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Volume I Comprehensive Plan

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Comprehensive Plan

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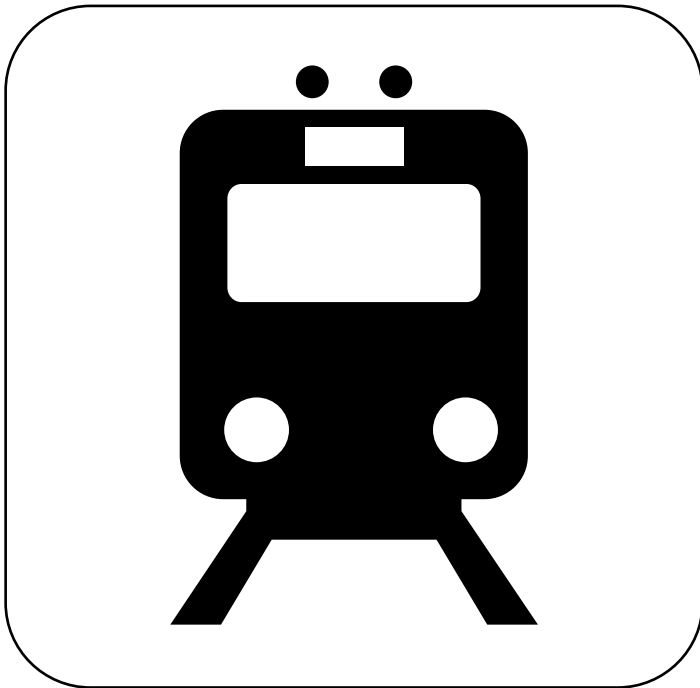
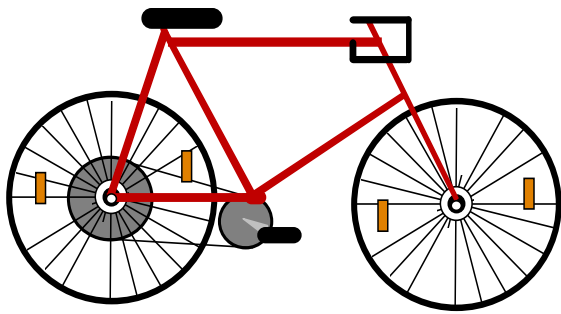
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CHAPTER SIX: TRANSPORTATION ELEMENT



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 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 1976, *Comprehensive Plan* amendments were adopted that eliminated many proposed major streets in favor of protecting neighborhoods from increased traffic congestion. Beginning in 1978, the Beaverton Urban Renewal Agency undertook a number of improvements to the street circulation system of central Beaverton. In 1979 through 1983, 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 1988, 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), and *2020 Regional Transportation Plan* (2000).

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. The 2020 *Transportation System Plan Update* is the product of a yearlong public participation process. This Transportation Element is based on the *Transportation System Plan Update* (included in *Comprehensive Plan, Volume IV*). The updated goals, policies, and actions are included in section 6.2. The analysis and discussion of 2020 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 20-year transportation plan.

2020 Study Area

The 2020 transportation plan study area responds to area wide growth. Projected land uses and population and employment figures reflect the *Comprehensive Plan Land Use Element* and Metro's assumptions for forecast year 2020. The planning area accommodates approximately 22,000 additional households and approximately 53,000 new employees over the next 20 years; 47 percent and 69 percent increases respectively over the 1994 base year household and employment figures. In areas outside City limits, designations and improvements included in this plan are considered recommendations to the appropriate lead agency(ies) responsible for that area or facility.

6.2. TRANSPORTATION GOALS AND POLICIES

The transportation goals and related policies are updated from the previous Transportation Element. They reflect the City's *Comprehensive Plan* goals. The transportation goals are brief guiding statements that describe a desired result. Their related policies focus on how each goal is met and describe necessary actions that move the community toward the goal. Below many of the policies, italic text clarifies the intent of the policy and provides recommended implementing actions.

At times, policies direct the establishment of requirements and standards for new development. The requirements for new development are contained in the Beaverton *Development Code*. The construction standards for improvements are found in the Beaverton *Engineering Design Manual and Standard Drawings*.

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 streets and highways to respect the characteristics of the surrounding land uses, natural features and natural hazards, and community amenities.*

- *Recognizing that the magnitude and scale of capital facilities also affect aesthetics and environmental quality, the City will continue to require design plans and impact analyses as specified in the Development Code.*
 - *Preserve right-of-way for improvements that are slightly beyond or within a specified time period that is beyond the planning forecast year identified in the Transportation System Plan.*
- b) Consider noise attenuation in the design and redesign of arterial streets immediately adjacent to residential development.
- c) Locate and design recreational 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 shared-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. (Ordinance 4301).*
- d) 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 and the Murray Boulevard connection from Scholls Ferry Road to Barrows Road at Walnut Street prior to completing the Davies Road connection from Scholls Ferry Road to Barrows Road.*
- e) New commercial and industrial development shall identify traffic plans for residential streets where increased cut-through traffic may occur due to the proposed development.

6.2.2. **Goal:** A balanced transportation system.

Policies:

- a) 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, and auto uses, and recognize that streets are important to community identity and provide a needed service.
- b) Develop and provide a safe, complete, attractive, efficient, and accessible system of pedestrian ways and bicycle ways, including bike lanes, shared roadways, multi-use paths, and sidewalks according to the pedestrian and bicycle system maps and the *Development Code* and *Engineering Design Manual and Standard Drawings* requirements.

Actions:

- *Continue to coordinate with Washington County, Metro, Beaverton area schools, Oregon Department of Transportation, and the Tualatin Hills Park and Recreation District.*
 - *Sidewalks will remain the responsibility of fronting property owners.*
 - *Maintain the opportunity for resident groups to fund multi-use path improvements through the local improvement district process.*
- c) Provide connectivity to each area of the City for convenient multi-modal access. Ensure pedestrian, bicycle, transit, and vehicle access to schools, parks, employment and recreational areas, and destinations in station areas, regional and town centers by identifying and developing improvements that address connectivity needs.
- d) Develop neighborhood and local connections to provide adequate circulation into and out of neighborhoods.
- e) 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.

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

Actions: Improve transit service, pedestrian facilities leading to bus stop 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 marked crossings at major transit stops, and to provide signal priority.

6.2.3. **Goal:** A safe transportation system.

Policies:

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

- 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, TriMet, Tualatin Valley Fire and Rescue, and Metro.*

- c) Enhance safety by prioritizing and mitigating high accident 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.*

- d) Designate safe routes from residential areas to schools.

Action: *The City should continue to work with Beaverton area schools and the community in developing safe transit, pedestrian, and bicycle routes to schools. Improvement projects near schools shall consider school access and safety during project development.*

- 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, although they should be separate and distant from major streets for most of their length.

Actions: *Study trail crossing treatments for appropriate use at locations where out-of-direction travel by path users to an intersection is significant. 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, bicycles, and pedestrians. Preserve the functional integrity of the motor vehicle 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 Primary and Secondary Emergency Response Routes. 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) 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 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:

- i) *Encourage development that effectively mixes land uses to reduce vehicle trip generation.*

- ii) *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.*
- iii) *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.*
- iv) *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.*
- v) *Build on existing percentage of Regional Center employers (seven percent) who provide transit pass discounts to achieve 25 percent by 2020.*
- vi) *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.*
- vii) *Implement the master improvement plans for bicycles, transit, pedestrians, and motor vehicles to implement a convenient multi-modal transportation system that encourages increased bicycle, pedestrian, and transit use.*

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

***Actions:** Work to reduce parking per capita in accordance with Metro and State requirements, while minimizing impacts to neighborhoods. Continue to implement the motor vehicle and bicycle parking ratios in new development. Develop and implement a Regional Center parking plan and a residential parking permit program as demand increases. Continue to implement shared parking and timed parking in new development and through existing programs. Work toward implementing 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.*

c) 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. (*Ordinance 4301*)

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.

***Action:** Maintain performance standards that meet the needs of the City and are consistent with regional and State standards. (*Ordinance 4301*)*

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

***Actions:** Encourage mixed-use development where allowed to promote trip chaining in an effort to reduce vehicle trips, cold starts, and air pollution.*

- e) Require land use approval of proposals for new or improved transportation facilities. The approval process shall consider the project’s identified impacts.
- f) Support mixed-use development in appropriate locations.
- g) Encourage TriMet to implement transit improvements concurrent with roadway improvements, to improve access and frequency of service, and to increase ridership potential and service area. Encourage development of regional high capacity transit, including light rail transit and commuter rail.

Action: Support commuter rail and its associated supportive transit services.

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 bus stop 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.

6.2.6. **Goal:** Transportation facilities that provide 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 existing railroad and air transportation facilities in land use decisions.

6.2.7 **Goal:** Implement the transportation plan by working cooperatively with federal, State, regional, and local governments, the private sector, and residents. Create a stable, flexible financial system.

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 policies. Work with agencies to assure adequate funding of transportation facilities to support these policies.
- c) Monitor and update the *Transportation Element* of the *Comprehensive Plan* so that issues and opportunities are addressed in a timely manner. Maintain a current capital improvement program that establishes the City's construction and improvement priorities, and allocates the appropriate level of funding.

Action: *The City commits to working with Metro and the Department of Land Conservation and Development in the City's next Transportation Plan update to address local issues related to non single-occupant-vehicle strategies.*

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

Action: *Base the roadway 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 traffic impact of the development in question.*

- e) Establish rights-of-way through development review and, where appropriate, officially secure them by dedication or reservation of property.
- f) 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, 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.*

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

Action: *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.*

6.3. TRANSPORTATION SYSTEM PLAN IMPROVEMENTS

The transportation improvements included in this element implement the City's transportation goals and policies and mitigate the needs identified in the 2020 *Transportation System Plan Update*. Improvements are based on the *Regional Transportation Plan* and its land use, population, employment, and mode split assumptions for forecast year 2020. Any improvements included in this plan that are not under City jurisdiction are considered recommendations to the responsible agency.

Modal master plans identify improvements that provide a complete system network and necessary capacity. Modal action plans identify shorter-term improvements that work toward completing the network and providing capacity by filling key system gaps or serving highly used destinations. Transportation system and demand management projects serve to implement the mode split targets that reduce vehicle miles traveled, traffic congestion, and vehicle emissions.

The improvement 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 Standard Drawings*, 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.

6.3.1. Transportation System Management and Demand Management Improvements

Transportation system and demand management strategies are part of the transportation improvement plan. Transportation system management improvements are relatively lower cost strategies that enhance the transportation system's operational performance by helping to reduce congestion and decrease travel time. Signal coordination and synchronization improvements, intersection channelization, access management, high occupancy vehicle lanes, ramp metering, rapid incident response, intelligent transportation solutions (ITS), and transit operation

optimization programs can provide tangible benefits to the public. Though most of these types of improvements focus on the broader regional network, traffic monitoring and surveillance, signal coordination and optimization, signal priority, information availability, and incident management are strategies that Beaverton continues to implement locally.

Transportation demand management improvements remove vehicle trips from the roadway system during peak travel demand periods. Applying demand management strategies over a large geographic area can be an effective tool in reducing vehicle miles traveled. Such strategies include encouraging mixed use in appropriate locations, flexible working hours, compressed work weeks, transit subsidy programs for employees, agency participation in transportation management associations, park-and-ride facilities, bike parking requirements, minimum and maximum vehicle parking requirements, and fareless transit areas in regional centers. Demand management also includes implementing bicycle, pedestrian, vehicle, and transit system improvements that help make travel more direct and convenient.

Beaverton's transportation policies, actions, and modal improvement plans in this element identify some of the regionally significant transportation system and demand projects the City will implement in working toward attaining the mode split targets over the next 20 years. Smaller more localized improvements are also identified in the City's capital improvement plan.

6.3.2. Pedestrian and Bicycle System Improvements

Beaverton's bicycle system is composed of shared roadways, bicycle lanes, and multi-use paths. Its pedestrian system is made up of sidewalks and multi-use paths. Pedestrian and bicycle system needs and improvement projects are identified in the pedestrian and bicycle action and master plans. The plans work toward filling the gaps in these circulation systems and providing greater access and more direct routes to destinations. Such improvements help provide a safer, more attractive, direct, and well-maintained bicycle and pedestrian network that encourages use. Transportation demand management and system management improvements also help encourage these trip types.

Pedestrian System Improvements

Beaverton's Pedestrian Master Plan (Figure 6.1) is an overall plan that summarizes the desired framework to meet local and regional needs. Improvement projects provide the circulation network that is needed within Beaverton's 2020 study area. Improvement projects also respond to specific needs identified in the *Regional Transportation Plan's* designated pedestrian districts and transit/mixed use corridors where pedestrian scale design, transit interface, and user amenities are a priority due to expected increased pedestrian activity. Designated pedestrian districts and major transit stops are identified on the Pedestrian Master Plan.

The Pedestrian Action Plan (Table 6.1) includes some of the projects that should be funded in the near term. These are projects that fill gaps and provide important connections to destinations. Pedestrian and transit related improvements are also implemented through new development as regulated by the Beaverton *Development Code*.

Table 6.1 Pedestrian Action Plan

Table 6.1 Project	From	To	Approximate Cost (1000s of 2001 dollars)
<i>Priority: Connect key pedestrian corridors to schools, parks, recreational uses and activity centers</i>			
155 th Avenue	Davis Road	Nora-Beard Road	410
US 26/Bethany Trail Crossing	US 26	US 26	100
Study US 26 Trail Crossings	143 rd Avenue	Canyon Road	80
Study and improve unsignalized trail crossing of roadways	City jurisdiction		10,000
Link Fanno Creek Path over ORE 217 at Denney	ORE 217	ORE 217	100
Study Fanno Creek Path	Rock Creek	Fanno Creek Greenway	80
<i>Priority: Fill in gaps in pedestrian network</i>			
TV Highway/Canyon Road (gaps on one side)	Murray Blvd.	170 th Avenue	470
TV Highway/Canyon Road (Boulevard Design)	ORE 217	Murray Blvd.	8,000
Canyon Road/TV Highway (sidewalks and crossings)	91 st Avenue	ORE 217	1,465
Canyon Road	US 26	110 th Avenue	6,750
Cedar Hills Boulevard	Butner Road	US 26 WB off ramp	124
Murray Boulevard (gaps on one side)	Jenkins Road	Millikan Way	100
Murray Boulevard (gaps)	Farmington Road	TV Highway	112
Denney Road	Nimbus Avenue	Scholls Ferry Road	241
Allen Boulevard (gaps)	Western Avenue	Scholls Ferry Road	69
Western Avenue	5 th Street	800 feet south of 5 th	55
Division Street	149 th Avenue	170 th Avenue	365
Davies Road (east side)	Scholls Ferry Road	Hiteon Drive	76
Scholls Ferry Road (gaps)	Barrows Road (west end)	Beaverton-Hillsdale Highway	1,893
Scholls Ferry Road	Beaverton-Hillsdale Highway	Raleighwood Way	151
SW Park Way (gaps)	Walker Road	ORE 217	213

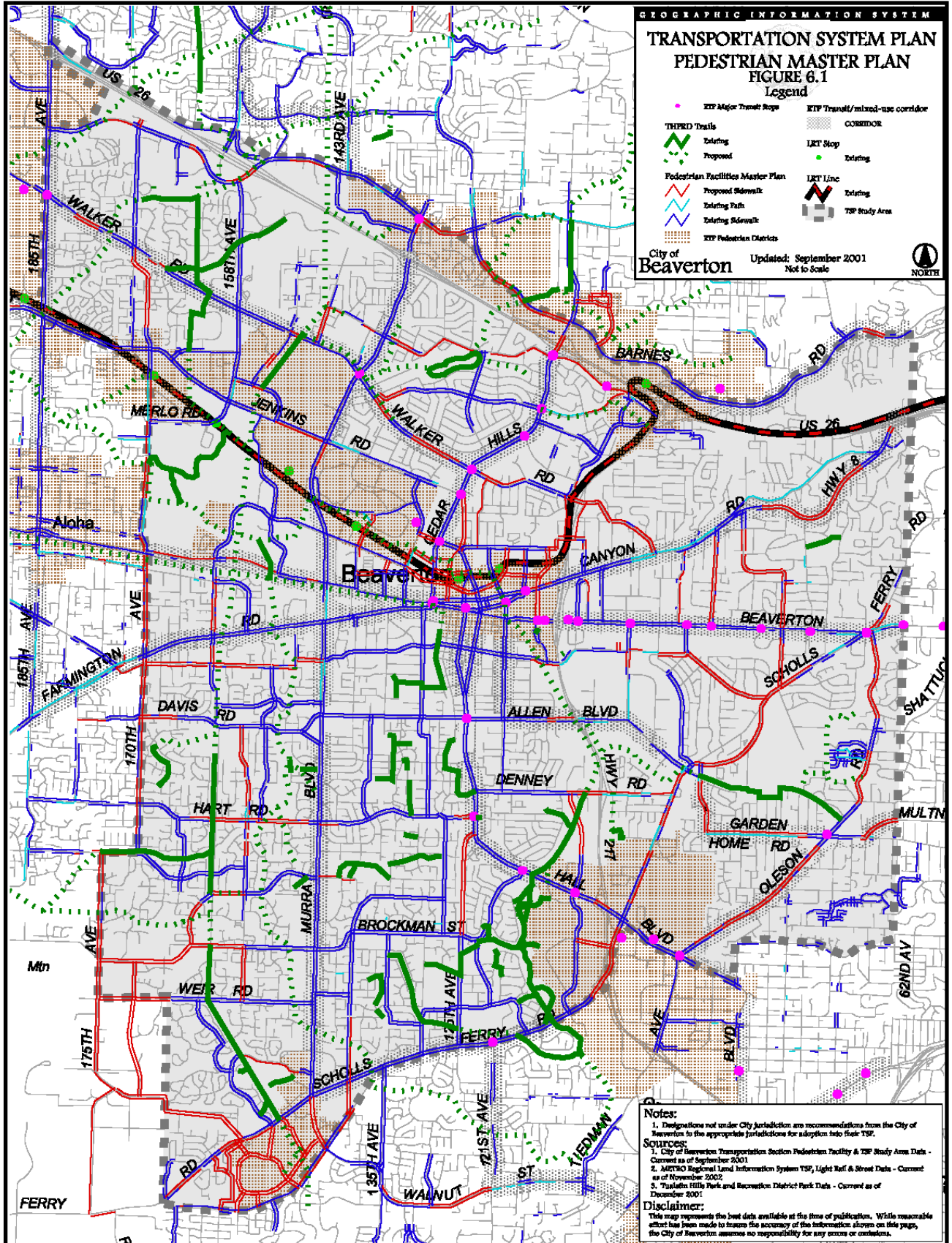
Table 6.1			Approximate Cost (1000s of 2001 dollars)
Project	From	To	
Cornell Road (gaps)	158 th Avenue	US 26 WB off ramp	101
Barnes Road	Tuefel Lane	Viewmont Drive	118
Garden Home Road	77 th Avenue	76 th Avenue	43
Multnomah Boulevard	Garden Home Road	Wash. County line	198
92 nd Avenue	Allen Boulevard	Garden Home Road	302
Garden Home Road (gaps one side)	92 nd Avenue	77 th Avenue	242
Hall Boulevard	Cascade Avenue	ORE 217 SB ramp	23
Hall Boulevard (gaps one side)	ORE 217 SB ramp	Approximately 470 ft. west of ramp	34
Barnes Road (gaps one side)	117 th Avenue	Stark Street	104
Barnes Road	Stark Street	Approximately 100 ft. west of Stark St.	14
Cornell Road (gaps one side)	Approximately 500 ft west of Science Park Dr.	Approximately 500 ft east of 153 rd Ave.	101
110 th Avenue (gap-one side)	Beaverton-Hillsdale Highway	Canyon Road	34
<i>Priority: Pedestrian corridors to transit stations and stops</i>			
Hall/Watson (Boulevard Design)	Allen Blvd.	Cedar Hills Blvd.	510
160 th Avenue	TV Highway	Davis Road	358
117 th Avenue (gaps-one side)	Light Rail Transit Line	Center Street	34
Downtown Beaverton Connectivity collector roadways	Hocken Avenue/ TV Highway	110 th Avenue/ Cabot Street	1,033
Pedestrian Access to MAX	LRT Stations		1,148
<i>Priority: Construct sidewalks with roadway improvement projects</i>			
125 th Avenue	Hall Boulevard	Brockman Road	193
Hall Boulevard	Cedar Hills	Hocken Avenue/Terman Rd.	Part of road improvement
Farmington Road	172 nd Avenue	185 th Avenue	218
Nimbus Avenue	Denney Road	Cirrus Drive	138
Walker Road	ORE 217	Canyon Road	209
Walker Road (gaps)	173 rd Avenue	Mayfield Avenue	441

