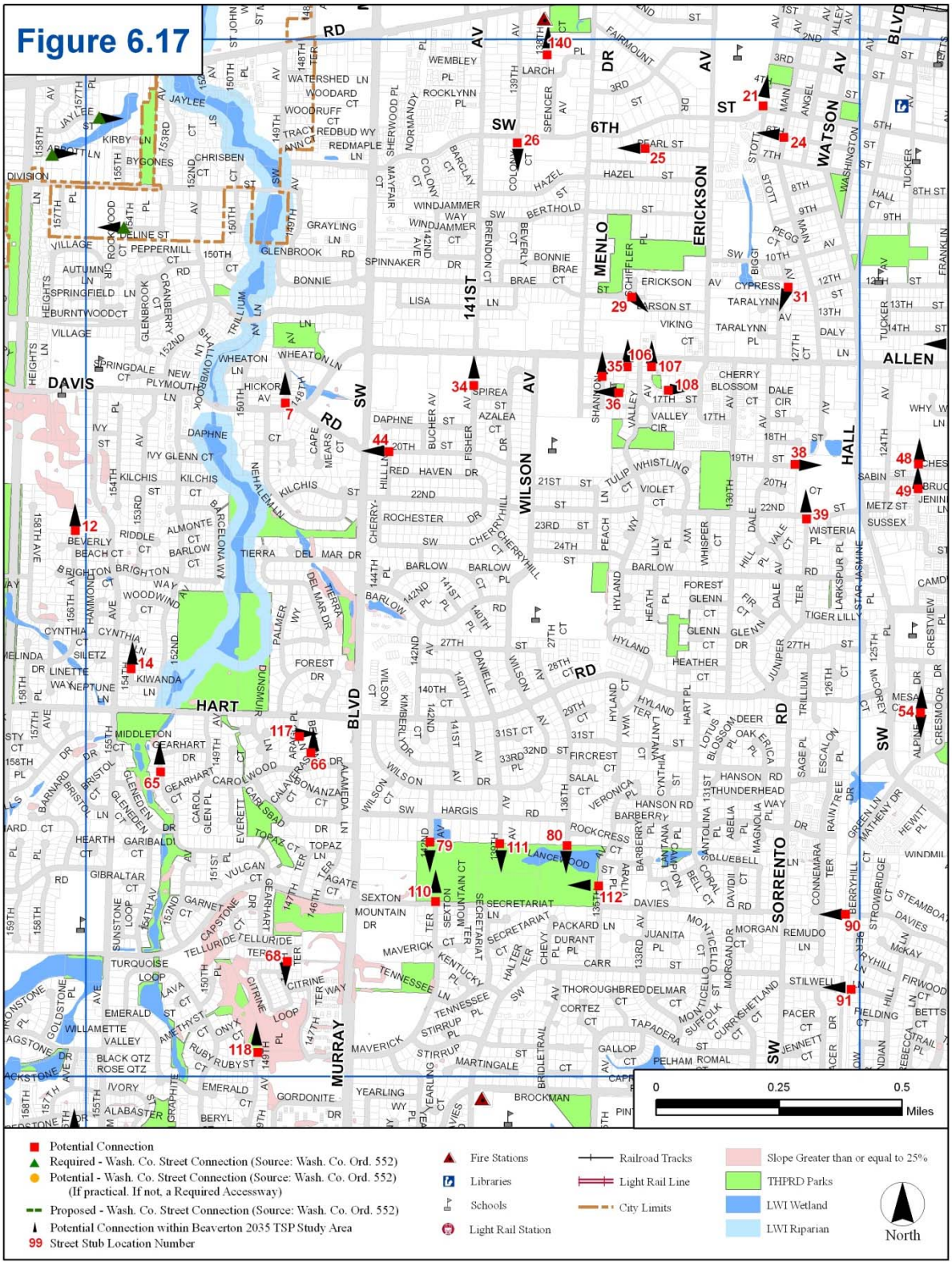
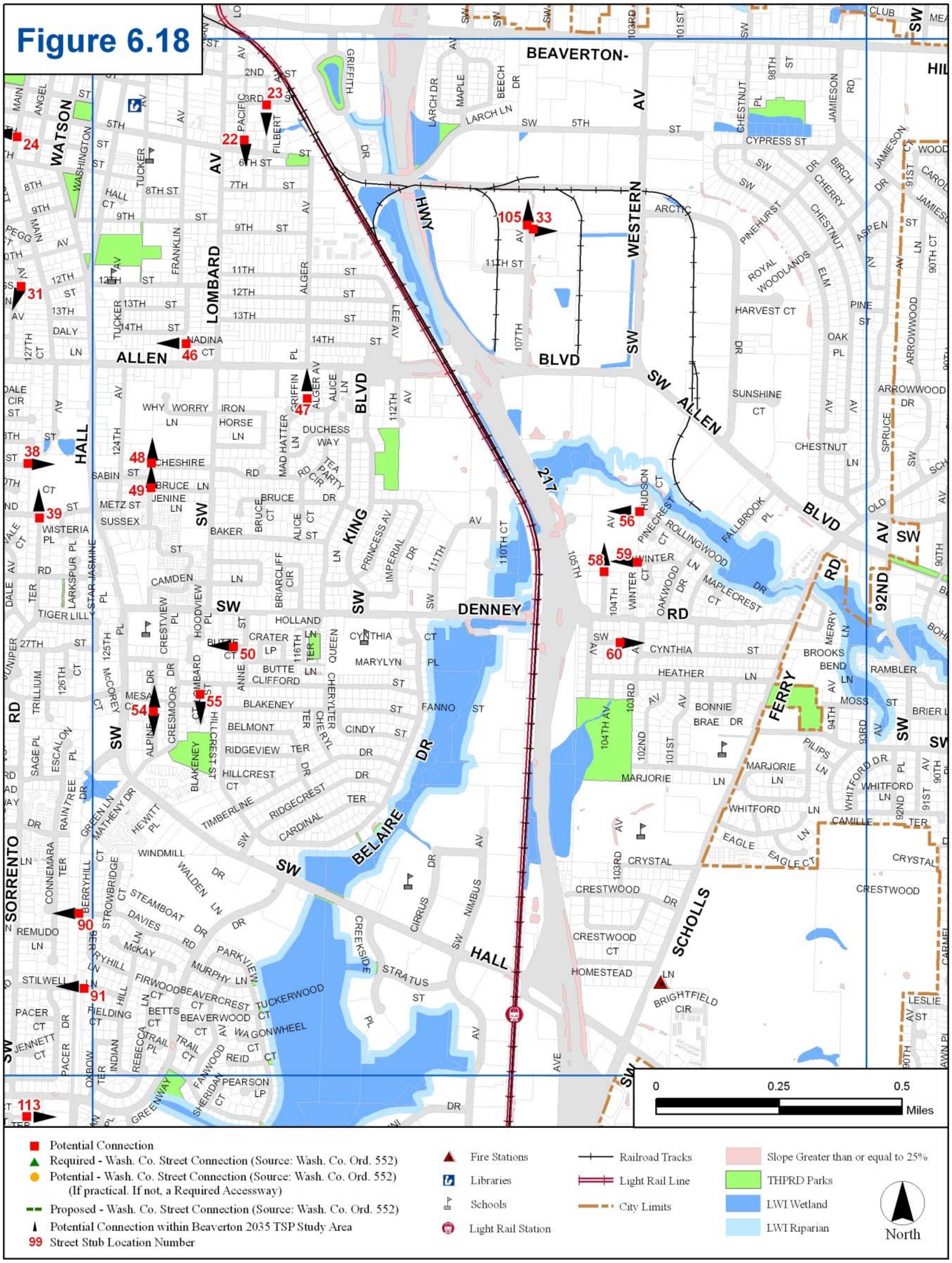