Table 6.1 Project	From	To	Approximate Cost (1000s of 2001 dollars)
Davies Road	Scholls Ferry Road	Barrows Road	61
Murray Boulevard	Scholls Ferry Road	Barrows Road	110
170 th Avenue	Alexander Street	Baseline/Jenkins	366
173 rd Avenue	Cornell Road	Bronson Road	55
Hart Road (gaps)	Hall Boulevard	Murray Boulevard	49
Cornell Road (one side)	158 th Avenue	185 th Avenue	165
Oak Street/Davis Rd./Allen Blvd. (gaps)	160 th Avenue	170 th Avenue	244
Allen Boulevard (gaps)	Alice Lane	Western Avenue	112
Nora-Beard Road	175 th Avenue	155 th Avenue	281
Weir Road	175 th Avenue	160 th Avenue	248
175 th Avenue-Rigert Road	170 th Avenue	Scholls Ferry Road	755
Jenkins Road	153 rd Avenue	Murray Boulevard	112
Hart Road/Bany Road (gaps)	170 th Avenue	185 th Avenue	214
SW Beaverton collector roadway	Scholls Ferry Road	175 th Avenue	346
Johnson Street Extension	170 th Avenue	209 th Avenue	Part of road improvement
Barnes Road Improvements	Highway 217	119 th Avenue	Part of road improvement.
Barnes Road Improvements	Saltzman Road	119 th Avenue	Part of road improvement
Cornell Road Improvements	US 26	143 rd Avenue	Part of road improvement
Cornell Road Improvements	143 rd Avenue	Saltzman Road	Part of road improvement
Cornell Road Boulevard Improvements	Barnes Road	Trail Street	2,295
Murray Boulevard Improvement	Science Park Drive	Cornell Road	Part of road improvement
ORE 217 Overcrossing roadway	Scholls Ferry Road	Nimbus	Part of road improvement
Murray/Scholls Ferry Town Center – extensions and new roadways			Part of road improvement
103 rd Avenue	Walker Road	Western Boulevard	Part of road improvement
SW Beaverton circulation roadway	High Hill Lane	Nora-Beard Road	275

Table 6.1 Project	From	To	Approximate Cost (1000s of 2001 dollars)
<i>Priority: Pedestrian corridors that connect neighborhoods</i>			
SW Butner Road (one side)	Murray Boulevard	Park Way	296
SW Downing Road (gaps on south side)	Murray Boulevard	Meadow Drive	41
Meadow Drive (one side)	Downing Road	Walker Road	38
Laurelwood Avenue/87 th Avenue	Canyon Road	Scholls Ferry Road	434
Jamieson Road	Pinehurst Drive/Cypress	Scholls Ferry Road	206
Cypress Street	Jamieson Road	Elm Avenue	79
Sexton Mountain Drive (gaps)	Maverick Terrace	Nora-Beard Road	296
91 st Avenue	Canyon Road	Beaverton-Hillsdale Highway	1,970
96 th Avenue (one side)	Canyon Road	Beaverton-Hillsdale Highway	90
Unfunded Pedestrian Action Plan Projects Total Estimated Cost:			\$ 45,588

Sidewalk projects noted as “part of road improvement” are anticipated to be built with the street improvement project so the cost of the sidewalk is included in the street improvement cost estimate in Table 6.3.

Projects with Committed Funding (9/01)	From	To	Approximate Cost (1000s of 2001 dollars)
<i>Priority: Connect key pedestrian corridors to schools, parks, recreational uses and activity centers</i>			
170 th Avenue	Rigert Road	Alexander Street	515
170 th /173 rd Avenue	Baseline/Jenkins	Walker Road	220
Millikan Way	Hocken Avenue	Cedar Hills Blvd.	57
Hart Road/Bany Road (gaps)	Murray Boulevard	170 th Avenue	236
Murray Boulevard (gap)	Farmington	TV Highway	112
Oleson Road	Fanno Creek	Hall	Part of road improvement
Pedestrian Improvement Projects with Committed Funds Total Estimated Cost:			\$1,140



Bicycle System Improvements

Beaverton's primary bicycle system is its arterial and collector street network that provides access to schools, parks, recreational uses, transit stops, employment, and activity centers. Arterials and collectors usually have higher-speed traffic and larger volumes, so they are designed with bicycle lanes. Beaverton's short-term Bicycle Action Plan (Table 6.2) contains projects that fill gaps in the primary bicycle network, connect to activity centers for convenient access, and should be funded in the near term. The Bicycle Master Plan (Figure 6.2) identifies the full bicycle system needs that should be built by 2020 through development and capital improvement projects.

Regional Transportation Plan designations are included to acknowledge the regional significance of the bicycle system for both recreational riders and commute cyclists. Bicycle improvements are often part of a larger street improvement project. System management improvements such as bicycle loop detectors and actuated traffic signals also play a role in completing the system and encouraging use.

Table 6.2 Bicycle Action Plan

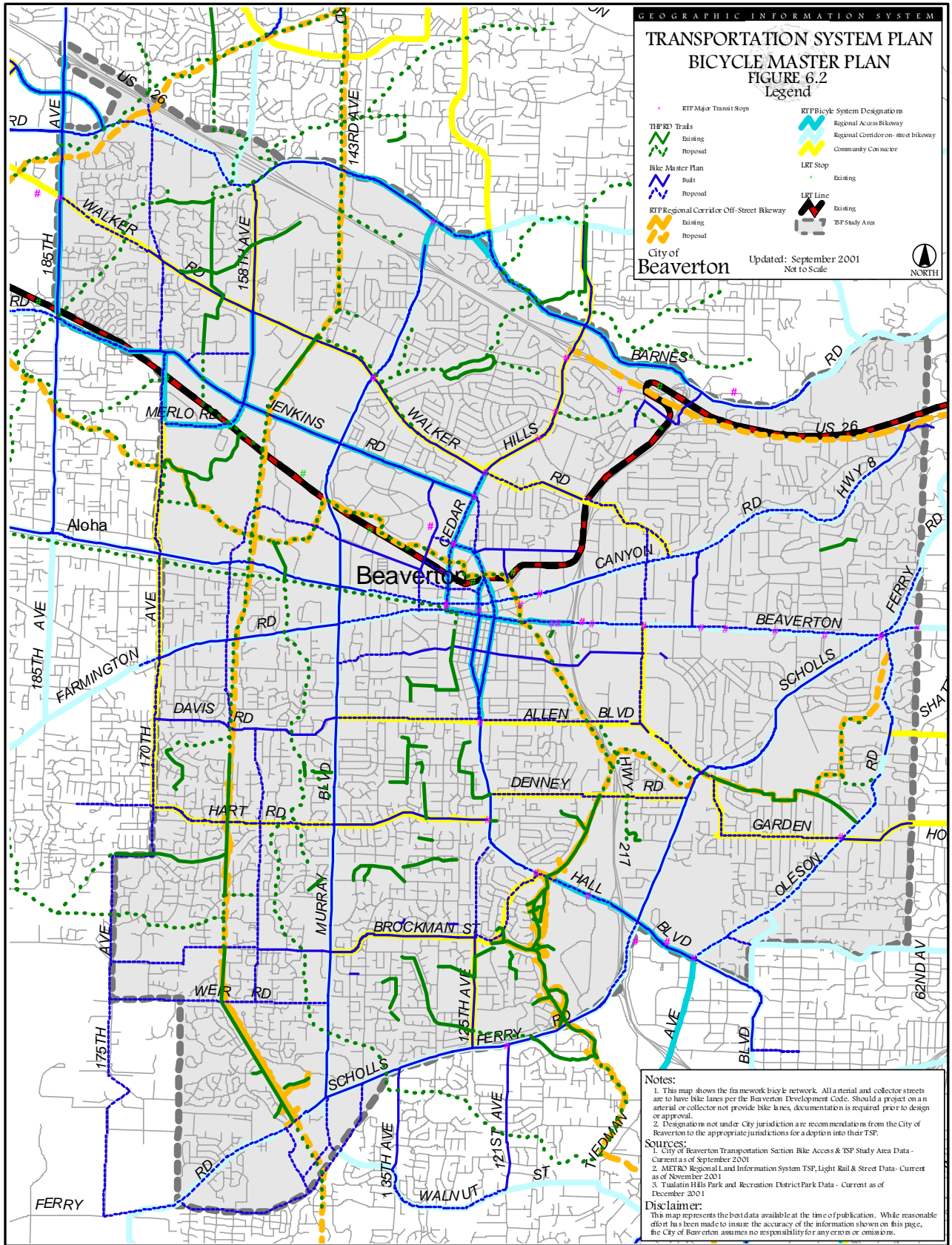
Table 6.2 Project	From	To	Approximate Cost (\$1000s of 2001 dollars)
<i>Priority: Connect key bicycle corridors to schools, parks, recreational uses and activity centers</i>			
Greenway Road	Hall Boulevard	125 th Avenue	266
155 th Avenue/Weir Road	Davis Road	Murray Boulevard	1,190
Millikan Way	Murray Boulevard	TV Highway	521
160 th Avenue	TV Highway	Davis Road	503
Canyon Road	142 nd Avenue	91 st Avenue	1,310
<i>Priority: Fill in gaps in bicycle network</i>			
Hall Boulevard bike lanes	Beaverton-Hillsdale Hwy.	Cedar Hills Blvd.	78
Hall Boulevard Extension	Cedar Hills	Hocken Avenue/Terman Rd.	Part of road improvement
Watson Avenue bike lanes	Beaverton-Hillsdale Hwy.	Hall Boulevard	68
Cedar Hills Boulevard bike lanes	Farmington Road	Walker Road	506
6 th Street bike lanes	Murray Boulevard	Menlo Drive	241
Murray Boulevard bike lanes (west side of Murray Boulevard)	Farmington Road	approximately 200 ft south of TV Highway	48
Denney Road bike lanes	Hall Boulevard	Scholls Ferry Road	684
Allen Boulevard bike lanes	approximately 200 ft east of Western Avenue	Scholls Ferry Road	221

Table 6.2 Project	From	To	Approximate Cost (\$1000s of 2001 dollars)
Western Avenue bike lanes	Beaverton-Hillsdale Hwy.	Allen Boulevard	337
Beaverton-Hillsdale Hwy. bike lanes	ORE 217	91 st Avenue	520
Beaverton-Hillsdale Hwy. bike lanes	91 st Avenue	Wash. County Bound.	1,023
Scholls Ferry Road	77 th Avenue	Beaverton-Hillsdale Hwy.	251
92 nd Avenue	Allen Boulevard	Garden Home Road	377
Garden Home Road	92 nd Avenue	Oleson Road	641
Scholls Ferry Road	Hall Boulevard	Cascade Avenue	328
Scholls Ferry Road	Beaverton-Hillsdale Hwy.	Wash. County Bound.	431
Taylor's Ferry Road	Oleson Road	Washington Drive	137
Davies Road	Scholls Ferry Road	Barrows Road	187
Barrows Road	Scholls Ferry Road (east)	Scholls Ferry Road (west)	1,180
Scholls Ferry Road	Murray Boulevard	175 th Avenue	896
<i>Priority: Construct bike lanes with roadway improvement projects</i>			
125 th Avenue bike lanes	Hall Boulevard	Brockman Road	302
Farmington Road Bikeway	Hocken Avenue	ORE 217	3,213
Walker Road bike lanes	ORE 217	Canyon Road	327
Walker Road bike lanes	Cedar Hills Boulevard	Lynnfield Lane	150
Walker Road bike lanes	178 th Avenue	185 th Avenue	309
170 th Avenue bike lanes	Alexander Street	Baseline/Jenkins	573
173 rd Avenue bike lanes	Walker Road	Cornell Road	371
Hart Road/Bany Road bike lanes	167 th Avenue	170 th Avenue	69
Cornell Road bike lanes	158 th Avenue	185 th Avenue	516
Murray Boulevard bike lanes	Scholls Ferry Road	Barrows Road	72
Allen Boulevard bike lanes	ORE 217	Murray Boulevard	293
Allen Boulevard bike lanes	ORE 217	approximately 200 ft west of Western Ave	108
Nora-Beard Road bike lanes	175 th Avenue	155 th Avenue	499
Weir Road	175 th Avenue	155 th Avenue	448
Barnes Road Improvements	Saltzman Road	119 th Avenue	Part of road improvement

Table 6.2 Project	From	To	Approximate Cost (\$1000s of 2001 dollars)
Cornell Road Improvements	143 rd Avenue	Saltzman Road	Part of road improvement
Canyon Road	US 26	110 th Avenue	6,750
103 rd Avenue Connection	Walker Road	Western Avenue	Part of road improvement
175 th Avenue-Rigert Road bike lanes	170 th Avenue	Scholls Ferry Road	1,180
Unfunded Bicycle Action Plan Projects Total Estimated Cost:			\$ 27,124

Bicycle lane projects noted as “part of road improvement” are built with the street improvement project so the cost of the sidewalk is included in the street improvement cost estimate in Table 6.3.

Projects with Committed Funding	From	To	Approximate Cost (\$1000s of 2001 dollars)
<i>Priority: Connect key bicycle corridors to schools, parks, recreational uses and activity centers</i>			
Millikan Way bike lanes	Hocken Avenue	Cedar Hills Blvd.	91
170 th Avenue bike lanes	Rigert Road	Alexander Street	804
170 th /173 rd Avenue bike lanes	Baseline Road	Walker Road	344
Hall Boulevard bike lanes	12 th Street	500 ft south of Allen	154
Hart Road bike lanes	Murray Blvd.	167 th Avenue	499
Barnes Road Improvements	Saltzman Road	119 th Avenue	Part of road improvement
Cornell Road Improvements	Murray Blvd.	Saltzman Road	Part of Road improvement
Hall Boulevard bike lanes	Ridgecrest	ORE 217	357
Oleson Road	Fanno Creek	Hall Blvd.	453
Bicycle Improvement Projects with Committed Funds Total Estimated Cost:			\$ 2,702

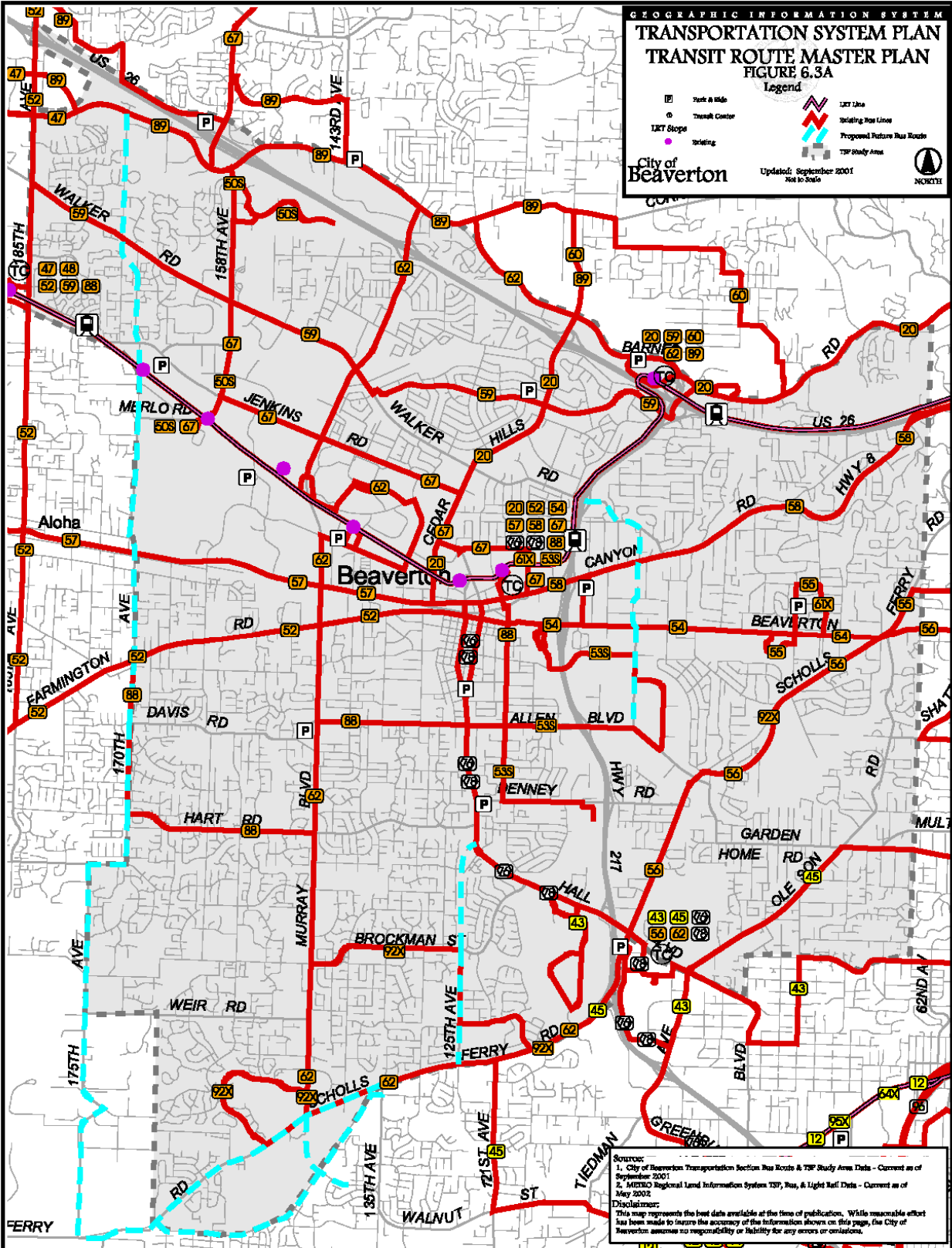


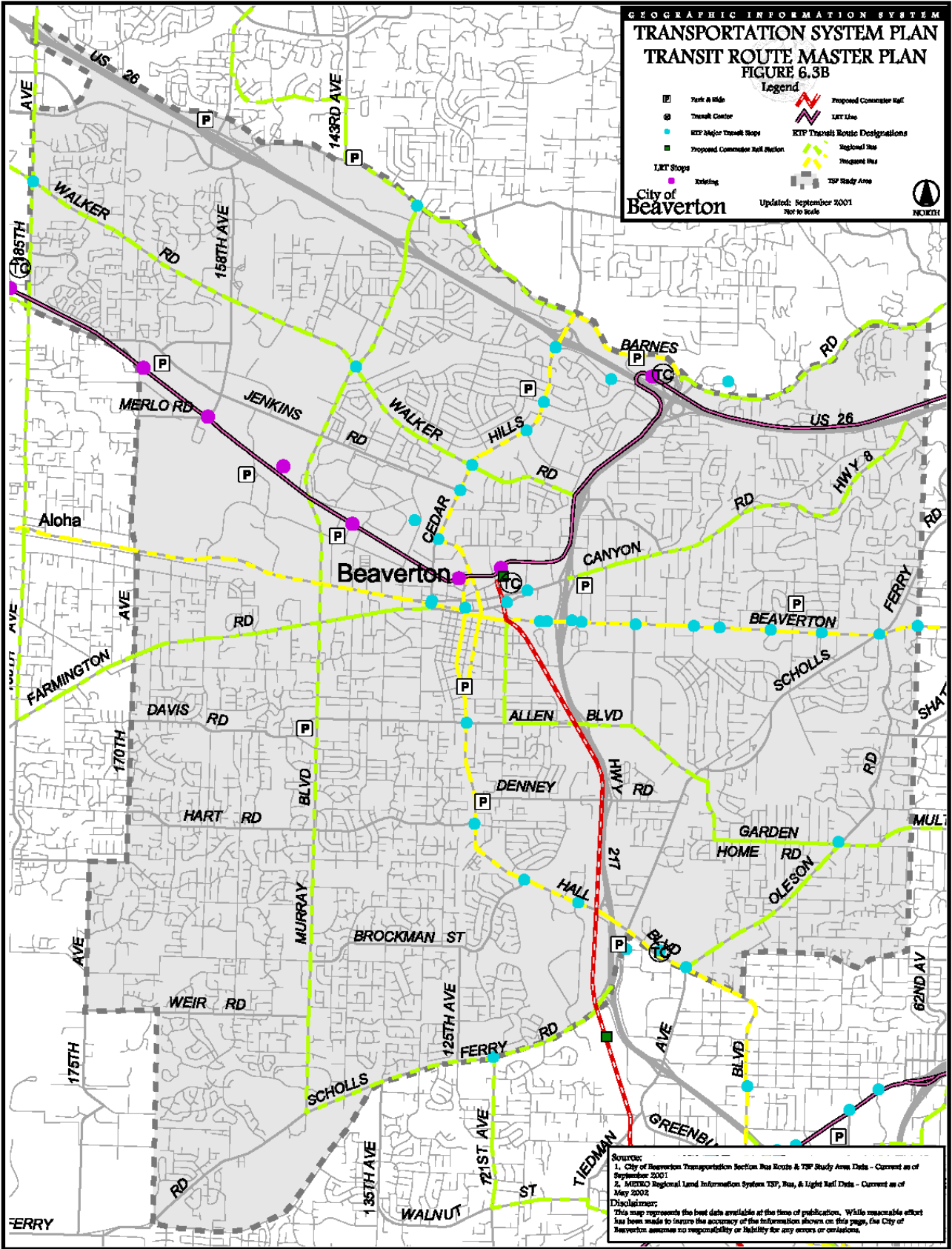
6.3.3. Transit System Improvements

The transit system includes the proposed Beaverton to Wilsonville commuter rail, MAX light rail, and TriMet bus service. Existing and proposed future bus routes are identified in Beaverton's Transit Route Master Plan Figure 6.3.A. The proposed commuter rail system and *Regional Transportation Plan* bus designations are shown on the Transit Route Master Plan Figure 6.3.B. The commuter rail alignment is general in nature. It follows existing Portland & Western railroad tracks from the south into downtown Beaverton. It then turns in a northerly direction along Lombard Avenue at Beaverton-Hillsdale Highway and follows Lombard Avenue into the Beaverton Transit Center. Precise alignment of the tracks in the downtown will be determined during the design phase of the commuter rail project.