Figure 6.17
0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North

Figure 6.18



0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North

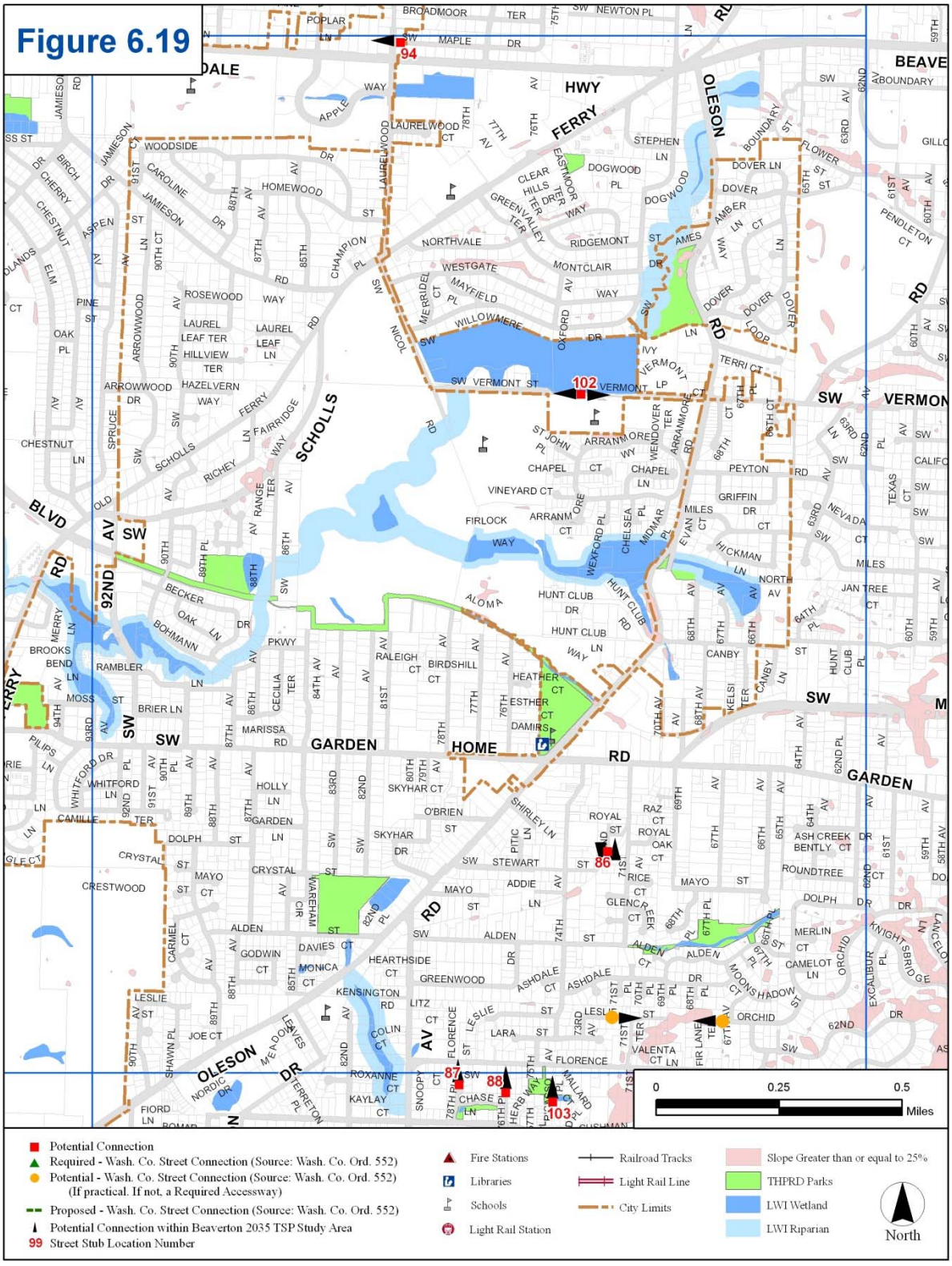
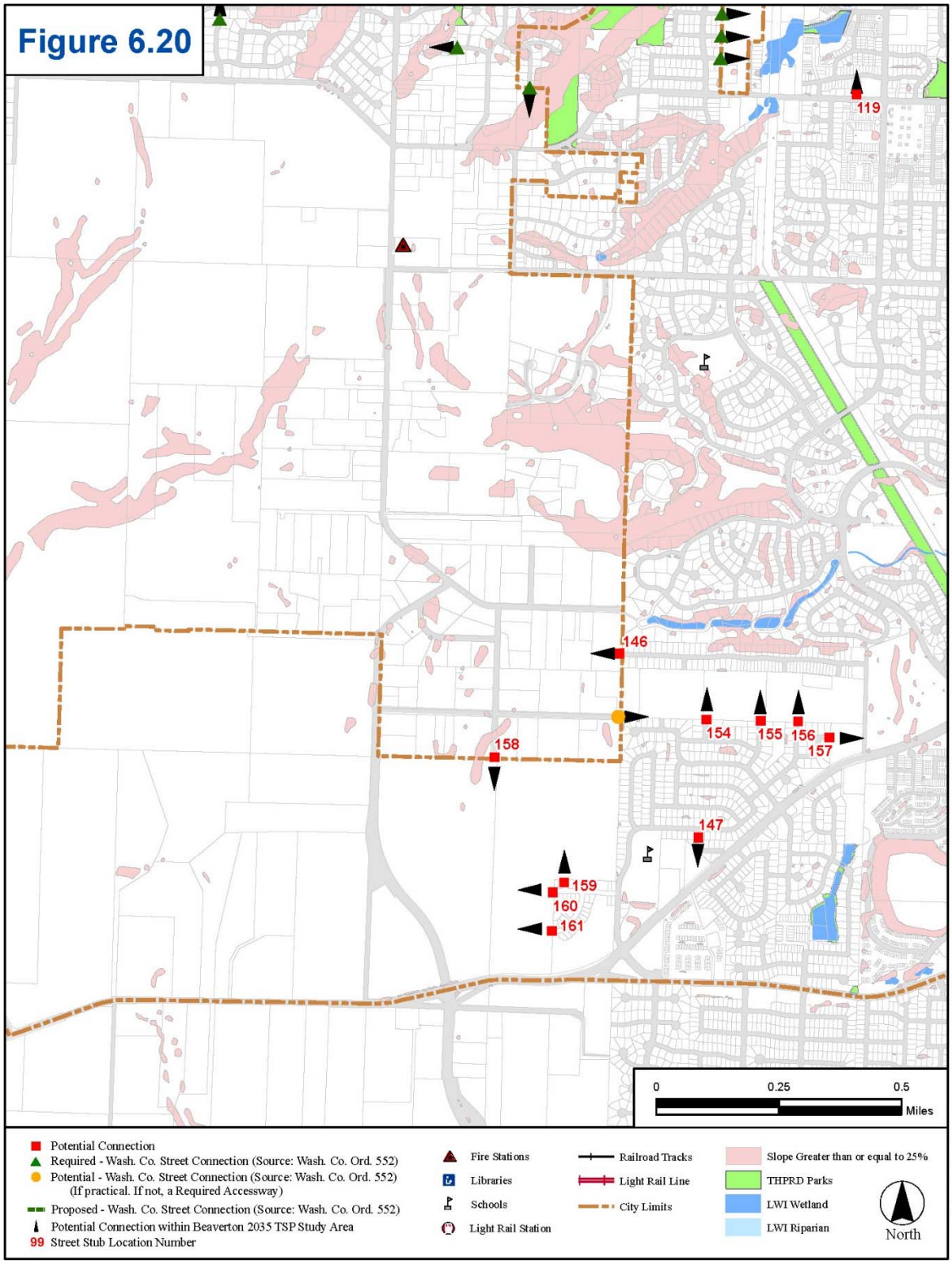


Figure 6.19
0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North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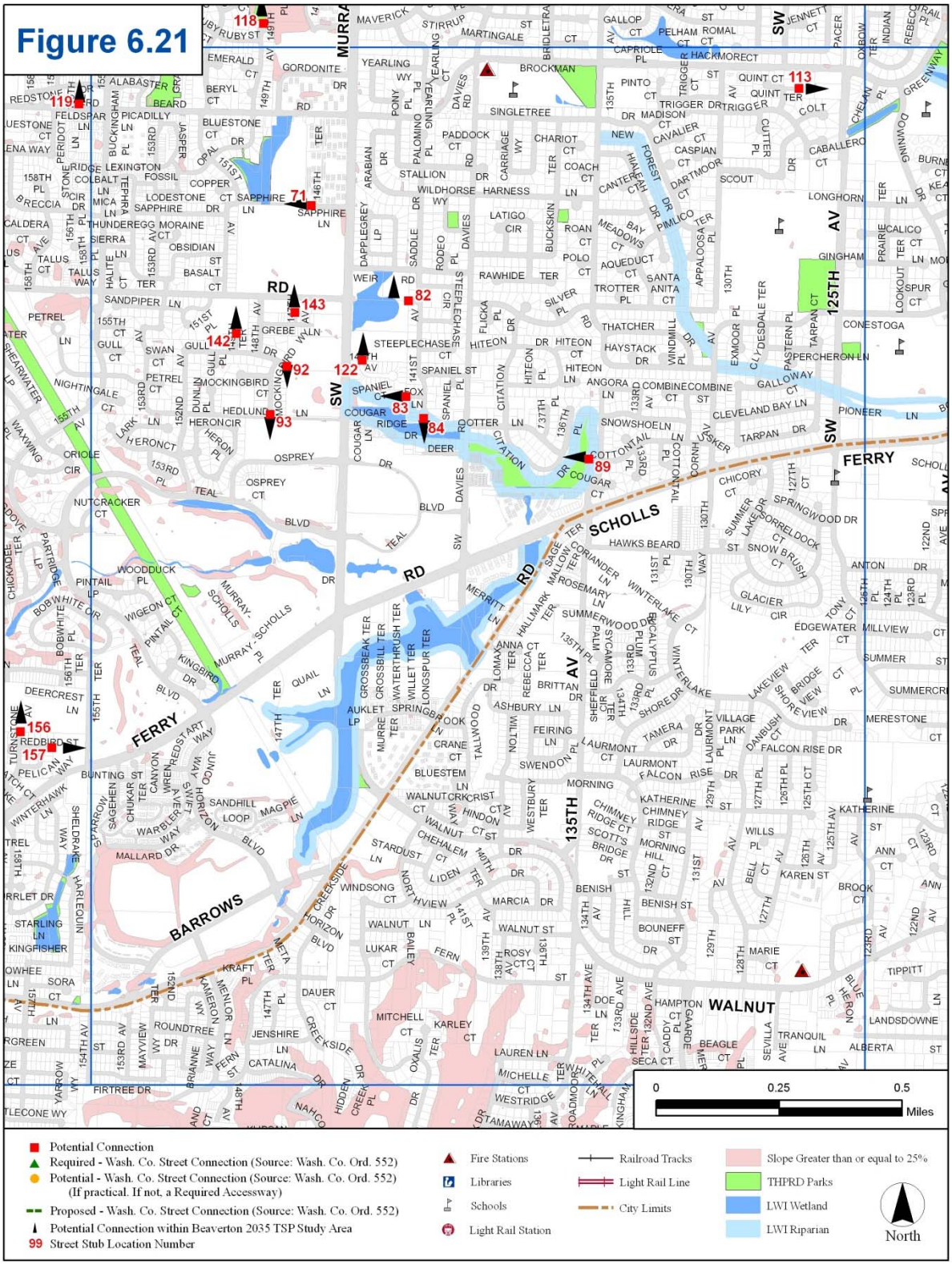
119
146
154
155
156
157
158
147
159
160
161
0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North
14_0871 S:_CDD_2014\14_0871\14_0871_ConnectionsRG_6-8_8-23.mxd