The *Regional Transportation Plan* designates Frequent, Regional, and Rapid Bus routes. Frequent Bus service runs at least every 10 minutes and includes transit preferential treatments like bus lanes and signal preemption. Regional Bus service runs on most major urban streets with maximum frequencies of 15 minutes. Rapid Bus emulates light rail and runs at least every 15 minutes during weekdays and during weekend mid-day periods. Rapid Bus is not planned in Beaverton at this time.

Major Transit Stops are mapped on Figure 6.3.B. and indicate higher use stops where shelters and marked crossings should be considered. Park-and-ride sites are also part of the transit system. Expansion of these sites should focus on transit stations and on interchange locations along Highway 217 and US 26. Complete sidewalk networks, park-and-ride lots, and transit amenities such as shelters and benches are important components of the transit system, as are transportation system strategies that serve to improve bus speed and reliability. In combination, all of these types of improvements help encourage transit use by providing a more convenient and pleasant transit experience.





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6.3.4. Motor Vehicle System Improvements

Functional Classification Plan

Beaverton's street functional classifications reflect regional and local mobility and access needs (Figure 6.4). Classifications of freeway, principal arterial, arterial, collector, and neighborhood route are designated based on connectivity as the best indicator of function. Any street not designated either a freeway, principal arterial, arterial, collector, or neighborhood route is considered a local street.

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

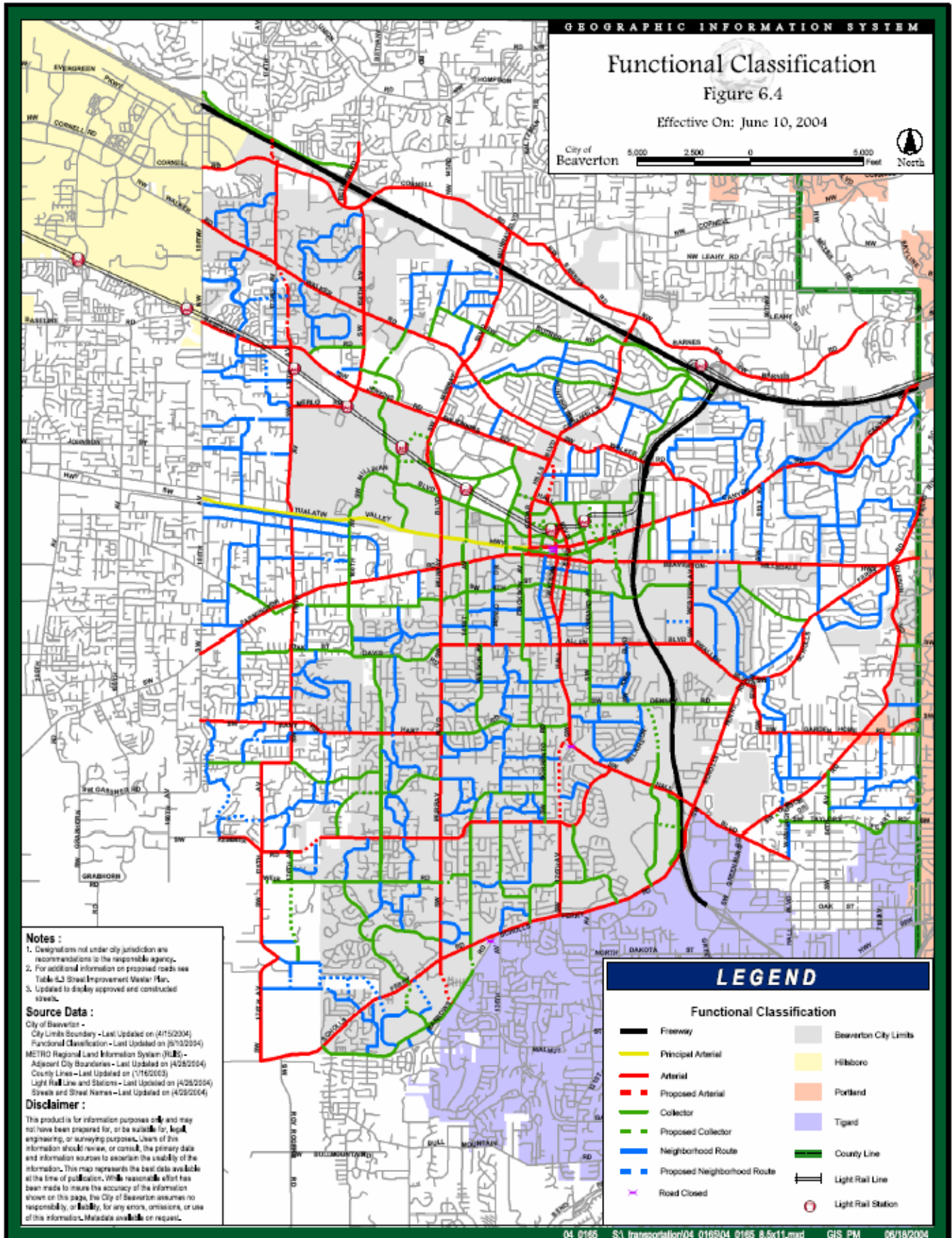
Principal arterial streets serve to connect neighboring cities and urban areas. They are of regional significance and often of statewide importance as well.

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.



Access Management

Managing access to land is important to traffic flow, safety, and mobility. Local streets and neighborhood routes function primarily to provide access to adjacent land uses. Collector and arterial streets primarily serve through travel and higher traffic volumes and speeds. When access is not managed effectively, numerous driveways or improperly spaced streets increase the number of potential conflicts and the probability of collisions while decreasing mobility and traffic flow.

The City's access management standards set access point spacing minimums and maximums and corner clearance minimums. Shared access is also encouraged to preserve and improve mobility, flow, and safety. State standards set interchange spacing for State highways where inadequate spacing can increase conflicts and decrease mobility and flow.

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.

Street Improvements

Street improvements needed by forecast year 2020 to accommodate projected traffic volumes and circulation needs are identified in the Street Improvement Master Plan (Figure 6.5 and Tables 6.3 and 6.4) and the Intersection Improvement Plan (Table 6.5). The improvements respond to the 2020 *Transportation System Plan Update* needs analysis that showed where connectivity, intersection turning capacity, and north/south and east/west capacity was needed within the study area. Alignments of new streets and extensions of existing streets in Figures 6.4 through 6.6 are general in nature. Specific alignment is determined through the development review process when new development or redevelopment is proposed in that area.

Street improvements are to assure that intersections operate at a future demand-to-capacity ratio of less than 1.0 in the evening two-hour peak period (level of service "E"), and to maintain system performance measures at a two-hour demand to capacity ratio of less than 1.0.

Streets where future right-of-way is needed for more than two lanes are identified in Figure 6.6. At times, right-of-way may be needed for construction of bike lanes on a collector or arterial. Such needs are also included in Figure 6.6. In some cases, a need is anticipated to be slightly beyond the 20-year planning period and is noted as such in Table 6.3 so that the opportunity to preserve the right-of-way is considered if new development is proposed or anticipated in the area. In addition, arterial and collector intersections should plan for right-of-way for turn lanes within 500 feet of the intersection.

The *Regional Transportation Plan* includes street design classifications for certain Beaverton streets. The designs reflect the regional function of the street and surrounding land use designation. The regional street design classifications for Beaverton streets are contained in Appendix F of the 2020 *Transportation System Plan Update* and shall be considered when a street is improved.

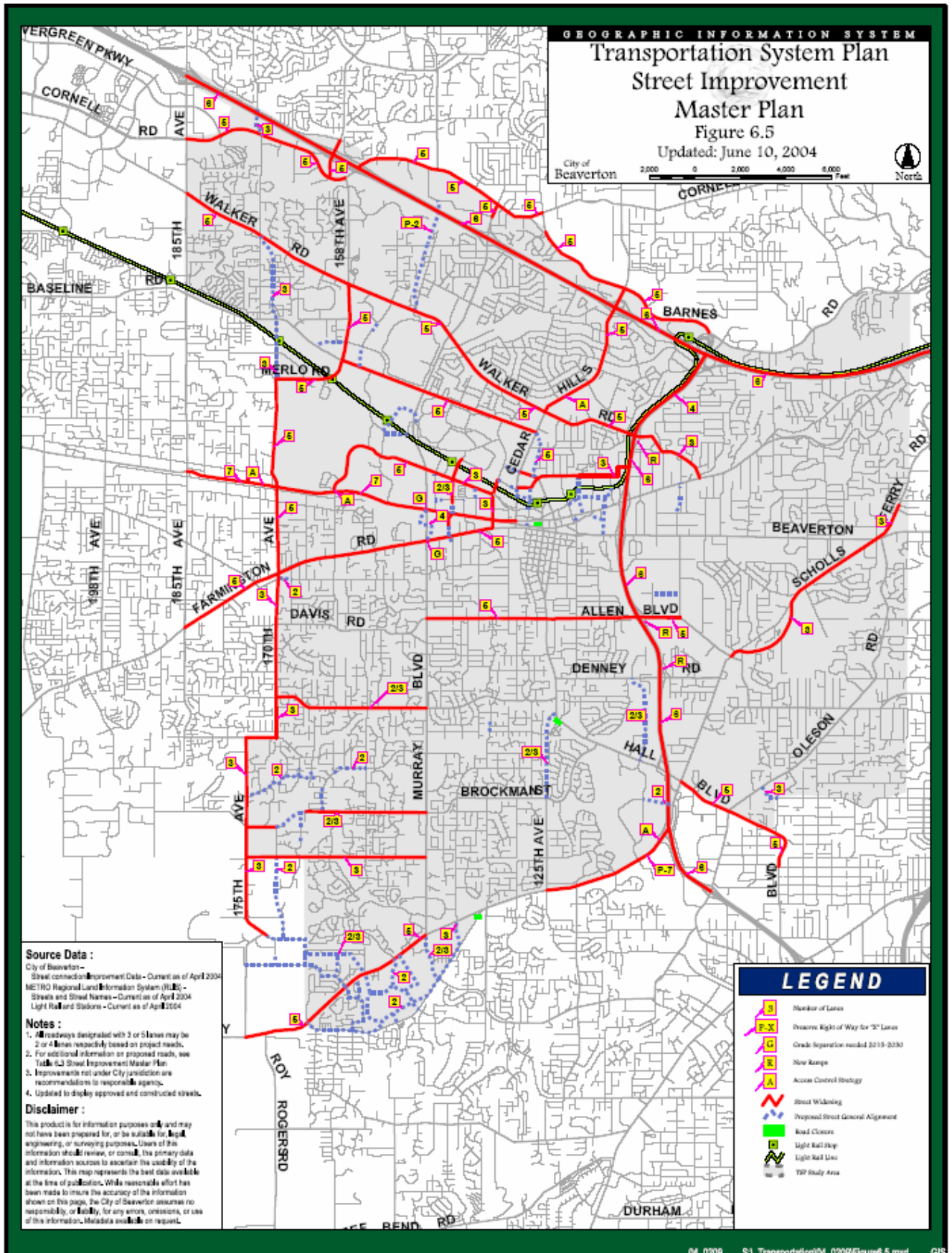


Table 6.3 Street Improvement Master Plan

These projects within the Beaverton study area are needed by forecast year 2020. The *Regional Transportation Plan (RTP)* projects are excerpted from the Financially Constrained and the Priority Systems of the adopted August 10, 2000, *RTP*. Most were originally submitted by jurisdictions based on their adopted *Transportation System Plans (TSPs)*, Regional Center plans, Town Center plans, and specific area studies.

The table also contains projects that should be implemented by 2020 and should be included in the *RTP* Priority System. These projects are based on Beaverton’s 2020 *TSP Update* analysis, 2015 *TSP*, Regional Center plan, Town Center plan, and specific area studies within the *TSP* study area as noted.

Table 6.3 Location	Improvement Description (Jurisdictional Plan Reference, RTP Project Number and TimeLine)	Jurisdiction	Approximate Cost in 1000s of 2001 Dollars
Beaverton-Hillsdale Highway/Scholls Ferry Road	Redesign the intersection to improve safety for all modes of travel. (Raleigh Hills Town Center, RTP #1184 2006-2010)	ODOT County	\$14,920
Taylor's Ferry: Washington to Oleson	Construct a 3-lane extension with sidewalks and bike lanes. (Washington Square Regional Center, RTP #6017 2011-2020)	County	\$2,181
ORE 217 Overcrossing: Nimbus to Mall Area	Construct a 2-lane crossing including sidewalks and bike lanes. (Washington Square Regional Center, RTP #6052 2011-2020)	ODOT Tigard	\$28,693
ORE 217	Add capacity based on recommendations from the ORE 217 corridor study. (RTP #3000 2011-2020)	ODOT	\$80,339
ORE 217: TV Hwy to US 26	Widen northbound to 3 lanes with ramp improvements. (RTP #3001 2006-2010) Regional Center, 2015 <i>TSP</i> : widen ORE 217 from Canyon Rd. to 72nd to six through lanes adding shoulders, auxiliary lanes and ramp braids, widen ramps for ramp meter storage, and add ITS to ORE 217 and adjacent arterial roadways.	ODOT	\$24,102
ORE 217 and US 26	Reconfigure the interchange with braided ramps. (2015 <i>TSP</i> , Regional Center, RTP #3002 2006-2010)	ODOT	\$57,385
ORE 217: Walker and Canyon Ramps	Braid ramps between Canyon and Walker (2015 <i>TSP</i> ; supplements RTP Priority #3002 2006-2010).	ODOT	\$20,800
ORE 217: Allen to Walker	Interchange improvements: NB/SB at Walker, SB at TV Hwy., NB/SB at BH Hwy., and NB/SB at Allen Blvd. (2015 <i>TSP</i> , Regional Center, RTP #3023 2000-2005)	ODOT	\$4,132
US 26: ORE 217 to Camelot Court	Widen eastbound to 3 lanes. (RTP #3007 2006-2010)	ODOT	\$13,772
US 26: Murray to 185th	Widen freeway to 6 lanes with possible HOV lane. (RTP #3009 2011-2020)	ODOT	\$29,840

Table 6.3 Location	Improvement Description (Jurisdictional Plan Reference, RTP Project Number and TimeLine)	Jurisdiction	Approximate Cost in 1000s of 2001 Dollars
Beaverton Regional Center Connections	Complete downtown street connections as follows:	Beaverton	
<u>East/west connections:</u>			
Hall: Cedar Hills to Hocken	Construct a 3-lane collector. (2015 TSP, Regional Center (RC), RTP #3034 2000-2005)		\$5,279
Center: Cedar Hills to Hocken via Westgate/Dawson	Extend 3-lane collector from Center to Westgate and from Westgate via Dawson to Hocken. (2015 TSP, RC)		\$4,500
Crescent: Cedar Hills to Hall	Extend 2-lane collector to Cedar Hills (2015 TSP, RC, RTP #3020 2006-2010)		\$1,600
Millikan Way: Hall to 114 th	Extend 2-lane collector to 114 th (2015 TSP, RC, RTP #3019 2000-2005)		\$7,750
Connection: Broadway to 115 th	Connect Broadway to 115 th /Griffith Drive collector. (2015 TSP, RC, RTP #3020 2006-2010)		\$2,100
Electric to Whitney to Carousel to 144th	Connect roadways. (2015 TSP, RC, RTP #3020 2006-2010)		\$1,650
<u>North/south connections:</u>			
Hall extension to Jenkins	Extend new 5-lane arterial north of Center to connect with Jenkins at Cedar Hills. (2015 TSP) 2020 TSP: If all downtown connections and ORE 217 improvements are complete, consider 3-lane "boulevard" design with bike lanes and sidewalks separated by landscape strip within the preserved 5-lane right-of-way.		\$12,630
Short Avenue:	Close roadway.		
Rose Biggi: Westgate to Broadway	Construct 2-lane collector. (2015 TSP, RC, RTP #3019 2000-2005. 2020 TSP: extend to Broadway.)		\$4,200
120 th Ave.: Center to Canyon	Construct new 2-lane collector. (2020 TSP)		\$4,100
114 th /115 th : LRT to Beaverton-Hillsdale Hwy./Griffith Drive	Construct 2-lane collector. (2015 TSP, RC, RTP #3020 2006-2010)		\$4,200
Tualaway Ave.: Electric to Millikan	Extend 2-lane street. (2015 TSP, RC, RTP #3019 2000-2005)		\$1,400
Center: Hall to 113 th	Widen to 3 lanes including sidewalks and bike lanes. (2015 TSP, Regional Center, RTP #3038 2011-2020)	Beaverton	\$3,673

Table 6.3 Location	Improvement Description (Jurisdictional Plan Reference, RTP Project Number and TimeLine)	Jurisdiction	Approximate Cost in 1000s of 2001 Dollars
Hocken at TV Hwy and Farmington Road	<ul style="list-style-type: none"> Widen Hocken to accommodate 2 additional lanes between TV and Farmington to allow turn lanes. Widen Hocken to 3 lanes north to Tek. Widen TV from 141st to Hocken to allow 3 through lanes and additional turn lanes. (2015 TSP)	ODOT Beaverton	\$7,010
141 st /142 nd : Tek to south of Farmington Rd. 144 th to Millikan	<ul style="list-style-type: none"> Realign and extend 2/3 lane roadways Tek /141st/142nd/141st to south of Farmington Rd. including sidewalks and bike lanes. Create signalized intersections at TV and Farmington Rd. Extend 142nd to Carousel and signalize. Vacate 141st between TV and Carousel. (2015 TSP, Regional Center, South Tek) Extend 144th to Millikan. (2015 TSP, Regional Center, South Tek)	Beaverton	\$3,214
Jenkins: Murray to 158 th	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, Regional Center, RTP #3022 2006-2010)	County	\$2,146
Jenkins: Murray to Cedar Hills	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP)	County	\$4,461
TV Hwy: Cedar Hills to Hillsboro	Add capacity based on recommendation from refinement planning and corridor study. Widen to 7 lanes Cedar Hills to Murray; 6 lanes limited access from Murray to Brookwood and 5 lanes from Brookwood to 10 th . (2015 TSP, Regional Center, RTP #3025 2011-2020, RTP #3121 2000-2005)	ODOT County	\$38,104
TV Hwy: 117 th to Hillsboro	Implement access management strategies. (2015 TSP, RTP #3060 2006-2010)	ODOT County	\$17,216
TV Hwy: 209 th to ORE 217	Interconnect Traffic Signals. (RTP #3061 2006-2010)	ODOT County	\$1,722
TV Hwy: Cedar Hills to Minter Bridge	Refinement planning to identify phased strategy to implement a limited-access facility. (RTP #3121 2000-2005)	ODOT	N/A
Allen: ORE 217 to Murray	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, Regional Center, RTP #3031 2011-2020)	Beaverton	\$9,777
Allen: ORE 217 to Western	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, Regional Center, RTP #3076 2011-2020)	Beaverton	\$1,148
Cedar Hills: Farmington Road to Walker Road	Widen to 5 lanes including sidewalks and bike lanes. Study land use changes between Westgate and Jenkins that would	Beaverton	\$4,247