GIS-DT 20141126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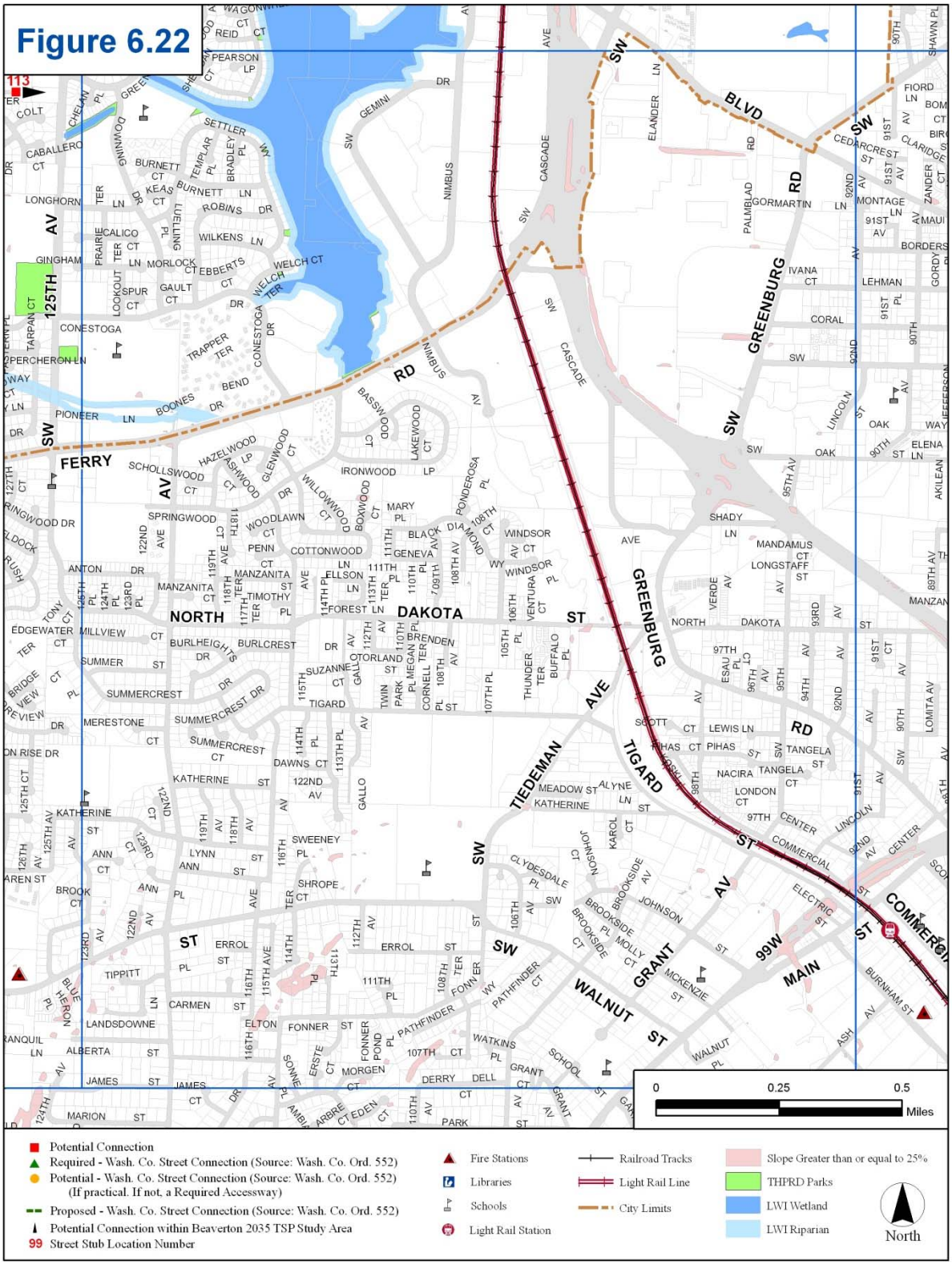
0
0.25
0.5
Miles
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian
North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0
0.25
0.5
Miles
North
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian

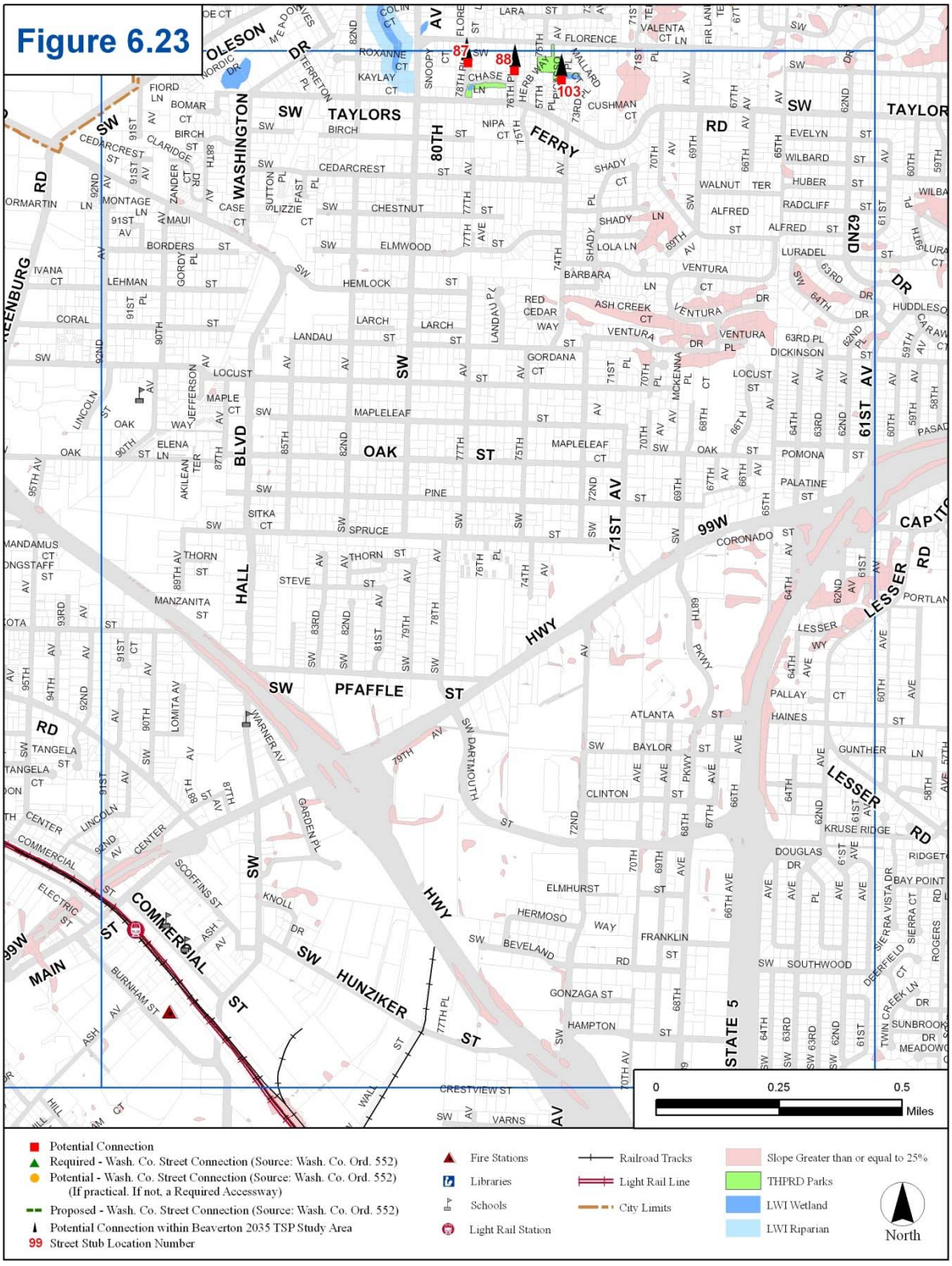


Figure 6.23
0
0.25
0.5
Miles
North
Potential Connection
Required - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
(If practical. If not, a Required Accessway)
Proposed - Wash. Co. Street Connection (Source: Wash. Co. Ord. 552)
Potential Connection within Beaverton 2035 TSP Study Area
99 Street Stub Location Number
Fire Stations
Libraries
Schools
Light Rail Station
Railroad Tracks
Light Rail Line
City Limits
Slope Greater than or equal to 25%
THPRD Parks
LWI Wetland
LWI Riparian

System Maintenance

Preservation and maintenance of the transportation system are essential to protecting the transportation investment. The majority of gas tax revenues are used for maintenance. With an increasing inventory of streets and the need for greater maintenance of older facilities, protecting and increasing maintenance funds is critical.