Table 6.3 Location	Improvement Description (Jurisdictional Plan Reference, RTP Project Number and TimeLine)	Jurisdiction	Approximate Cost in 1000s of 2001 Dollars
	allow for a 3-lane facility. Widen Cedar Hills between Canyon and Farmington to 6 lanes for queue storage. (2015 TSP, RTP #3032 2006-2010)		
Cedar Hills: Walker to US 26	Complete 5-lane roadway with access control including sidewalks and bike lanes. (2015 TSP)	County	\$2,410
Cedar Hills/Barnes	Reconstruct intersection and approaches to add travel lanes, turn lanes, and traffic signal upgrades. (RTP #3177 2000-2005)	County	\$2,066
125 th : Brockman to Hall	Construct a 2-lane extension with turn lanes including sidewalks and bike lanes. (2015 TSP, RTP #3033 2000-2005)	Beaverton	\$8,900
Hall: Scholls Ferry to Locust	Widen to 5 lanes. Includes sidewalk and bike lanes. (Washington Square Regional Center, RTP #6013 2006-2010)	ODOT	\$5,394
158 th /Merlo: 170 th to Walker	<ul style="list-style-type: none"> Widen to 5 lanes including sidewalks and bike lanes. (RTP #3036 2011-2020) Walker to Jenkins: Widen to include bike lanes. (2015 TSP, RTP #3086 2011-2020) 	County	\$4,591
Scholls Ferry: Hamilton to Garden Home	Widen to 3 lanes including sidewalks and bike lanes. (2015 TSP, RTP #3069 2011-2020)	County	\$9,182
Scholls Ferry: Hall to 125th	2020 TSP: preservation of right-of-way for future widening to 7 lanes. (15-30 year project.) Construction project: 2015 TSP: construction of 7 lanes including sidewalks and bike lanes is included in RTP Preferred #6021.)	County ODOT	\$18,088
Scholls Ferry: ORE 217 to 125 th	Implement system management strategies (2015 TSP, Washington Square Regional Center, RTP #6025 2000-2005)	County	\$574
Scholls Ferry: Murray to 175th	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP)	County	\$4,591
170 th : Alexander to Merlo	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, RTP #3084 2011-2020)	County	\$9,182
170 th : Merlo to Baseline	Widen to 3 lanes including sidewalks and bike lanes. (2015 TSP)	County	\$2,410
173rd/174 th	Construct a new 2-lane under crossing of US 26 from Cornell to Bronson including sidewalks and bike lanes. (2015 TSP, RTP #3205 2011-2020)	County	\$16,986
Millikan: TV Hwy to 141 st	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, Regional Center, RTP #3087 2011-2020)	Beaverton	\$4,591

Table 6.3 Location	Improvement Description (Jurisdictional Plan Reference, RTP Project Number and TimeLine)	Jurisdiction	Approximate Cost in 1000s of 2001 Dollars
Millikan: 141 st to Hocken	Widen to 3 lanes including sidewalks and bike lanes. (2015 TSP, Regional Center, RTP #3088 2011-2020)	County	\$3,902
Walker: Cedar Hills to 158 th	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, RTP #3143 2006-2010)	County	\$22,954
Walker: 158 th to Amberglen	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, RTP # 3144 2006-2010)	County	\$11,477
Walker: Cedar Hills to ORE 217	Widen to 3 lanes including sidewalks and bike lanes. (RTP #3148 2006-2010)	County	\$9,182
Walker: Cedar Hills to ORE 217	Widen street to 5 lanes including sidewalks and bike lane. (2020 TSP; RTP Preferred #3145 no date)	County	\$30,414
Barnes: ORE 217 to 119th	Widen to 5 lanes including sidewalks and bike lanes. (RTP #3175 2006-2010)	County	\$7,116
Barnes: 119th to Saltzman	Widen to 5 lanes including sidewalks and bike lanes. (RTP #3185 2000-2005)	County	\$6,083
Cornell: US 26 to 143rd	Widen to 5 lanes including sidewalks and bike lanes. (RTP #3181 2011-2020)	County	\$3,443
Cornell: 143 rd to Saltzman	Widen to 3 lanes including sidewalks and bike lanes. (RTP #3183 2000-2005)	County	\$5,279
Cornell: 143 rd to Dale	Widen street to 5 lanes including sidewalks and bike lanes. (2020 TSP)	County	\$5,197
Cornell: Dale to Saltzman	Future capacity improvement based on additional study and coordination with Washington County. (2020 TSP)	County	\$8,620
Cornell	Modify intersections at Saltzman, Barnes, Murray, and Trail. (RTP #3191 2011-2020)	County	\$500
Cornell: Bethany to 179 th	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, RTP #3204 2006-2010)	County	\$4,591
Bethany Boulevard: Cornell to Bronson	Widen street to 5 lanes including sidewalks and bike lanes. Project includes the widening of the US 26 overcrossing and intersection improvements. (2020 TSP)	County	\$3,424
Murray: Science Park to Cornell	Widen to 5 lanes including sidewalks and bike lanes. (RTP #3186 2000-2005)	County	\$3,579
Murray: TV Hwy to Farmington Rd.	Construct a 4-lane overpass--Murray over TV Highway and Farmington Rd.--including sidewalks, bike lanes, and interchange connections. 15-30 year project. (2020 TSP)	County	\$28,517
Murray: TV Hwy to Allen	Interconnect Traffic Signals. (RTP #3063 2000-2005)	County	\$57
Murray: Scholls Ferry to Barrows	Construct a 2/3-lane extension to Walnut at Barrows including sidewalks and bike	Beaverton Tigard County	\$8,172

Table 6.3 Location	Improvement Description (Jurisdictional Plan Reference, RTP Project Number and TimeLine)	Jurisdiction	Approximate Cost in 1000s of 2001 Dollars
	lanes. (2015 TSP, Murray/Scholls Town Center Plan, RTP #6121 2000-2005)		
Murray/Scholls Town Center	Construct 2-lane Teal Road collector extension to Town Center Loop and Barrows, neighborhood route from Murray to Town Center Loop, and new neighborhood route connections. (2015 TSP, Murray/Scholls Town Center Plan, RTP #6119 2011-2020)	County Beaverton	\$12,625
Davies Road: Scholls Ferry to Barrows	Construct a 3-lane extension to Barrows including sidewalks and bike lanes. (2015 TSP, Murray/Scholls Town Center Plan, RTP #6122 2006-2010) Complete construction of the 125 th Avenue extension and the Murray Boulevard connection from Scholls Ferry Road to Barrows Road at Walnut Street prior to completing the Davies Road connection from Scholls Ferry Road to Barrows Road.	Beaverton	\$1,722
Farmington Road: 172 nd to 185 th	Widen to 5 lanes including sidewalks and bike lanes. (2015 TSP, RTP #3214 2011-2020)	County	\$11,477
Bany/Hart: 170 th to 160 th	Improve to 2-3 lanes including sidewalks and bike lanes. (2015 TSP)	County	\$1,148
Hyland Extension: Carr to Hart	Extend roadway. (2015 TSP)	Beaverton	\$115
143 rd /Meadow: Science Park to Walker	2020 TSP: preservation of right-of-way for future construction beyond 2020. (2015 TSP: construction of new 2 lane road connections including a grade separation of US 26 with sidewalks and bike lanes.)	County	\$16,000
Beard/Nora: Murray to 175 th	Improve to 2-3 lanes including sidewalks and bike lanes. (2015 TSP)	County	\$7,575
Weir: Murray to 175 th	Improve to 3 lanes including sidewalks and bike lanes. (2015 TSP)	Beaverton	\$4,246
Nimbus: Hall to Denney	Extend 2/3 lane roadway including sidewalks and bike lanes. (2015 TSP; RTP Preferred #3037 no date)	Beaverton	\$9,526
103 rd : Western to Walker	Improve existing roadway and construct new connections and intersection alignments to provide connectivity and capacity from Walker to Western. Project includes sidewalks and bike lanes and should be built as development occurs. (2020 TSP: Replaces RTP project #6012)	County	\$5,500
Connectivity Streets	Add local, neighborhood route and collector connectivity:	Beaverton	\$48,089

Table 6.3 Location	Improvement Description (Jurisdictional Plan Reference, RTP Project Number and TimeLine)	Jurisdiction	Approximate Cost in 1000s of 2001 Dollars
	SW Beaverton and Tek area west connections; Division extension; Jay to Jenkins connection; Burlington/Koll: Jenkins to Walker; Local Connectivity Map connections; Functional Classification map connections (2015 TSP)		
Traffic Signals	Addition of 50 traffic signals. (2015 TSP)	Beaverton County ODOT	\$14,346
Intersection Improvements	Listed in Intersection Improvement Plan	Beaverton County ODOT	\$96,350
Unfunded Street Improvement Master Plan Projects Total Estimated Costs			\$898,483

1998 RTP project cost estimates are factored using a ratio of Seattle 10/01 CCI to national average 10/01 CCI = 1.1477. Metro staff approved updating the RTP costs 12/01.

Table 6.4: Street Improvement Master Plan Committed/Completed Improvements

The following have received partial or full funding.

Table 6.4 Location	Description	Jurisdiction	Cost
US 26: Camelot Court to Sylvan	Add third through lane and collector distributor system (Phases 2 and 3). (RTP #3006 2000-2005)	ODOT	\$22,000
US 26: ORE 217 to Murray	Widen to 6 lanes and add braided ramps. (RTP #3009 2010-2020)	ODOT	\$13,000
Oak: 160 th to 170 th	Widen roadway including sidewalks and bike lanes. (RTP #3027 2000-2005)	County	\$1,600
170 th : Rigert to Alexander	Widen to 3 lanes Rigert to Division and 5 lanes Division to Alexander including sidewalks and bike lanes. (RTP #3085 2000-2005; 2015 TSP)	County	\$26,700
170 th /173 rd : Baseline to Walker	Widen the street to 3 lanes including sidewalks and bike lanes. Precise alignment to be determined through the project development process. Design to consider safety and circulation around adjacent school. (RTP #3141 2006-2010; 2015 TSP)	Beaverton	\$5,500
Millikan: Hocken Avenue to Cedar Hills Boulevard	Construct new 3-lane extension with sidewalks and bike lanes. (2015 TSP; RTP #3026 2000-2005)	Beaverton	\$4,300

Table 6.4 Location	Description	Jurisdiction	Cost
Beaverton Connectivity	Millikan Way: Cedar Hills to Watson 2 lanes; Rose Biggi: Canyon to light rail tracks 2 lanes (2015 TSP, Beaverton Regional Center RTP #3019)	Beaverton	\$3,400
Hart: Murray to 165 th	Widen to 3 lanes including sidewalks and bike lanes. (2015 TSP; RTP #3028 2000-2005)	Beaverton	\$7,100
Lombard: Broadway to Farmington	Realign and add turn lanes including sidewalks. (2015 TSP; RTP #3029 2000-2005)	Beaverton	\$1,600
Hall Boulevard at Scholls Ferry	Provide southbound right turn lane. (2015 TSP; RTP #6048)	ODOT	\$250
Hall: 12 th to approx. 500 feet south of Allen	Retrofit to include bike lanes; intersection turn lanes at Allen. (2015 TSP; RTP #3074 2000-2005)	Beaverton	\$1,438
Farmington Rd.: Murray to Hocken (PE funded)	Widen to 5 lanes including turn lanes, sidewalks, and bike lanes (2015 TSP; RTP #3030 2000-2005) \$1,000,000 funded for design)	Beaverton	\$9,300
125 th : Brockman to Hall (2015 TSP)	Design 2002 (2015 TSP; RTP #3033 2000-2005)	Beaverton	\$2,145
Committed Street Improvement Master Plan Projects Total Estimated Costs			\$98,333.0098,333

Project cost estimates are not factored as projects were programmed at approximate levels noted.

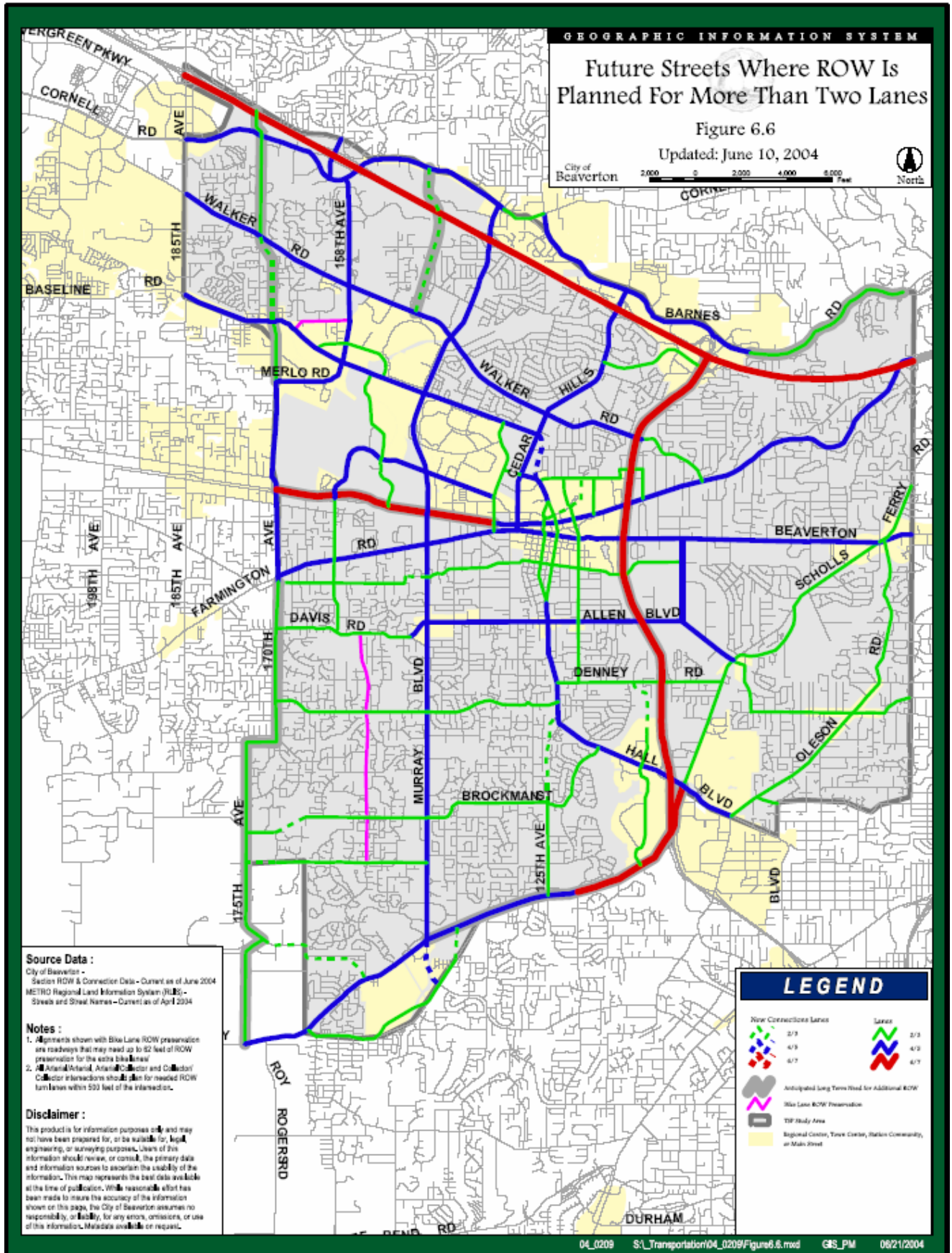


Table 6.5 Intersection Improvement Plan

#	Table 6.5 Location	Improvements: Source: 1 through 67: 2015 TSP (2020 TSP with modifications noted) 68 through 81: 2020 TSP	Approximate Cost in 1000s of 2001 Dollars
1	Kinnaman/Farmington Rd.	Widen Farmington Rd. to 5 lanes; add WB left turn lane; add NB/SB left turn lane; signal phasing modifications to NB/SB permitted/protected phasing.	\$1,435
2	Walker/173 rd	Widen Walker Road to 5 lanes; add EB/WB right turn lanes; NB/SB double left turn lanes.	\$2,295
3	Baseline/170 th	SB double left turn lanes; signal phasing modification of NB/SB to protected phasing; add WB right turn lane.	\$1,435
4	Merlo/170 th	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. 2020 TSP: Restripe WB leg to include second WB left turn lane; cost for right-of-way is included in project.	\$1,722
5	TV Highway/170 th	Widen TV Highway to 7 lanes (3 through lanes each way); widen 170 th to 5 lanes; add SB right turn lane; WB double left turn lanes.	\$1,148
6	Farmington Rd/170 th	Widen Farmington to 5 lanes; add NB left turn lane; add NB through lane and restripe SB for additional through lane (widen 170 th to 5 lanes) 2020 TSP: add EB right turn lane, WB right turn lane; signal modification \$750,000.	Cost included in roadway project
7	Hart-Bany/170 th	Install traffic signal; add NB and SB left turn lanes.	\$1,435
8	Walker/167 th	Install traffic signal; add NB and SB left turn lanes.	\$287
9	Cornell/158 th	Add EB right turn lane and overlap phasing.	\$574
10	Walker/158 th	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.	\$2,582
11	Jenkins/158 th	Add NB right turn lane; add SB through lane and restripe SB approach; WB double left turn lanes; WB through lane (5 lanes on Jenkins) 2020 TSP: overlap NB right turn lane \$125,000.	\$1,148 \$125
12	TV Highway/Millikan	Widen TV to 7 lanes; add SB and NB lane across intersection.	\$1,865
13	Hart/155 th	Add WB left turn lane.	\$574
14	Jenkins/153 rd	Widen Jenkins to 5 lanes (2 through lanes each way).	Cost included in roadway project
15	TV Highway/153 rd	Widen TV Highway to 7 lanes (3 through lanes each way).	Cost included in roadway project
16	Farmington/149 th	Widen Farmington Rd. to 5 lanes.	Cost included in roadway project
17	Walker/Murray	Add double left turn lanes on all approaches; add right turn lanes on all approaches. 2020 TSP: increase cycle length by 20 seconds to 120 seconds \$125,000.	\$4,591 \$125
18	Murray/Jenkins	Add NB and SB right turn lanes; NB and SB double left turn lanes; widen Jenkins to 5 lanes.	\$2,295
19	TV Highway/Murray	Double left turn lanes on all approaches; add NB/SB through lane (3 through lanes each way) ; install median at TV/Railroad	\$1,722