A key concept is that pavement quality deteriorates 40 percent in the first 75 percent of pavement life. However, there is a rapid acceleration of this deterioration later, so that in the next 12 percent of life, there is another 40 percent drop in quality. The City's pavement management program tracks pavement condition so that repairs can be made at an optimum time in pavement life. Pavement management projects are scheduled and funded through the City's capital improvement plan. The transportation maintenance system in the 2020 TSP remains the recommended system:

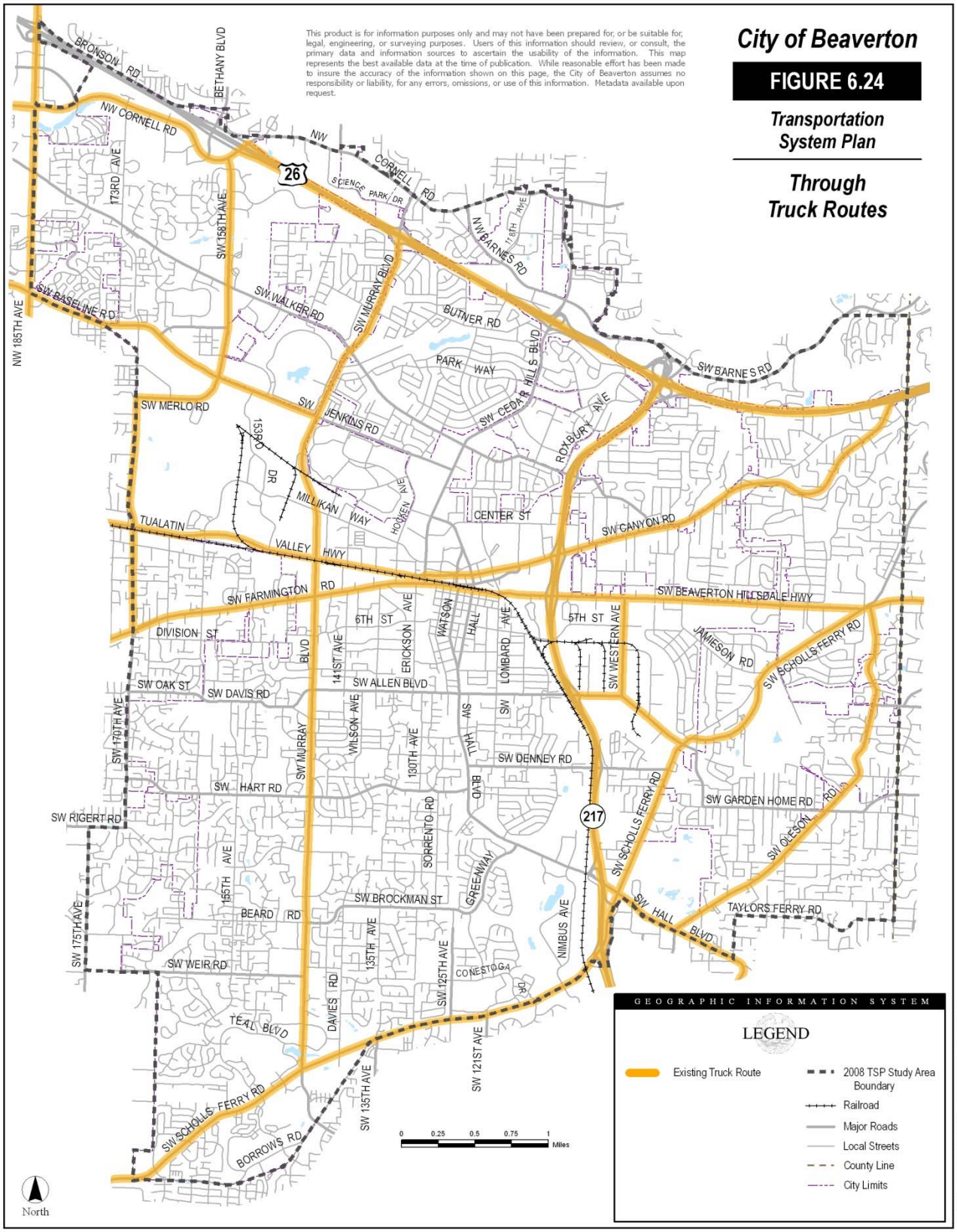
- Maintain roadways using a balanced approach which develops a pavement management system and budget to address needs over a ten year period
- Maintain roadways using a need based approach which addresses current and future needs as they arise

Freight System Improvements

Truck

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. The establishment of through truck routes provides for this efficient movement while at the same time maintaining neighborhood livability, public safety, and minimizing maintenance costs of the roadway system. The through truck route map indicates truck routes along several of the primary arterials through the study area including Highway 217, US 26, Scholls Ferry Road, Murray Boulevard, Farmington Road and Canyon Road, among others. The objective of this route designation is to allow these routes to focus on design criteria that is "truck friendly"; i.e., 12-foot travel lanes, longer access spacing, 35-foot (or larger) curb returns, and pavement design that accommodates a larger share of trucks.

A freight system reliability analysis was performed for sections of two of these routes (Farmington Road and Canyon Road) that traverse the Beaverton Regional Center. Existing travel times through these areas for the midday and PM peak hour were compared and midday travel times for 2035 were projected. Each direction of both routes currently is up to 20 percent faster (80 seconds or less) during the midday period. Operational improvements are needed in the future to continue to provide corridor freight mobility.


City of Beaverton
FIGURE 6.24
Transportation System Plan
Through Truck Routes
This product is for information purposes only and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review, or consult, the primary data and information sources to ascertain the usability of the information. This map represents the best available data at the time of publication. While reasonable effort has been made to insure the accuracy of the information shown on this page, the City of Beaverton assumes no responsibility or liability, for any errors, omissions, or use of this information. Metadata available upon request.
BRONSON RD
BETHANY BLVD
NW CORNELL RD
NW CORNELL RD
26
SCIENCE PARK DR
NW BARNES RD
SW BARNES RD
SW BASELINE RD
NW 185TH AVE
SW WALKER RD
SW MURRAY BLVD
BUTNER RD
PARK WAY
SW CEDAR HILLS BLVD
ROYBURN AVE
SW MERLO RD
SW JENKINS RD
153RD DR
MILLIKAN WAY
HOWEN AVE
CENTER ST
SW CANYON RD
TUALATIN VALLEY HWY
SW FARMINGTON RD
SW BEAVERTON HILLSDALE HWY
DIVISION ST
6TH ST
ERICKSON AVE
WATSON AVE
HALL BLVD
LOMBARD AVE
5TH ST
SW WESTERN AVE
JAMIESON RD
SW SCHOLLS FERRY RD
SW OAK ST
SW DAVIS RD
141ST AVE
SW ALLEN BLVD
WILSON AVE
130TH AVE
SW HALL BLVD
SW DENNEY RD
SW 170TH AVE
SW MURRAY BLVD
SW HART RD
SW GARDEN HOME RD
SW RIGERT RD
217
SW OLESON RD
SORRENTO RD
GREENWAY
SW BROCKMAN ST
SW HALL BLVD
TAYLORS FERRY RD
185TH AVE
BEARD RD
SW 175TH AVE
135TH AVE
NIMBUS AVE
SW WEIR RD
CONESTOGA DR
SW 125TH AVE
DAVIES RD
TEAL BLVD
SW 121ST AVE
SW 135TH AVE
SW SCHOLLS FERRY RD
BORROWS RD
0 0.25 0.5 0.75 1 Miles
North
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
Existing Truck Route
2008 TSP Study Area Boundary
Railroad
Major Roads
Local Streets
County Line
City Limits
10_0274 S:_TRANSPORTATION_2010\10_0274\FIG_6.24.mxd GIS-MRJ 20100826

Rail

The RTP designates the rail lines traveling along Highway 217 and Tualatin Valley Highway as part of the regional freight system. These lines serve many areas of regional concern including industrial areas, truck terminals, and several employment areas along the route. The freight rail lines provide additional connections to the main roadway freight truck routes. In addition the WES commuter rail service travels along much of the freight rail route along Highway 217. The train frequency along this route is expected to increase with the addition of WES commuter rail service. At-grade gated rail crossings along the south edge of Canyon Road and along Highway 217 impact existing traffic flows during train events at several major arterials (including Murray Boulevard, Farmington Road, Hall Boulevard and Scholls Ferry Road, among others). Such events would further impede traffic flow in the future and restrict capacity of these major facilities. Figure 6.25 shows the locations of rail facilities and street crossings in Beaverton.

Parking

The Beaverton Downtown Parking Solutions Strategy dealt with the supply and demand for parking with downtown redevelopment associated with the 2040 Growth Concept, which envisions higher-density, mixed-use, pedestrian oriented development within Centers throughout the Portland Region. The study recommended a number of policy level actions and parking management strategies that were taken initially or are currently proceeding toward implementation. As parking occupancy increases, this study provides the incremental steps and thresholds for that area and for Beaverton as a whole as parking demand increases.

Pipeline, Air, and Water

There are three other modes of transportation included in the TSP: pipeline, air, and water. While there are some natural gas pipelines in Beaverton, no plans were identified for expansion. There is also a petroleum gas line (gasoline and diesel) that runs from the Port of Portland to Eugene through Beaverton, but no plans were identified for expansion. There are currently no airports within the Beaverton TSP Study area. There are two private heliports (PGE and Turel) located in the southwest corner of Beaverton. There are also no navigable waterways in Beaverton.

Funding Summary and Need

Existing revenue sources are expected to provide approximately $270 million for transportation use through 2035. In addition, future potential sources such as a street maintenance fee and a City SDC could add approximately $42 million through 2035, for a total of $312 million in transportation resources. Existing expenditures such as personnel, operations and maintenance, and street lighting are expected to cost approximately $125 million through 2035, leaving approximately $185 million for additional transportation programs and projects. This indicates that the Action Plan projects listed in Table 6-1 (total cost of $179 million) are reasonably likely to be funded through 2035 with the incorporation of the additional funding sources. Table 6-4 summarizes the existing and potential future transportation revenues and expenditures.