#	Table 6.5 Location	Improvements: Source: 1 through 67: 2015 TSP (2020 TSP with modifications noted) 68 through 81: 2020 TSP	Approximate Cost in 1000s of 2001 Dollars
		tracks/Farmington to restrict driveways to right in, right out. 2020 TSP: 2 new signals, 2 right turn lanes, 2 double left turn lanes.	
20	Murray/Farmington	Double left turn lanes on all approaches; SB, EB, and WB right turn lanes. 2020 TSP: 2 new signals, 2 right turn lanes, 2 double left turn lanes.	\$2,869
21	Murray/6 th	Install traffic signal; add EB and WB left turn lanes.	\$287
22	Murray/Allen	Widen Allen to 5 lanes to Murray (drop additional WB through lane after Murray); add SB right turn lane. 2020 TSP: add second WB left turn lane, second WB right turn lane, overlap WB right turn lane, modify signal, \$1,250,000.	\$687 \$1,250
23	Murray/Hart	Signal phase change to permitted/protected phasing for all approaches	\$143
24	Murray/Scholls Ferry	Restripe NB, SB, and EB approaches; signal phase change to protected phasing on all approaches.	\$143
25	Murray/Barrows/ Walnut	Install traffic signal; add EB left turn lane; restripe NB approach; construct SB approach left turn lane.	\$861
26	Scholls Ferry/Barrows (west)	Install traffic signal; restripe SB approach for separate left turn and right turn lanes.	\$287
27	Scholls Ferry/Davies	Install traffic signal; restripe WB approach; add NB right turn lane; add NB left turn lane.	\$287
28	Scholls Ferry/Barrows (east)	Close Barrows at Scholls Ferry.	\$172
29	TV Highway/Hocken	Add EB right turn lane; restripe SB approach; widen Hocken to two SB through lanes.	\$3,558
30	Farmington/Hocken	Add WB right turn lanes; SB double left turn lanes (Hocken carries two SB lanes from TV Highway).	\$3,443
31	Cedar Hills/Walker	Double left turn lanes on all approaches; add EB right turn lane 2020 TSP: add 40 seconds cycle length to 140 seconds \$125,000.	\$2,869 \$125
32	Cedar Hills/Jenkins	SB and EB double left turn lanes; add SB right turn lane; widen Jenkins to 5 lanes; WB right turn channel; signal modifications to EB/WB protected phasing. 2020 TSP: Jenkins to 5 lanes, overlap WB right turn lane \$125,000.	\$2,008 \$125
33	Cedar Hills/Hall	Add NB right turn lane.	\$574
34	Cedar Hills/Westgate	Add NB left turn lane.	\$1,492
35	Canyon/Cedar Hills	Widen Canyon to 7 lanes on west leg; add NB left turn lane; add SB left turn lane; add SB right turn lane; add EB/WB left turn lane.	\$5,739
36	Farmington/Cedar Hills	SB double left turn lanes (construct SB right turn lane and restripe SB lanes as side-by-side left turn lanes). 2020 TSP: add 2 nd EB left turn lane, right-of-way \$1,250,000.	\$1,148 \$1,250
37	Hall/Westgate-Center	Realign intersection; signal modification to EB/WB protected/permitted phasing.	\$287
38	Canyon/Watson	Restripe SB approach (add a SB receiving lane).	\$803
39	Farmington Rd./Watson	2020 TSP: Preserve right-of-way for 3 through lanes with parking for construction beyond 2020.	\$1,500
40	Farmington Rd./Hall	2020 TSP: Preserve right-of-way for 3 through lanes for construction beyond 2020.	\$1,500

#	Table 6.5 Location	Improvements:	
		Source: 1 through 67: 2015 TSP (2020 TSP with modifications noted) 68 through 81: 2020 TSP	Approximate Cost in 1000s of 2001 Dollars
41	Hall/Allen	Add EB and WB right turn lanes; NB and SB double left turn lanes.	\$1,951
42	Hall/Denney	NB/SB signal phasing change to permitted/protected. 2020 TSP: add 2 nd WB left turn lane \$500,000.	\$172 \$500
43	Hall/Greenway	Signal phase change to permitted/protected phasing for EB and WB approaches, overlap NB right turn.	\$143
44	Hall/Nimbus	Signal phase change to protected/permitted phasing for NB and SB approaches.	\$143
45	Scholls Ferry/Hall	Add double left turn lanes on all approaches; add right turn lane on all approaches.	\$3,443
46	Brockman/125 th	Signal phase change to protected/permitted phasing for all approaches; add WB left turn lane; restripe NB and EB approaches; construct SB left turn lane, right turn lane, and through lane.	Cost included in roadway project
47	Scholls Ferry/125 th	Widen Scholls Ferry Road to 7 lanes (3 through lanes each way); add SB right turn lane. 2020 plan: overlap SB right turn lane \$125,000.	\$574 \$125
48	Scholls Ferry/Nimbus	Widen Scholls Ferry to 7 lanes (3 through lanes in each direction); add NB left turn lane; SB double left turn lanes.	\$1,148
49	Scholls Ferry/ORE 217 SB ramps	Channel EB right turn onto ramp and modify signal to allow free movement of EB right turns.	\$574
50	Scholls Ferry/Ore 217 NB on-ramp	Channel SB right turn onto ramp and modify signal to allow free movement of SB right turns; add WB through lane onto ramp 2020 TSP: add second NB left turn lane and a second WB left turn lane \$1,000,000.	\$574 \$1,000
51	Farmington/Lombard	Add NB right turn lane.	\$574
52	Canyon/Broadway	Add WB right turn lane; signal modification to NB/SB protected phasing.	Completed
53	Canyon/Fred Meyer	Add SB left turn lane; signal modification to NB/SB split phasing.	\$143
54	BH Highway/Griffith	Signal phasing modification to NB/SB protected/permitted phasing.	\$172
55	BH Highway/Western	Add EB right turn lane; add WB double left turn lanes; add NB through lane.	\$1,722
56	Allen/Western	Add EB left turn lane; EB/WB signal phasing change to permitted/protected phasing.	\$143
57	Allen/Scholls Ferry	Widen Allen to 5 lanes; restripe WB approach; signal phase change for all approaches to permitted/protected phasing. 2020 TSP: provide curve correction to the east of the intersection \$1,500,000.	\$1,865
58	Walker/ORE 217 SB	Bridge deck widening; EB double right turn lanes (add right turn lane); WB through lane.	\$861
59	Walker/ORE 217 NB	Add NB double left turn lanes.	\$287
60	Canyon/ORE 217 SB	Add SB left turn lane and restripe SB lanes.	\$574
61	BH Highway/ORE 217 SB	Add SB left turn lane.	\$574
62	BH Highway/ORE 217 NB	NB double left turn lanes.	\$689

#	Table 6.5 Location	Improvements:	
		Source: 1 through 67: 2015 TSP (2020 TSP with modifications noted) 68 through 81: 2020 TSP	Approximate Cost in 1000s of 2001 Dollars
63	Allen/ORE 217 SB	Add SB right turn lane (double right lanes); EB right turn lane (channel onto ramp; signal modification to allow EB right turn to go with SB left).	\$2,295
64	Allen/ORE 217 NB	Add WB right turn lane; signal modifications to NB/SB split phasing.	\$574
65	Denney/ORE 217 SB	Install traffic signal. 2020 TSP: add EB right turn lane, structure work, \$1,100,000.	\$287 \$1,100
66	Denney/ORE 217 NB	Install traffic signal.	\$287
67	Denney/Lombard	Install traffic signal and EB and WB left turn lanes.	\$1,291
Additional 2020 plan improvements:			
68	Bethany/US 26 WB	Add second WB right turn lane, NB left turn lane.	Included in road project
69	Bethany/Cornell	Overlap SB right turn lane.	Included in road project
70	Cornell/173 rd	Add WB right turn lane, second NB left turn lane, NB right turn lane, SB right turn lane.	\$2,200
71	Cornell/US 26 WB	Add 2 nd WB left turn lane (structure work).	\$1,000
72	Murray/Cornell	Overlap NB right turn lane, add 2 nd NB left turn lane (Cornell 5 lanes).	\$1,000
73	Murray/US 26 WB	Add 2 nd WB right turn lane.	\$500
74	Cedar Hills/Barnes	Add 2 nd NB lane and SB left turn lane.	\$1,000
75	Cornell/Saltzman	Add 2 nd NB lane and SB left turn lane (Cornell to 5 lanes).	\$2,000
76	Canyon/Lombard	Add EB right turn lane.	\$500
77	BH Hwy/Laurelwood	Add SB left turn lane (signal modification and right-of-way).	\$2,000
78	Scholls Ferry/Laurelwood	Install traffic signal, align with Nicol, right-of-way, 2 left turn lane modifications.	\$1,750
79	Hall/ORE 217 SB/Cascade	Add SB right turn lane.	\$250
80	Murray/Brockman	Add WB right turn lane, SB right turn lane, add 20 seconds cycle to 120 seconds, right-of-way.	\$100
81	Garden Home/92 nd	Correct curve deficiency	\$1,500
Unfunded Intersection Improvement Plan Projects Total Estimated Costs			\$96,350

1998 project cost estimates are factored using a ratio of Seattle 10/01 CCI to national average 10/01 CCI = 1.1477.

Local Connectivity Maps

The Local Connectivity Maps identify recommended and adopted local bicycle, pedestrian, and multi-modal 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 Local Connectivity Maps (Figures 6.8 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 6.6) notes if a potential or definite environmental problem or another constraint has been identified and whether a street (“multi-modal”) 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.

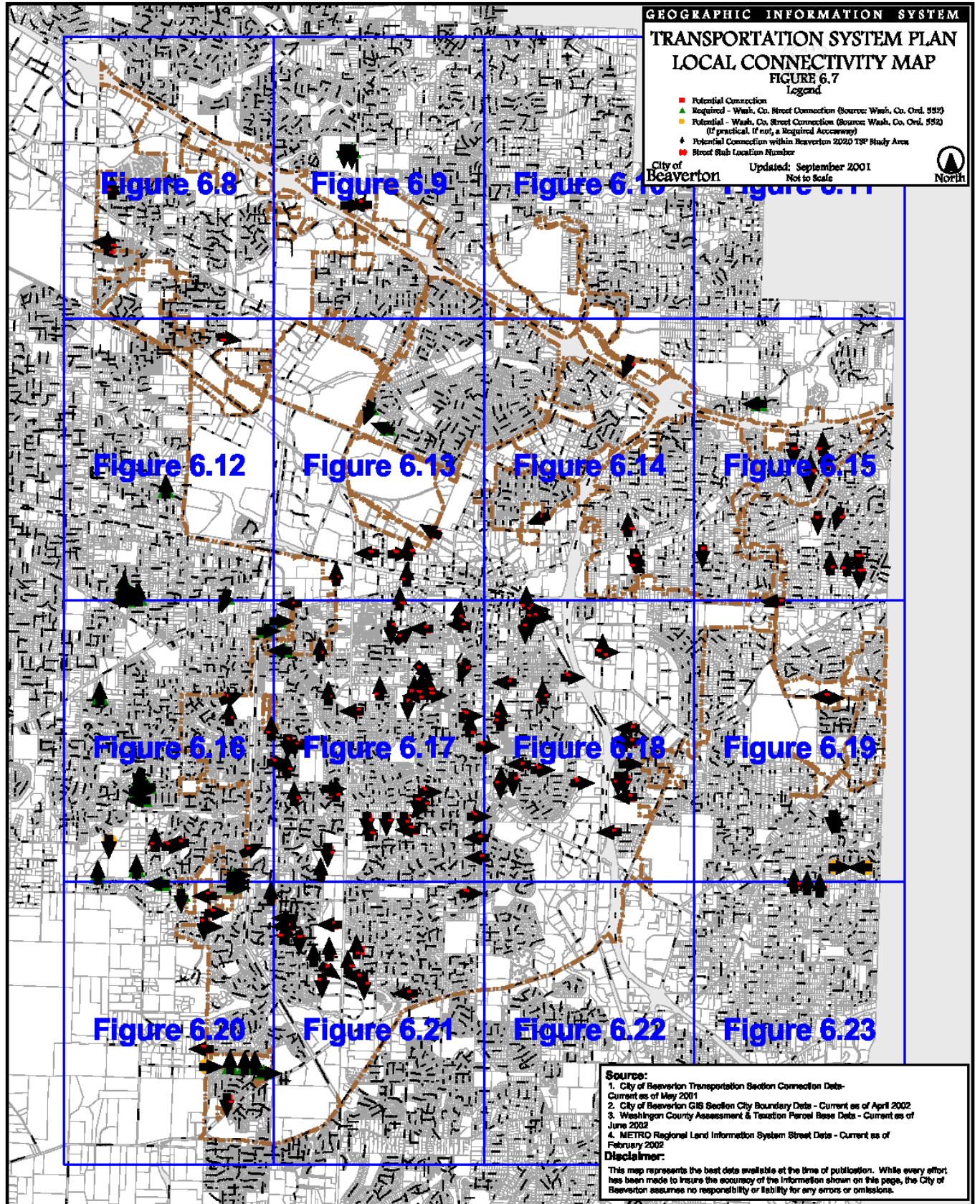
Table 6.6: Local Connectivity Map Recommendations on Potential Connections

Table 6.6 Connection Number	Rating:	Recommendation:
	P = Potential or Definite Problems M = Minimal Problems A = City Adopted Street Connections (2015 TSP) County = County Adopted Connection	
1	P	Feasibility Constraints
2	M	Pursue Multi-modal
3	M	Pursue Multi-modal
5	P	Pursue Multi-modal
7	P	Pursue Non-auto
8	P	Pursue Multi-modal
9	P	Pursue Multi-modal
10	P	Pursue Multi-modal
11	P	Pursue Multi-modal
12	P	Pursue Multi-modal
13	P	Pursue Multi-modal
14	P	Pursue Multi-modal
17	P	Feasibility Constraints
18	P	Consider Non-auto
19	P	Feasibility Constraints
20	P	Feasibility Constraints
21	P	Pursue Non-auto
22	P	Feasibility Constraints
23	P	Consider Multi-modal
24	P	Consider Multi-modal
25	P	Consider Multi-modal
26	P	Feasibility Constraints
27	P	Pursue Multi-modal
29	P	Consider Multi-modal
31	P	Consider Multi-modal
33	P	Consider Multi-modal
34	P	Pursue Multi-modal
35	P	Feasibility Constraints
36	P	Consider Non-auto

Table 6.6 Connection Number	Rating:	Recommendation:
	<u>P = Potential or Definite Problems</u> M = Minimal Problems A = City Adopted Street Connections (2015 TSP) County = County Adopted Connection	
37	P	Consider Non-auto
38	M	Pursue Multi-modal
39	M	Consider Multi-modal
40	M	Feasibility Constraints
41	P	Pursue Non-auto
42	P	Pursue Multi-modal
43	P	Pursue Multi-modal
44	P	Pursue Multi-modal
45	P	Feasibility Constraints
46	P	Consider Multi-modal
47	P	Consider Non-auto
48	P	Feasibility Constraints
49	P	Pursue Multi-modal
50	M	Consider Future Cul-de-sac, Pursue Non-auto
51	P	Pursue Non-auto
52	P	Feasibility Constraints
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
61	P	Consider Non-auto
62	P	Consider Non-auto
63	P	Consider Non-auto
64	P	Consider Multi-modal
65	P	Pursue Multi-modal
66	P	Consider Multi-modal
67	M	Pursue Multi-modal
68	P	Pursue Multi-modal
70	P	Pursue Multi-modal
71	P	Pursue Multi-modal
74	P	Pursue Multi-modal
75	M	Pursue Multi-modal
76	P	Pursue Multi-modal
77	A	Adopted Street Connection
78	P	Pursue Multi-modal
79	P	Pursue Non-auto

Table 6.6 Connection Number	Rating:	Recommendation:
	P = Potential or Definite Problems M = Minimal Problems A = City Adopted Street Connections (2015 TSP) County = County Adopted Connection	
80	P	Pursue Non-auto
81	M	Pursue Multi-modal (into Transit Center)
82	P	Pursue Multi-modal
83	P	Pursue Multi-modal
84	P	Consider Multi-modal
85	M	Pursue Non-auto
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 Multi-modal east of 125th, Pursue Non-auto west of 125th
92	P	Consider Multi-modal
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 Multi-modal
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 Multi-modal
106	P	Consider Non-auto
107	P	Consider Non-auto
108	P	Consider Non-auto
109	P	Pursue Multi-modal
110	P	Pursue Non-auto
111	P	Pursue Non-auto
112	P	Pursue Non-auto
113	County	Potential Connection
114	P	Consider Non-auto
115	P	Pursue Multi-modal
116	P	Pursue Non-auto
117	M	Pursue Multi-modal

Table 6.6 Connection Number	<u>Rating:</u>	Recommendation:
	<u>P = Potential or Definite Problems</u> M = Minimal Problems A = City Adopted Street Connections (2015 TSP) County = County Adopted Connection	
118	M	Pursue Non-auto
119	M	Pursue Multi-modal
120	M	Pursue Multi-modal
121	M	Pursue Multi-modal
122	M	Pursue Multi-modal
123	M	Pursue Multi-modal
125	P	Pursue Multi-modal
126	P	Consider Multi-modal
127	P	Pursue Multi-modal
129	M	Pursue Multi-modal
130	M	Pursue Multi-modal
131	M	Pursue Multi-modal
132	M	Pursue Multi-modal
133	M	Pursue Multi-modal
134	M	Pursue Multi-modal
135	M	Pursue Multi-modal
136	M	Pursue Multi-modal
137	A	Adopted Street Connection
138	A	Adopted Street Connection
139	A	Adopted Street Connection
140	M	Consider Non-auto
141	A	Adopted Street Connection
142	M	Consider Non-auto
143	M	Pursue Multi-modal
146	M	Pursue Multi-modal
147	M	Pursue Multi-modal