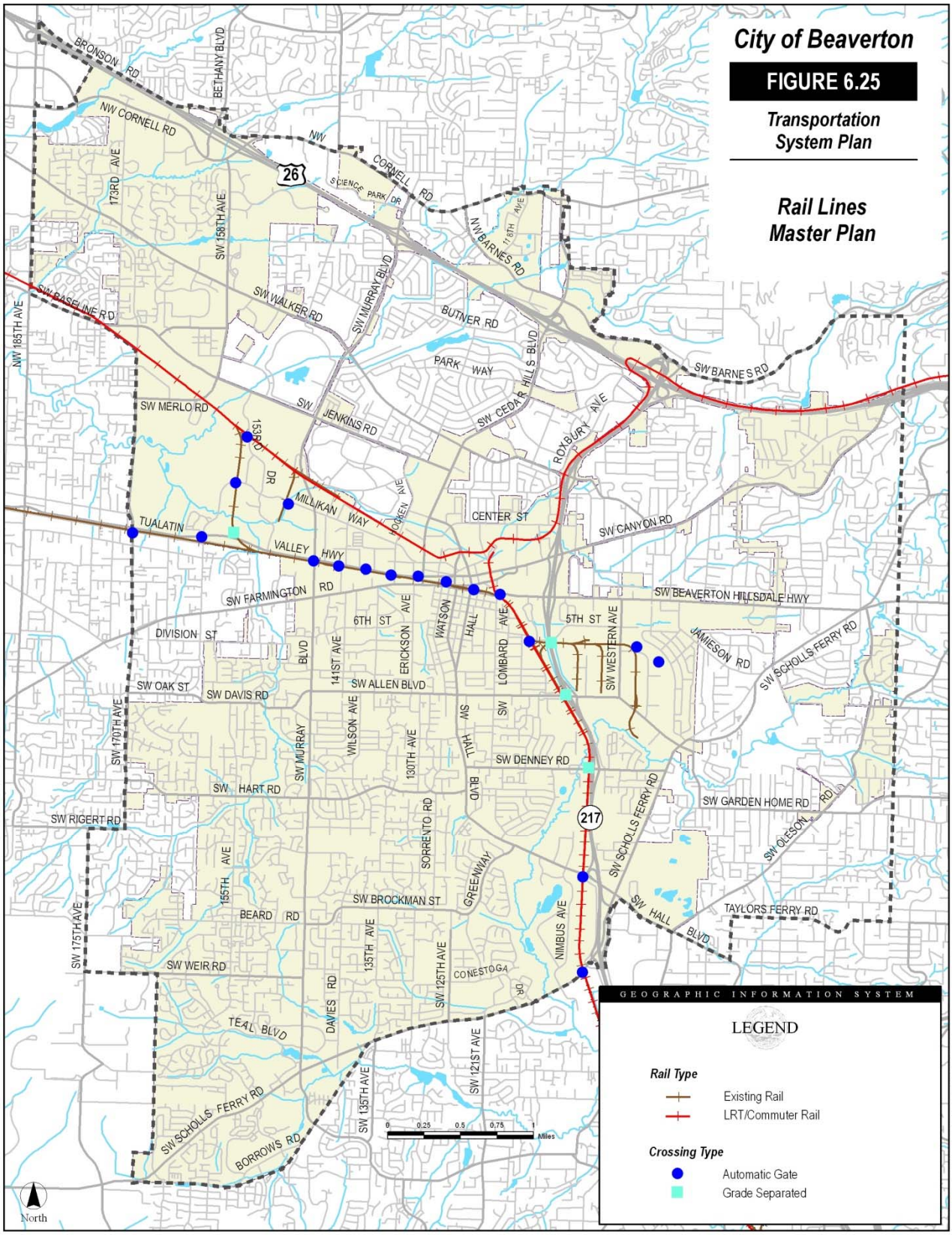

City of Beaverton
FIGURE 6.25
Transportation System Plan
Rail Lines Master Plan
BRONSON RD
BETHANY BLVD
NW CORNELL RD
NW CORNELL RD
26
SCIENCE PARK DR
NW BARNES RD
SW BASELINE RD
SW WALKER RD
SW MURRAY BLVD
BUTNER RD
PARK WAY
SW CEDAR HILLS BLVD
SW BARNES RD
SW MERLO RD
SW JENKINS RD
ROXBURY AVE
MILLIKAN WAY
CENTER ST
SW CANYON RD
TUALATIN
VALLEY HWY
SW FARMINGTON RD
SW BEAVERTON HILLSDALE HWY
DIVISION ST
6TH ST
5TH ST
SW WESTERN AVE
JAMIESON RD
SW SCHOLLS FERRY RD
SW OAK ST
SW DAVIS RD
SW ALLEN BLVD
SW DENNEY RD
SW HART RD
SW RIGERT RD
SW GARDEN HOME RD
SW OLESON RD
217
SW BROCKMAN ST
SW HALL BLVD
TAYLORS FERRY RD
BEARD RD
SW WEIR RD
CONESTOGA DR
TEAL BLVD
SW SCHOLLS FERRY RD
BORROWS RD
North
0 0.25 0.5 0.75 1 Miles
GEOGRAPHIC INFORMATION SYSTEM
LEGEND
Rail Type
Existing Rail
LRT/Commuter Rail
Crossing Type
Automatic Gate
Grade Separated
10_0274 S:_TRANSPORTATION_2010\10_0274\FIG_6.25.mxd GIS-MRJ 20100826

Table 6-4: Beaverton TSP Funding Breakdown

Current Revenue Sources	Annual Amount ($1,000s)	Estimated Revenues Through 2035 ($1,000s)
State Hwy Trust Fund	$ 3,200	**$ 86,400**
HB 2001	$ 1,645	**$ 44,430**
Bike 1% Fund	$ 32	**$ 864**
County Gas Tax	$ 320	**$ 8,640**
County SDC for transportation	$ 400	**$ 10,800**
Street Lighting Fees	$ 900	**$ 24,300**
Franchise Fees	$ 1,500	**$ 39,900**
Fed MTIP	-	**$ 29,000**
MSTIP	-	**$ 24,110**
Total Current Revenue	***$ 7,997***	***$ 268,445***
Potential Future Sources		
Street Maintenance Fee	$ 1,500	**$ 37,500**
City SDC	$ 200	**$ 4,800**
Total Future Revenue Sources	***$ 1,700***	***$ 42,300***
Current Expenditure		
101 - Street Operations & Maintenance		
Personnel Services	$ 2,000	**$ 54,000**
Mat/Ser/Cap Outlay (multi use)	$ 1,000	**$ 27,000**
Mat/Ser/Cap Outlay (Traffic)	$ 475	**$ 12,825**
111 - Street Lighting		
Mat/Ser/Cap Outlay	$ 900	**$ 24,300**
Personnel Services	$ 180	**$ 4,860**
310 - Transportation Capital Projects		
CIP		**$ 2,500**
Total Current Expenditures	**$ 4,555**	**$ 125,485**
Available Funds for Capital Projects		**$185,260**
High Priority Project Cost		**$178,940**
Difference (Funds – Costs)		**+$6,320 (3%)**