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Figure 6.8

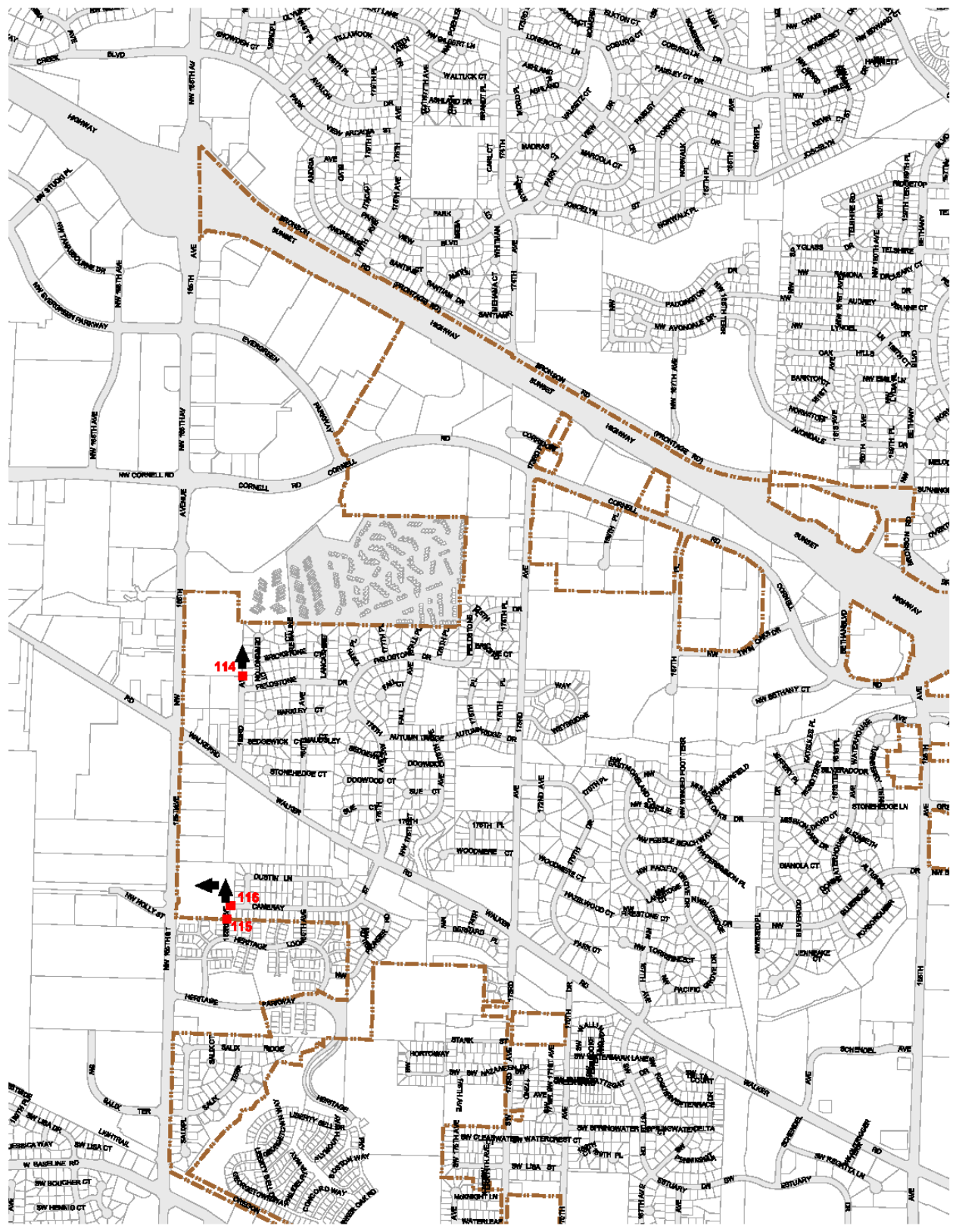


Figure 6.10



Figure 6.13



Figure 6.14

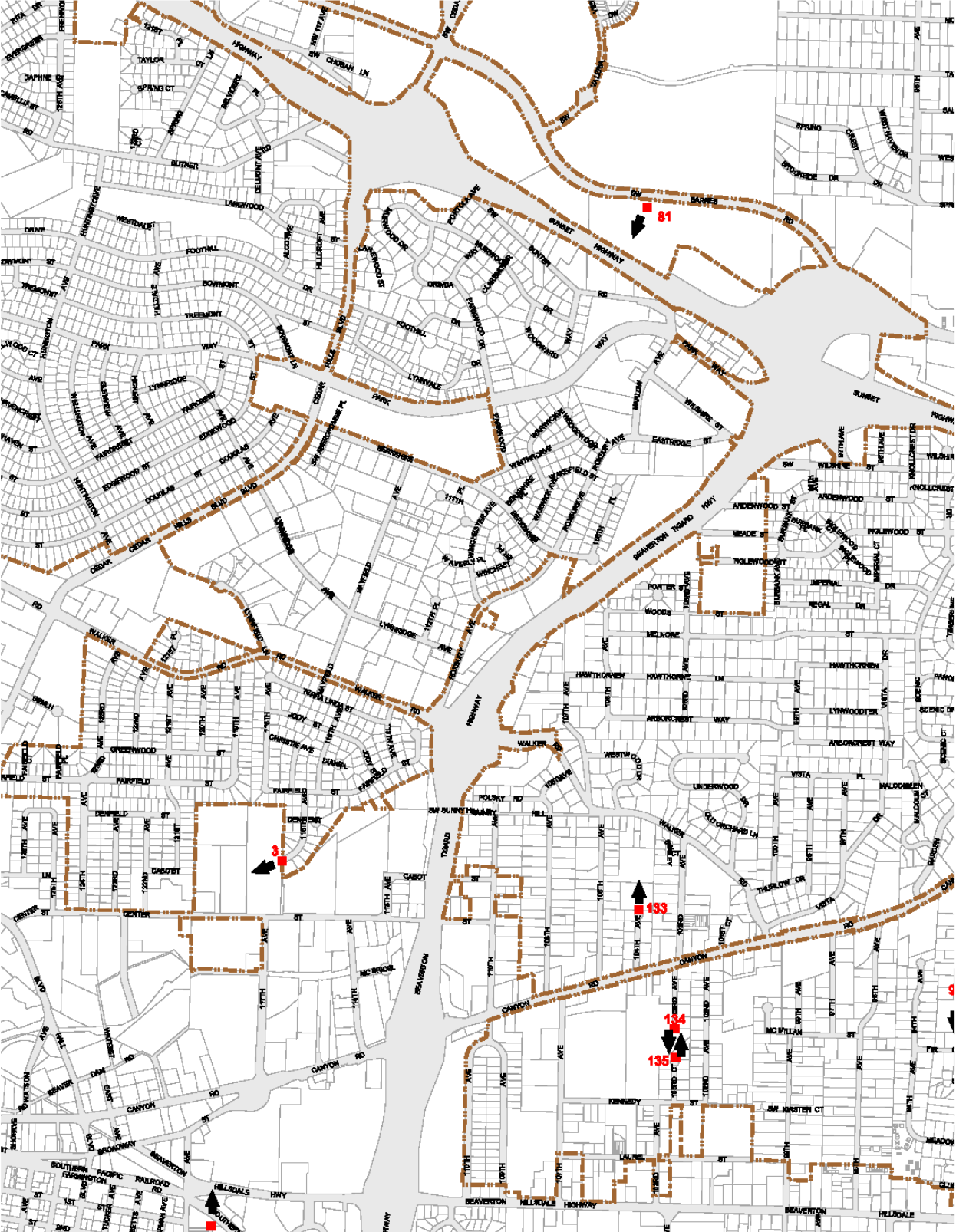


Figure 6.15

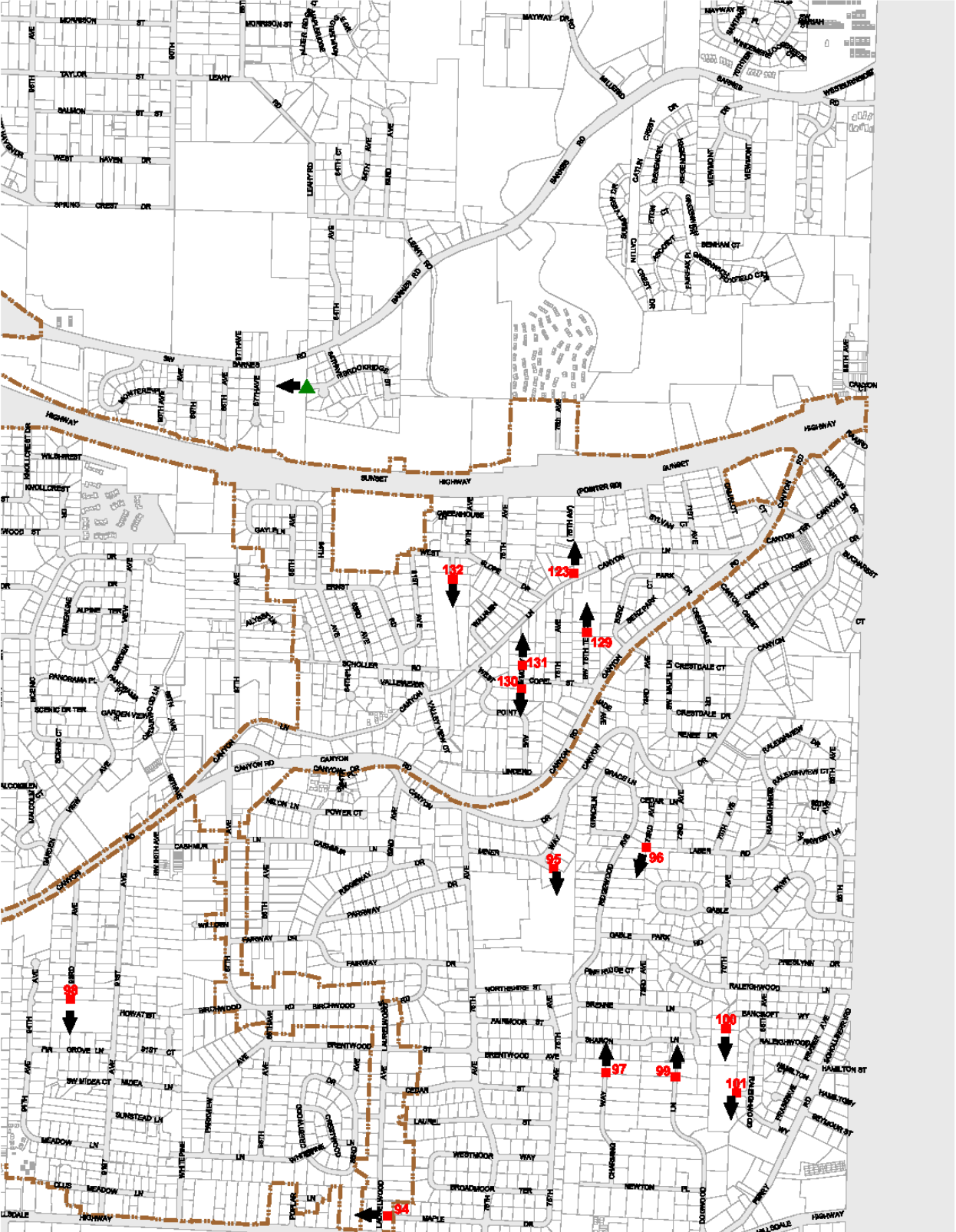


Figure 6.16



Figure 6.18

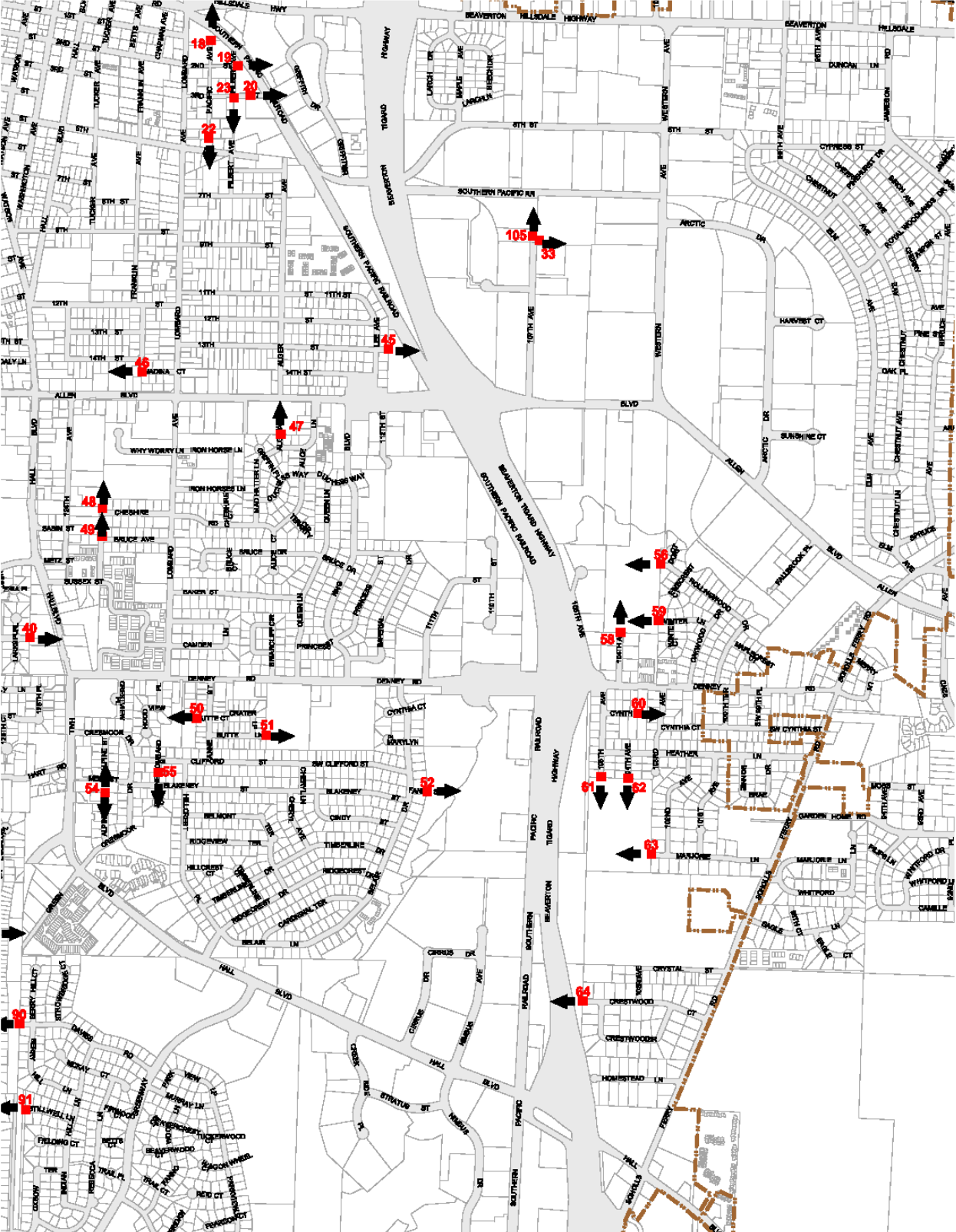


Figure 6.19

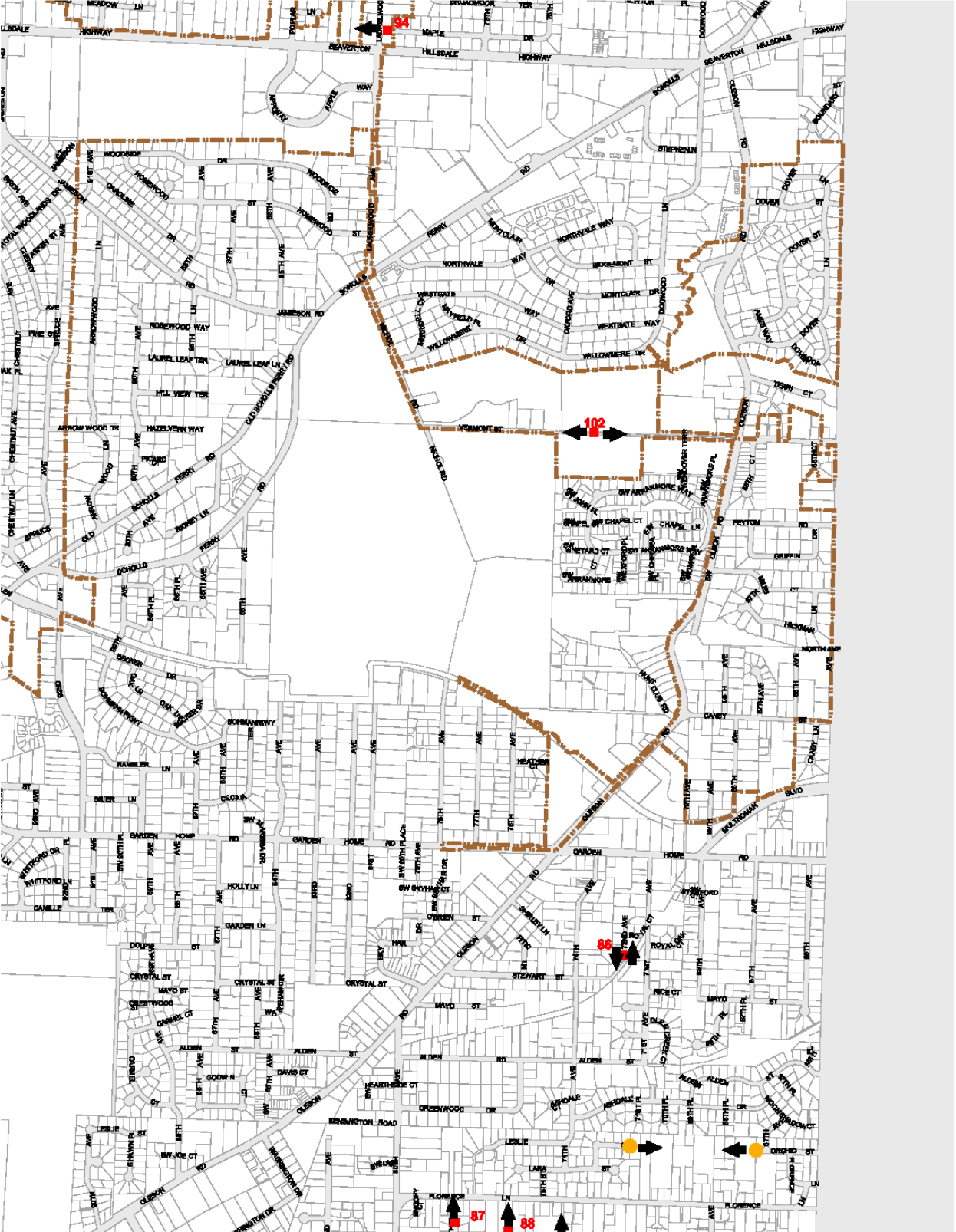


Figure 6.21

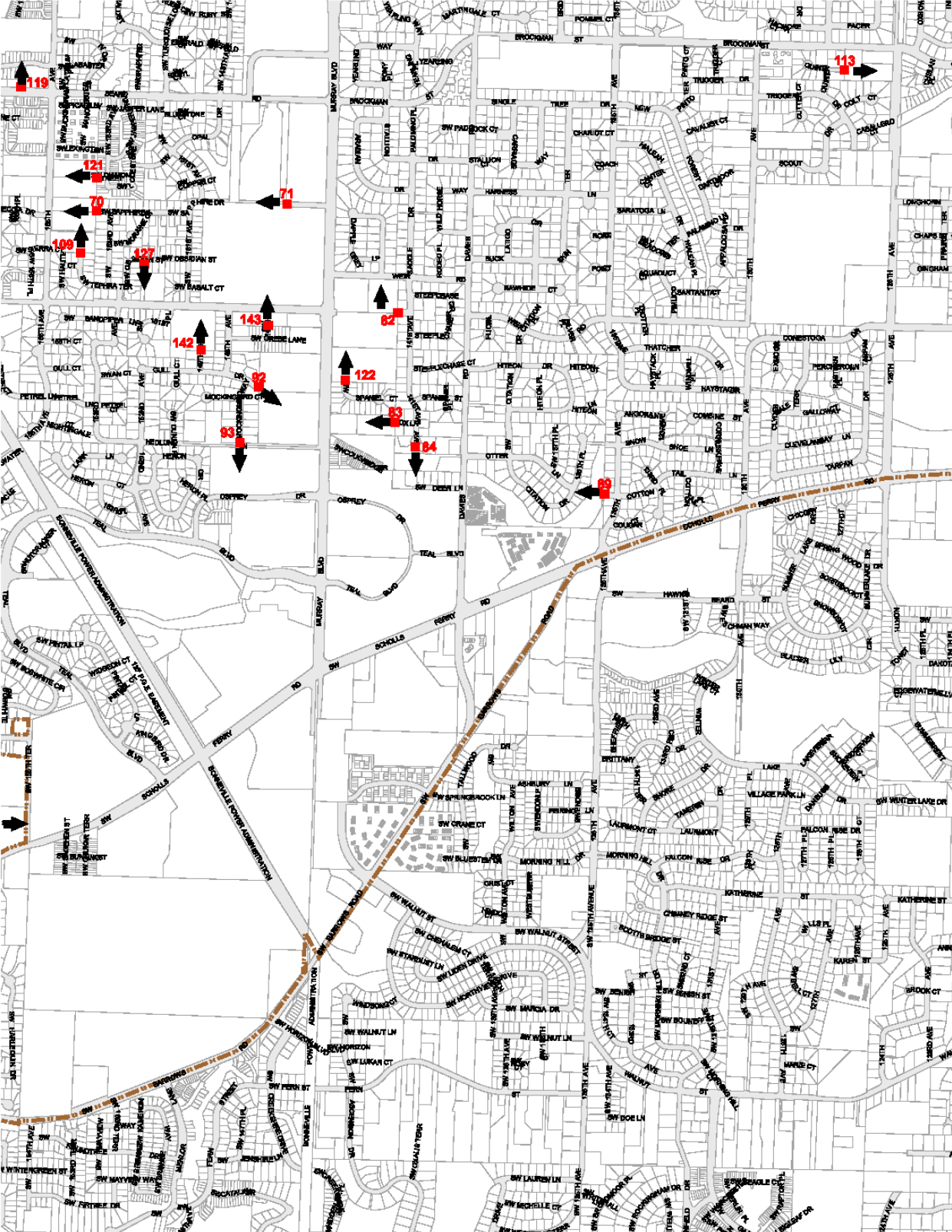


Figure 6.23



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.

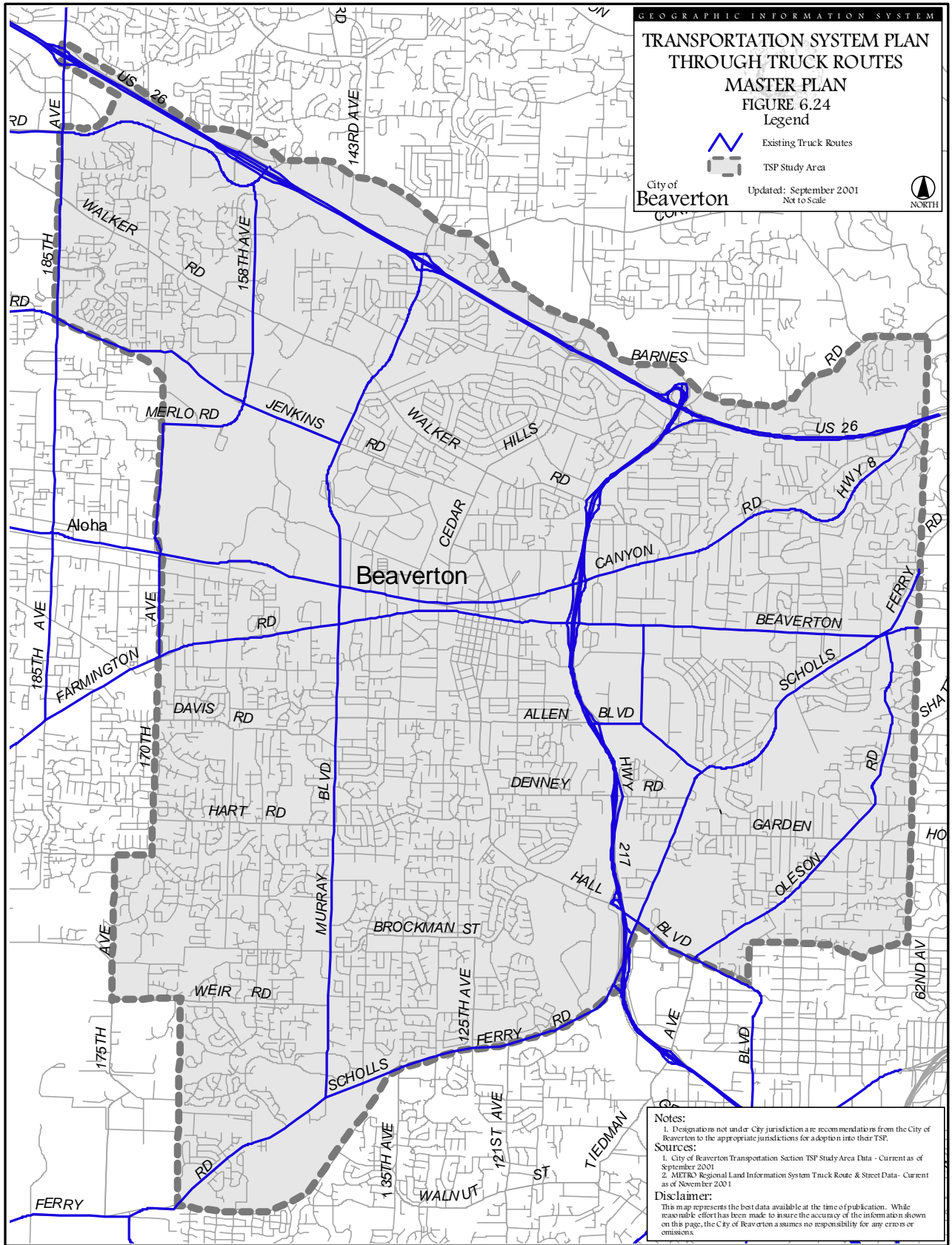
A key concept is that pavement quality deteriorates 40 percent in the first 75 percent of pavement life. However, there is a rapid acceleration of this deterioration later, so that in the next 12 percent of life, there is another 40 percent drop in quality. The City's pavement management program tracks 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.

Parking

Parking needs are reviewed with new development. The regional parking minimum and maximum ratios are contained in the City's *Development Code*. These ratios address the State required reduction in parking spaces per capita. Shared parking, parking pricing, development of parking districts, and permit parking programs are all strategies for managing demand that the City is using or exploring.

Through Truck Routes

Efficient truck movement plays a vital role in the economical movement of raw materials and finished products. Through truck routes provide for efficient movement while maintaining neighborhood livability, public safety, and minimizing roadway maintenance costs. The Through Truck Route map (Figure 6.24) acknowledges these roadways so that when improvements are made, a "truck friendly" design can be considered. Such designs can include 12-foot wide travel lanes, longer access spacing, 35-foot or larger curb returns, and increased pavement depth.

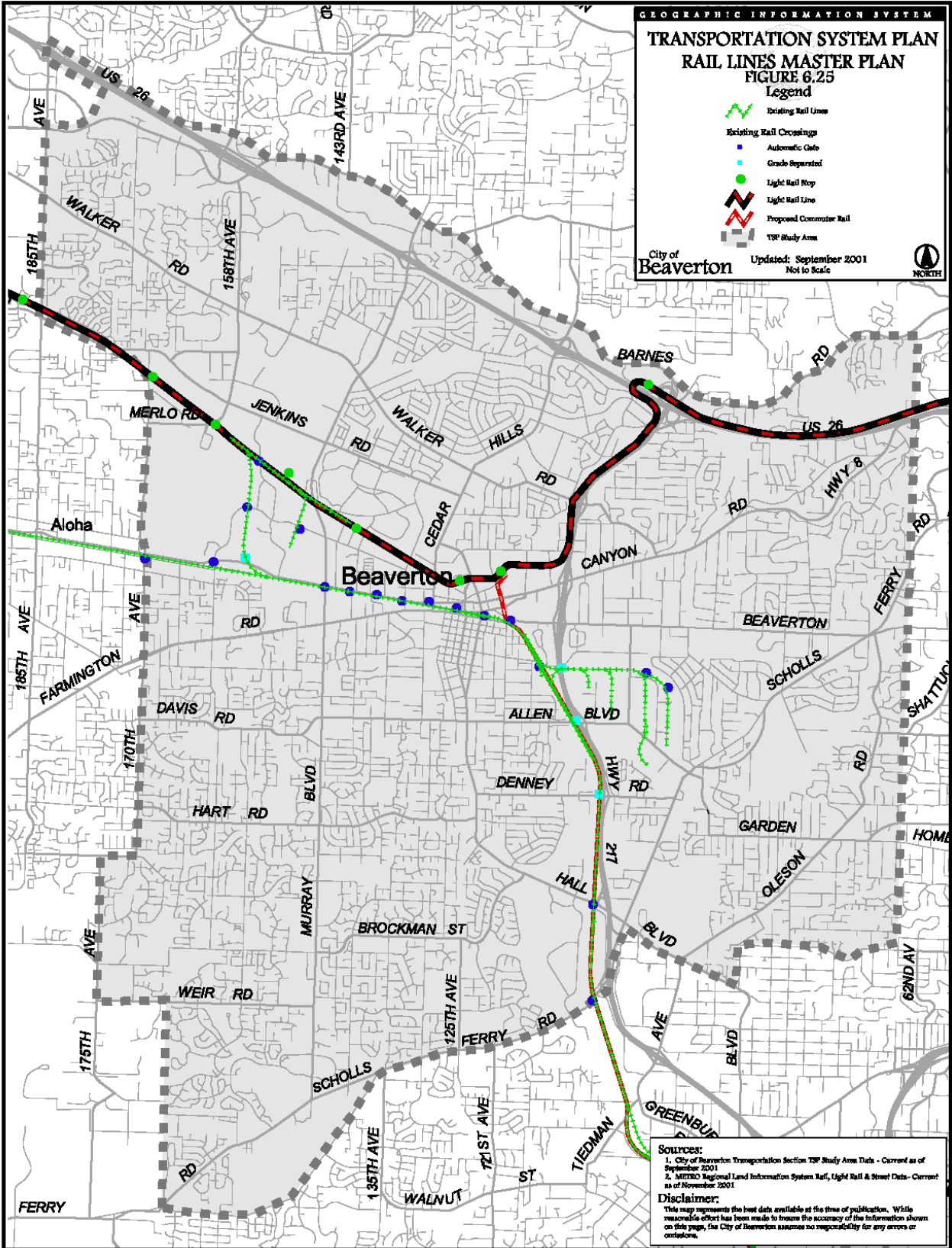


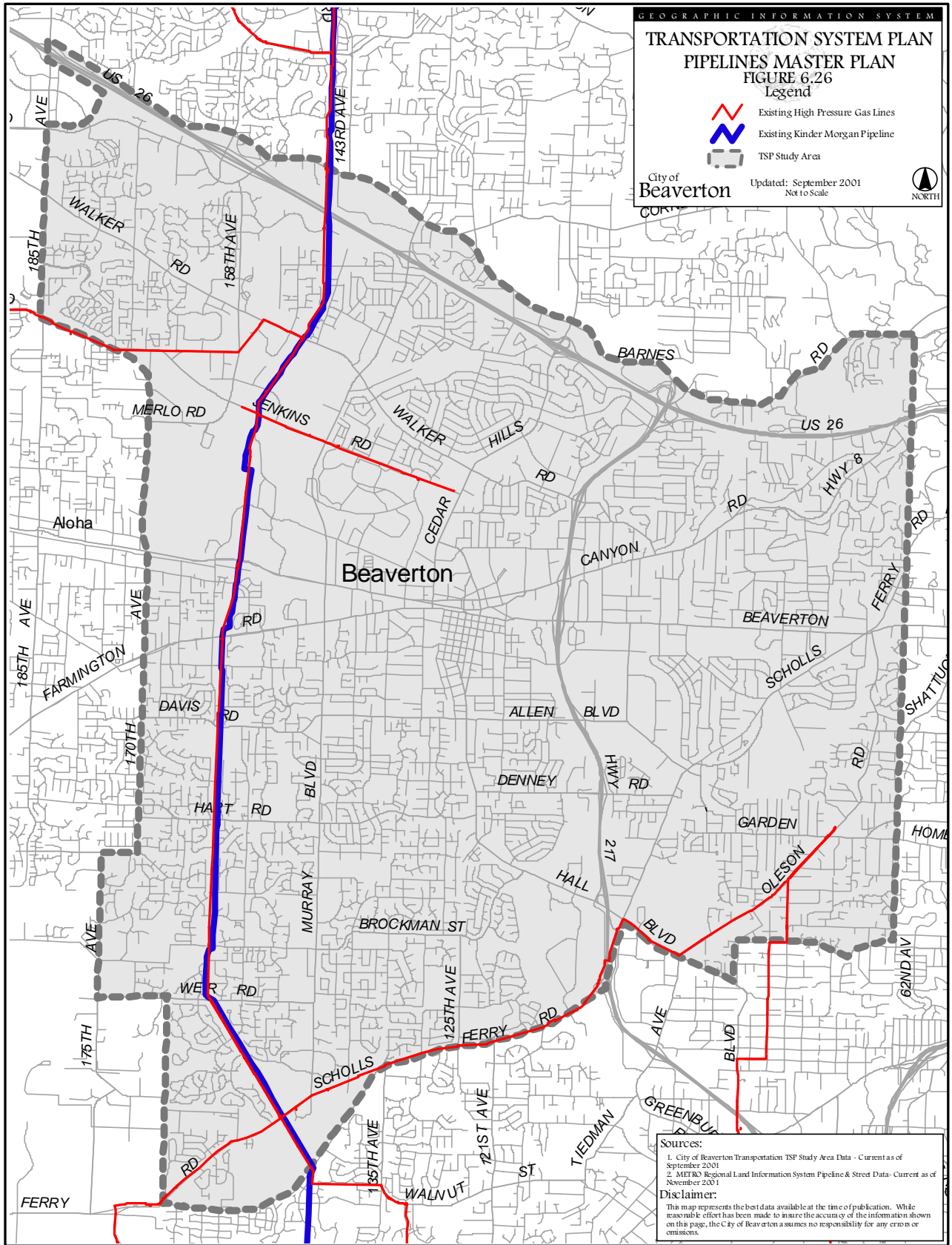
Other Modes (Rail, Air, Pipeline, Waterways)

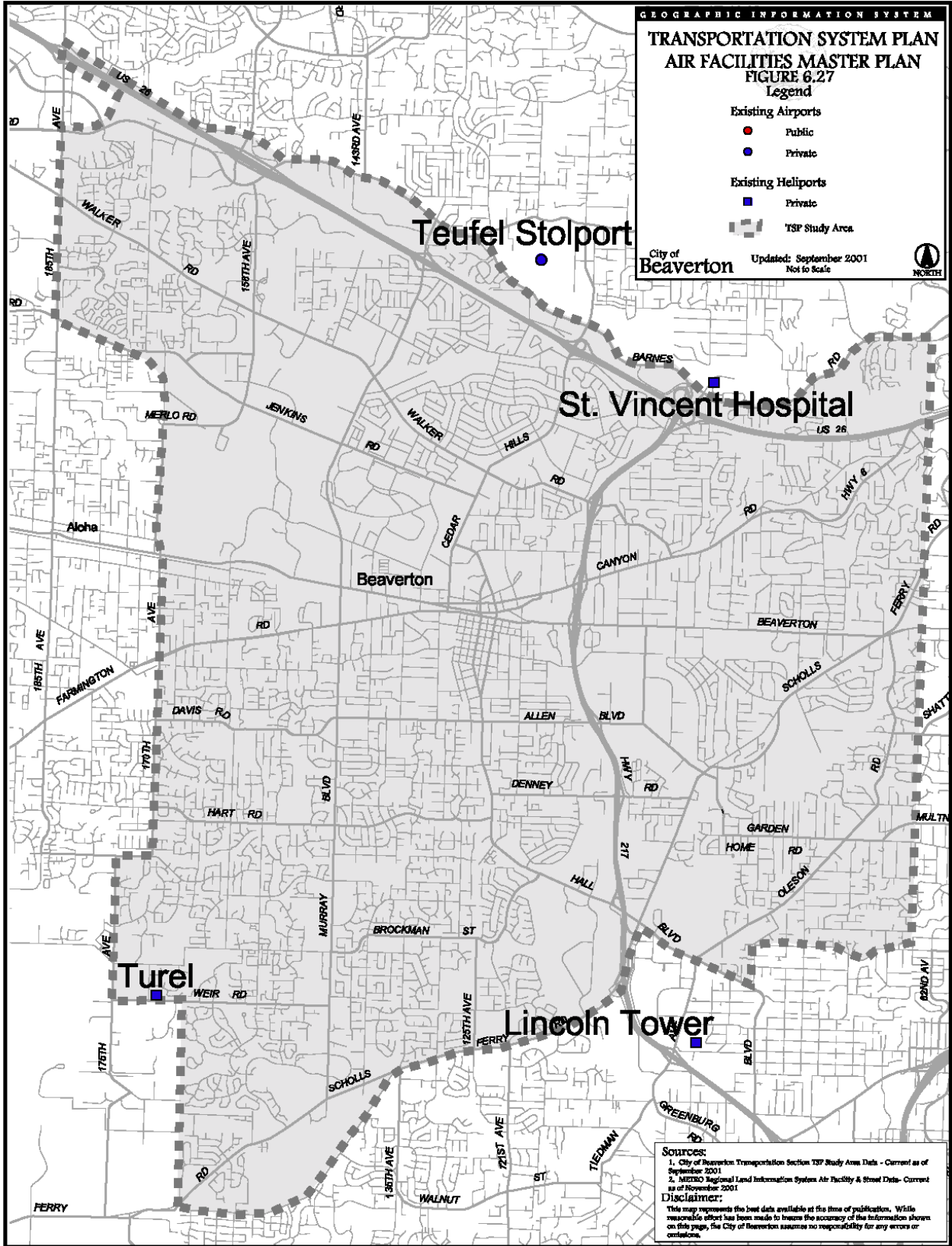
The rail, pipeline, and air facilities master plans show existing and future expansion of these systems. All freight rail lines in the Beaverton area are operated by Portland & Western, a sister company of Willamette & Pacific Railroad, a subsidiary of Genesee & Wyoming Incorporated. Trains operate seven days a week throughout the day. Growth in cars per train will vary in the future based on demand, though train frequency is not expected to change significantly. Long-term growth is based on acquisition of existing trackage in order to expand existing networks that can compete with trucks. (Figure 6.25)

The existing natural gas pipeline system in Beaverton and the petroleum gas line that runs from the Port of Portland to Eugene through Beaverton (Figure 6.26) are not expected to expand during the planning period. Future expansion plans of the Kinder Morgan pipeline could change with market demand.

There are no airports in the Beaverton area, although one private heliport (Turel) is located in southwest Beaverton (Figure 6.27). There are no commercially navigable waterways in the study area for transportation purposes.







6.4 TRANSPORTATION FUNDING

There are several potential funding sources for transportation improvements that have all been used in the past. Chapter 1 of the *Transportation System Plan Update* contains a summary of these options. Often, several sources of funding are used. They can include local system development charges and programs like Washington County's Major Streets Transportation Improvement Program that was approved by the voting public. State and federal grants and transportation allocations are also available. Public support and a consensus on the necessary improvements in the community are critical to funding and building the system improvements. Support is developed through the public participation process that takes place during updates of the *Transportation System Plan*.

Order of magnitude cost estimates for the projects identified in the street, bicycle, and pedestrian action and master plans are contained in previous tables. Other projects are estimated using general unit costs for transportation improvements. Many of the project costs were developed by Washington County, Metro, or the Oregon Department of Transportation for projects in the *Regional Transportation Plan*. Where the City identified the comparable needs, these project costs were used. Table 6.7 summarizes the total costs outlined in the *Transportation System Plan Update*.

Current transportation revenue for the City of Beaverton is summarized in Table 6.8. Assuming a constant funding level over the next 20 years, the identified revenues would potentially fund slightly over \$300,000,000 in transportation projects (maintenance, operation, and construction) leaving a substantial gap between the funding needs and identified funding sources (**The Formula Not In Table** - $\$301,600,000 = \$1,025,373,000$ shortfall). The City continues to work with its regional partners and the State to identify and access improvement funds.

Table 6.7 Approximate Costs for Beaverton Transportation System Plan

Transportation Improvements	Approximate Cost In 1000s of 2001 Dollars
Street and Intersection Improvement Projects:	
Committed	\$3001
Unfunded	\$898,483
Signal Coordination, Intelligent Transportation System, Transportation System Management System Improvements	\$6,415
Road Maintenance (assumes 4% per year growth)	\$100,000
Bicycle Action Plan	\$27,124
Pedestrian Action Plan	\$45,588
Transit Service Improvements	\$144,830
Pedestrian and School Safety Program (\$10,000 per year)	\$200
Sidewalk Grant Program (\$50,000 per year)	\$1,000
Park-and-Ride Expansion (1,000 spaces)	\$2,000
Neighborhood Traffic Management (\$75,000 per year)	\$1,500
TSP Support Documents (i.e., TSP, <i>Development Code</i> , <i>Comprehensive Plan</i> updates)	\$500
Transportation Demand Management Support (\$50,000 per year)	\$1,000
20-Year Total	\$330,157.00

Table 6.8 Estimate of Available Transportation Funding From Existing Sources

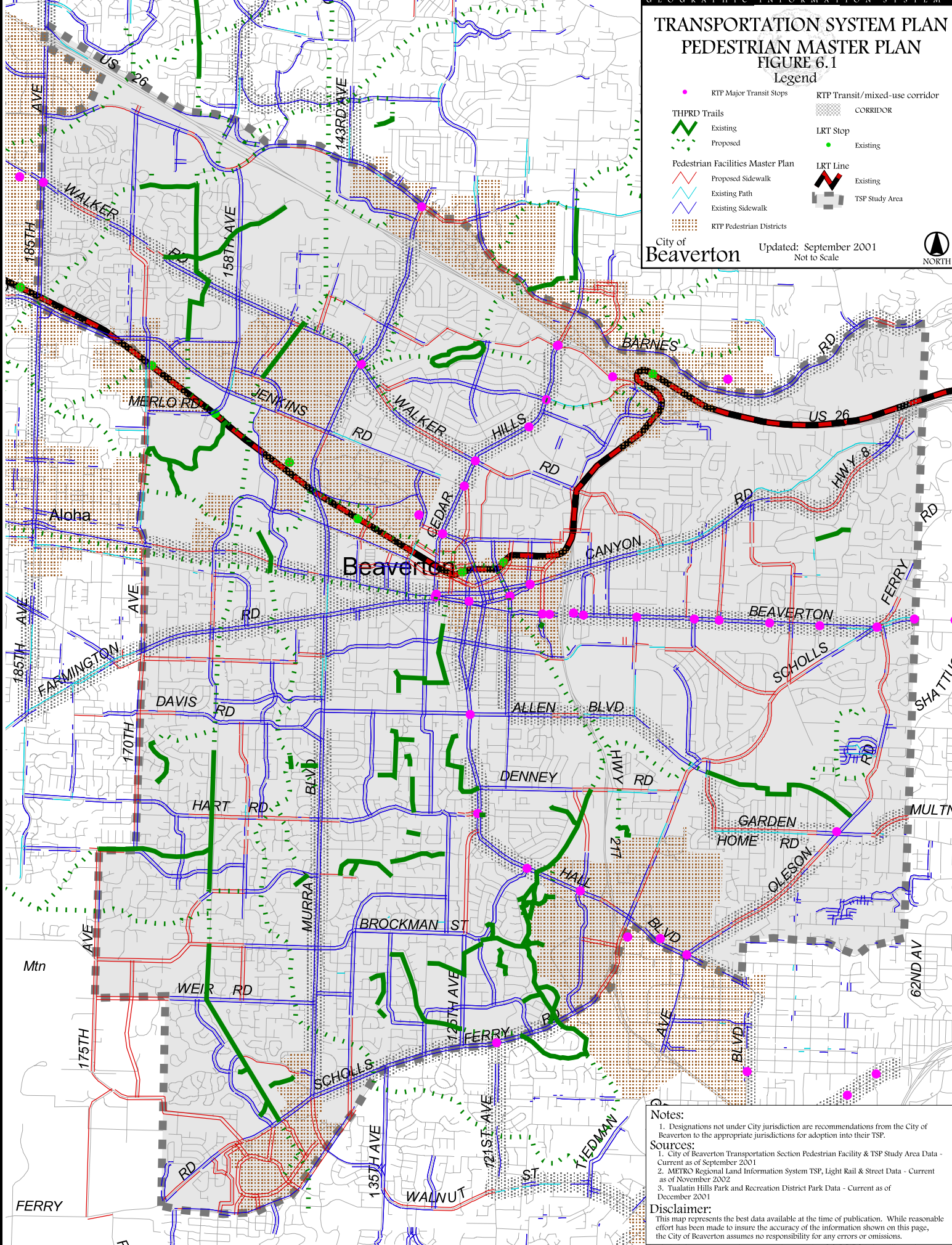
Funding Source	Approximate Annual Revenue In 1000s of 2001 Dollars
State Motor Vehicle Fees to City	\$3,400
County Gas Tax to City	\$290
Traffic Impact Fees to City	\$1,400
Miscellaneous	\$290
Major Streets Transportation Improvement Program Funds to City (approximate)	\$2,900
State and Federal Fees used in City (approximate, assumes 35% of allocation used for capital)	\$6,800
Annual Total	\$15,080
20-Year Total (Assumes current funding sources only)	\$301,600

TRANSPORTATION SYSTEM PLAN PEDESTRIAN MASTER PLAN FIGURE 6.1

Legend

- RTP Major Transit Stops
- THPRD Trails
 - Existing
 - - - Proposed
- Pedestrian Facilities Master Plan
 - Proposed Sidewalk
 - Existing Path
 - Existing Sidewalk
- RTP Pedestrian Districts
- RTP Transit/mixed-use corridor
- CORRIDOR
- LRT Stop Existing
- LRT Line Existing
- TSP Study Area

City of Beaverton Updated: September 2001
Not to Scale



Notes:
1. Designations not under City jurisdiction are recommendations from the City of Beaverton to the appropriate jurisdictions for adoption into their TSP.

Sources:
1. City of Beaverton Transportation Section Pedestrian Facility & TSP Study Area Data - Current as of September 2001
2. METRO Regional Land Information System TSP, Light Rail & Street Data - Current as of November 2002
3. Tualatin Hills Park and Recreation District Park Data - Current as of December 2001

Disclaimer:
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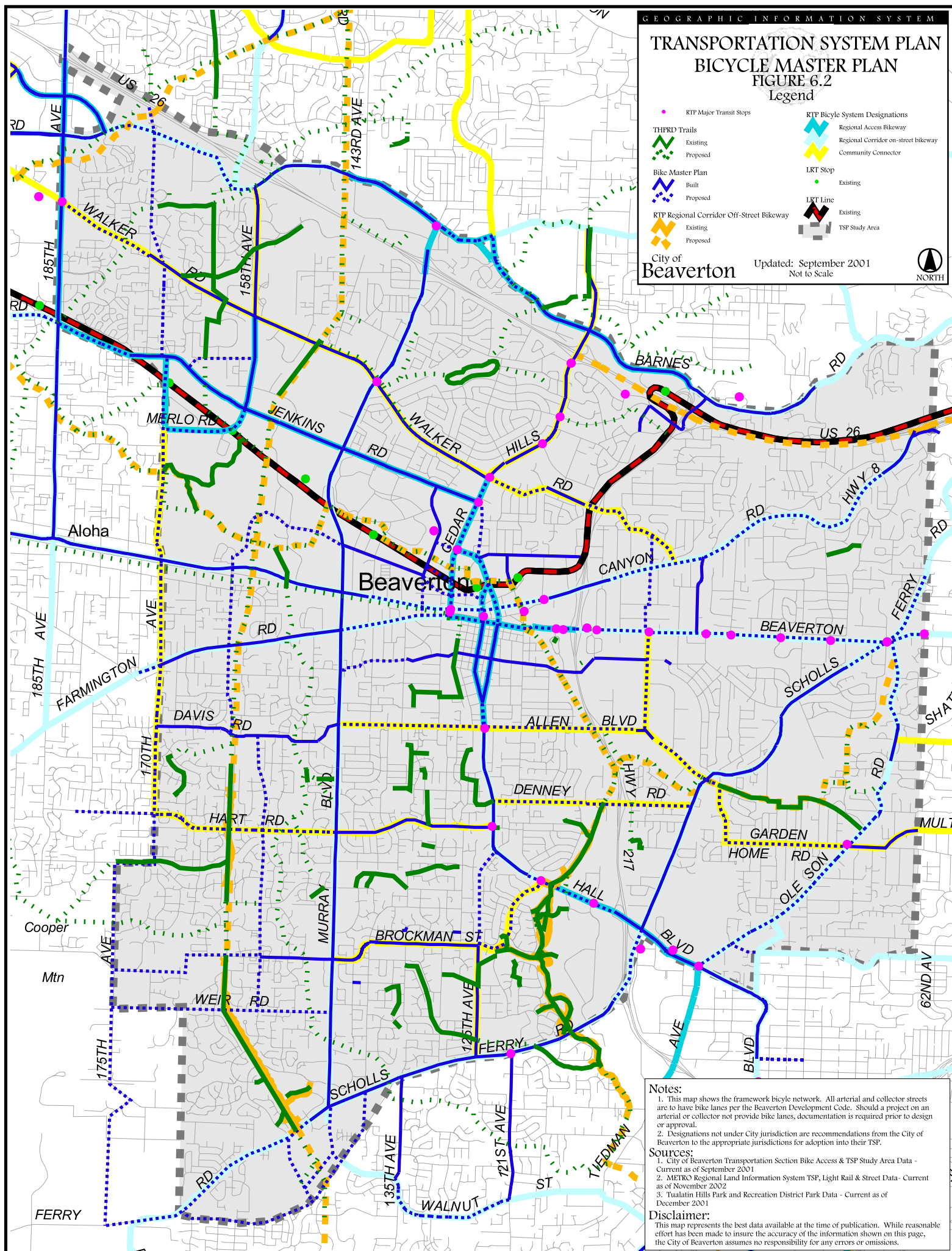
GEOGRAPHIC INFORMATION SYSTEM

TRANSPORTATION SYSTEM PLAN BICYCLE MASTER PLAN FIGURE 6.2 Legend

<ul style="list-style-type: none"> RTP Major Transit Stops THPRD Trails <ul style="list-style-type: none"> Existing Proposed Bike Master Plan <ul style="list-style-type: none"> Built Proposed RTP Regional Corridor Off-Street Bikeway <ul style="list-style-type: none"> Existing Proposed 	<ul style="list-style-type: none"> RTP Bicycle System Designations <ul style="list-style-type: none"> Regional Access Bikeway Regional Corridor on-street bikeway Community Connector LRT Stop <ul style="list-style-type: none"> Existing LRT Line <ul style="list-style-type: none"> Existing TSP Study Area
--	--

City of Beaverton Updated: September 2001
Not to Scale

NORTH



Notes:

1. This map shows the framework bicycle network. All arterial and collector streets are to have bike lanes per the Beaverton Development Code. Should a project on an arterial or collector not provide bike lanes, documentation is required prior to design or approval.
2. Designations not under City jurisdiction are recommendations from the City of Beaverton to the appropriate jurisdictions for adoption into their TSP.

Sources:

1. City of Beaverton Transportation Section Bike Access & TSP Study Area Data - Current as of September 2001
2. METRO Regional Land Information System TSP, Light Rail & Street Data- Current as of November 2002
3. Tualatin Hills Park and Recreation District Park Data - Current as of December 2001

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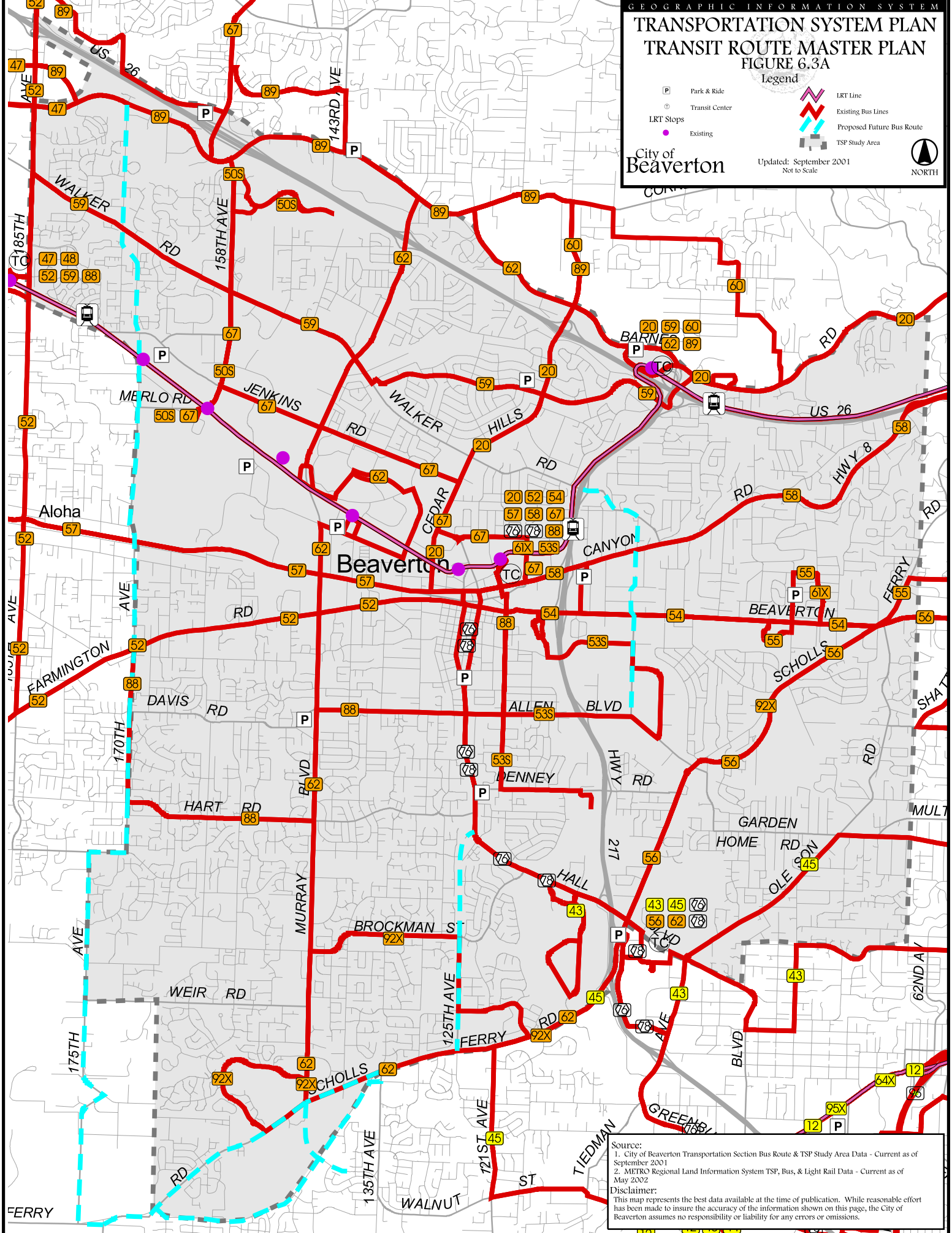
TRANSPORTATION ROUTE MASTER PLAN TRANSIT ROUTE MASTER PLAN FIGURE 6.3A

Legend

-  Park & Ride
-  Transit Center
-  Existing
-  LRT Line
-  Existing Bus Lines
-  Proposed Future Bus Route
-  TSP Study Area

City of
Beaverton

Updated: September 2001
Not to Scale



Source:
 1. City of Beaverton Transportation Section Bus Route & TSP Study Area Data - Current as of September 2001
 2. METRO Regional Land Information System TSP, Bus, & Light Rail Data - Current as of May 2002

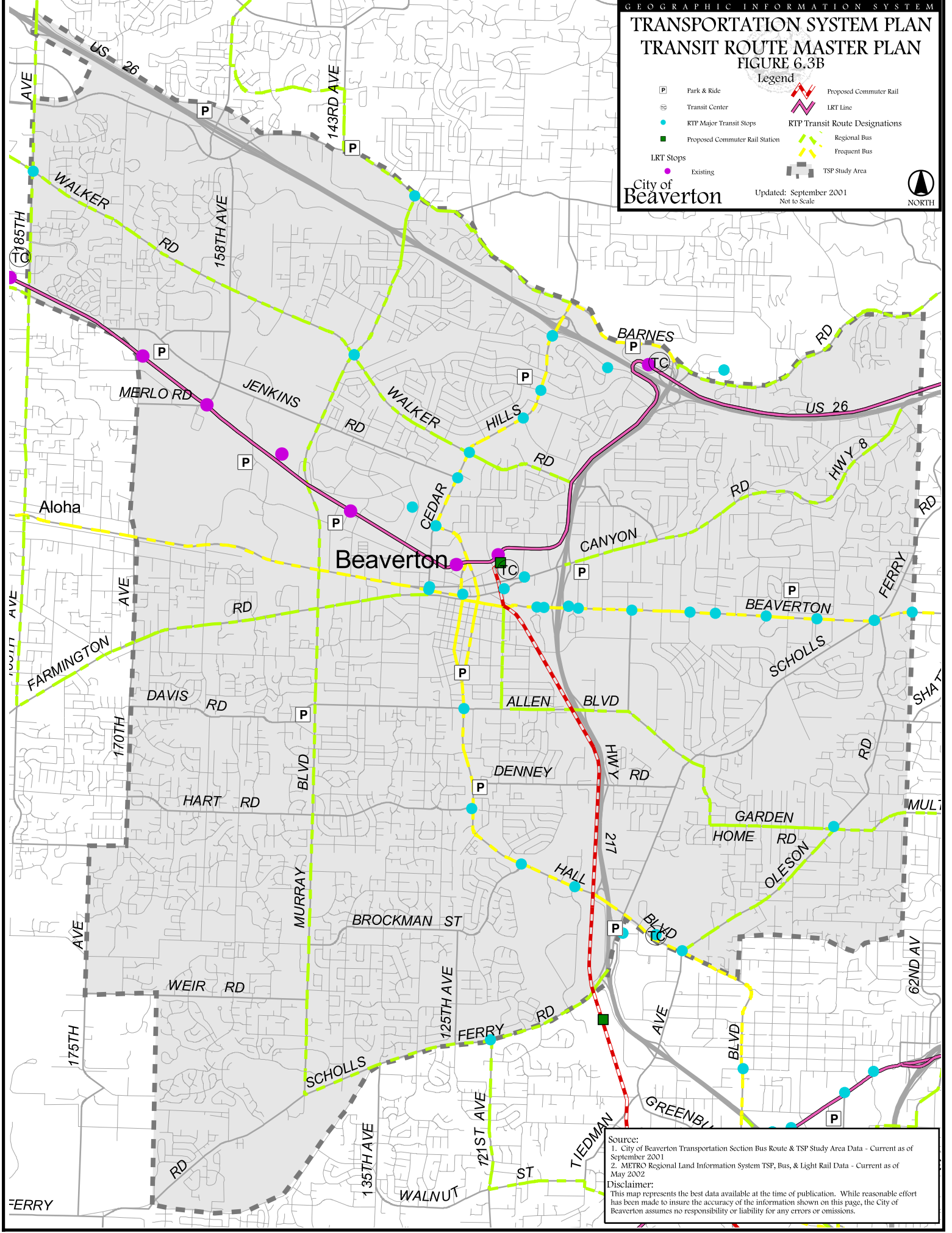
Disclaimer:
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TRANSPORTATION ROUTE MASTER PLAN TRANSIT ROUTE MASTER PLAN FIGURE 6.3B

Legend

- Park & Ride
- Transit Center
- RTP Major Transit Stops
- Proposed Commuter Rail Station
- LRT Stops
- Existing
- Proposed Commuter Rail
- LRT Line
- RTP Transit Route Designations
- Regional Bus
- Frequent Bus
- TSP Study Area

City of Beaverton
Updated: September 2001
Not to Scale

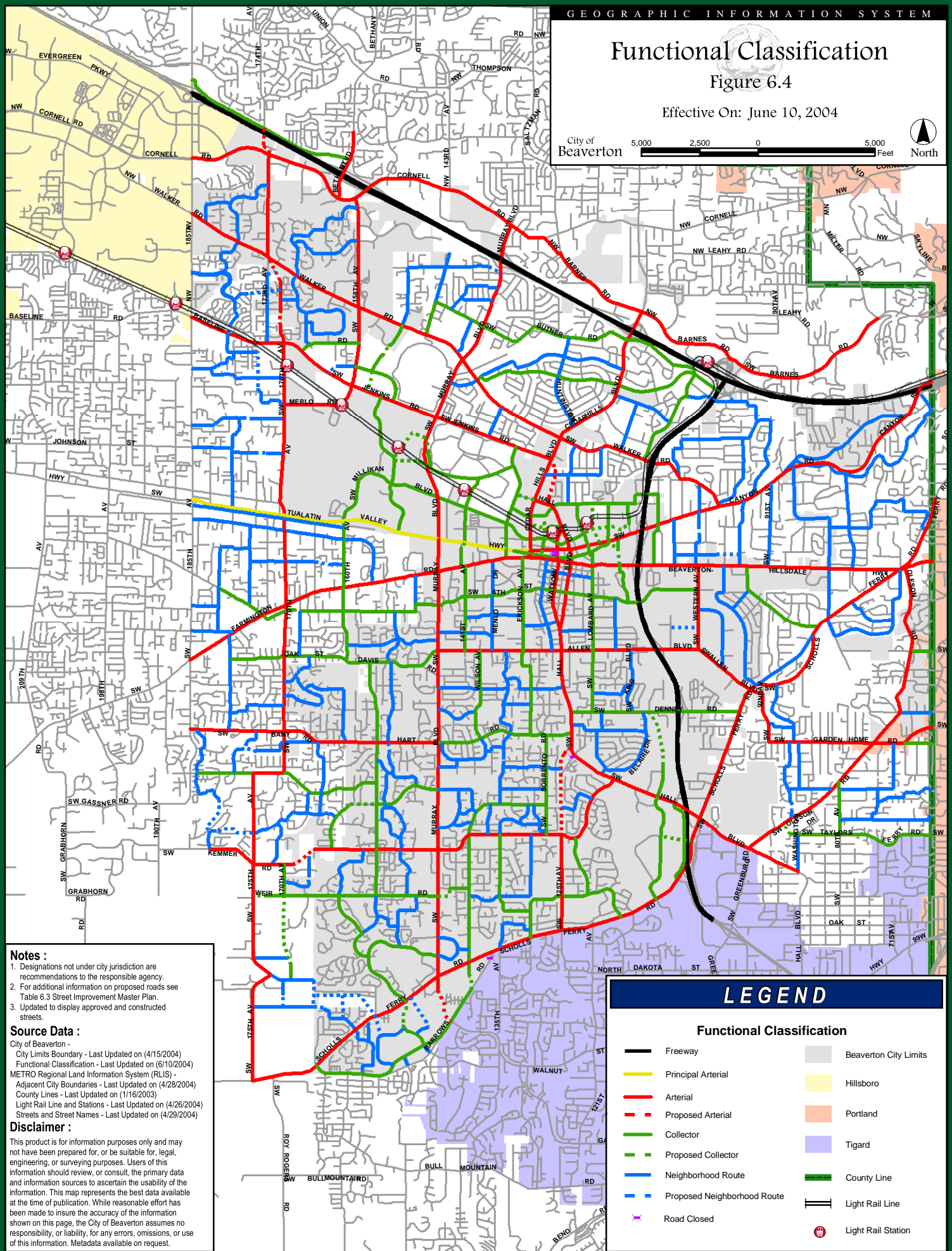
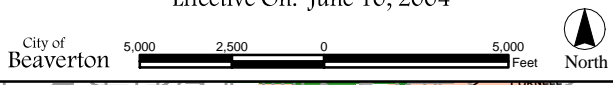


Source:
 1. City of Beaverton Transportation Section Bus Route & TSP Study Area Data - Current as of September 2001
 2. METRO Regional Land Information System TSP, Bus, & Light Rail Data - Current as of May 2002
 Disclaimer:
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Functional Classification

Figure 6.4

Effective On: June 10, 2004



Notes :

1. Designations not under city jurisdiction are recommendations to the responsible agency.
2. For additional information on proposed roads see Table 6.3 Street Improvement Master Plan.
3. Updated to display approved and constructed streets.

Source Data :

- City of Beaverton -
- City Limits Boundary - Last Updated on (4/15/2004)
- Functional Classification - Last Updated on (6/10/2004)
- METRO Regional Land Information System (RLIS) -
- Adjacent City Boundaries - Last Updated on (4/28/2004)
- County Lines - Last Updated on (1/16/2003)
- Light Rail Line and Stations - Last Updated on (4/26/2004)
- Streets and Street Names - Last Updated on (4/29/2004)

Disclaimer :

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LEGEND

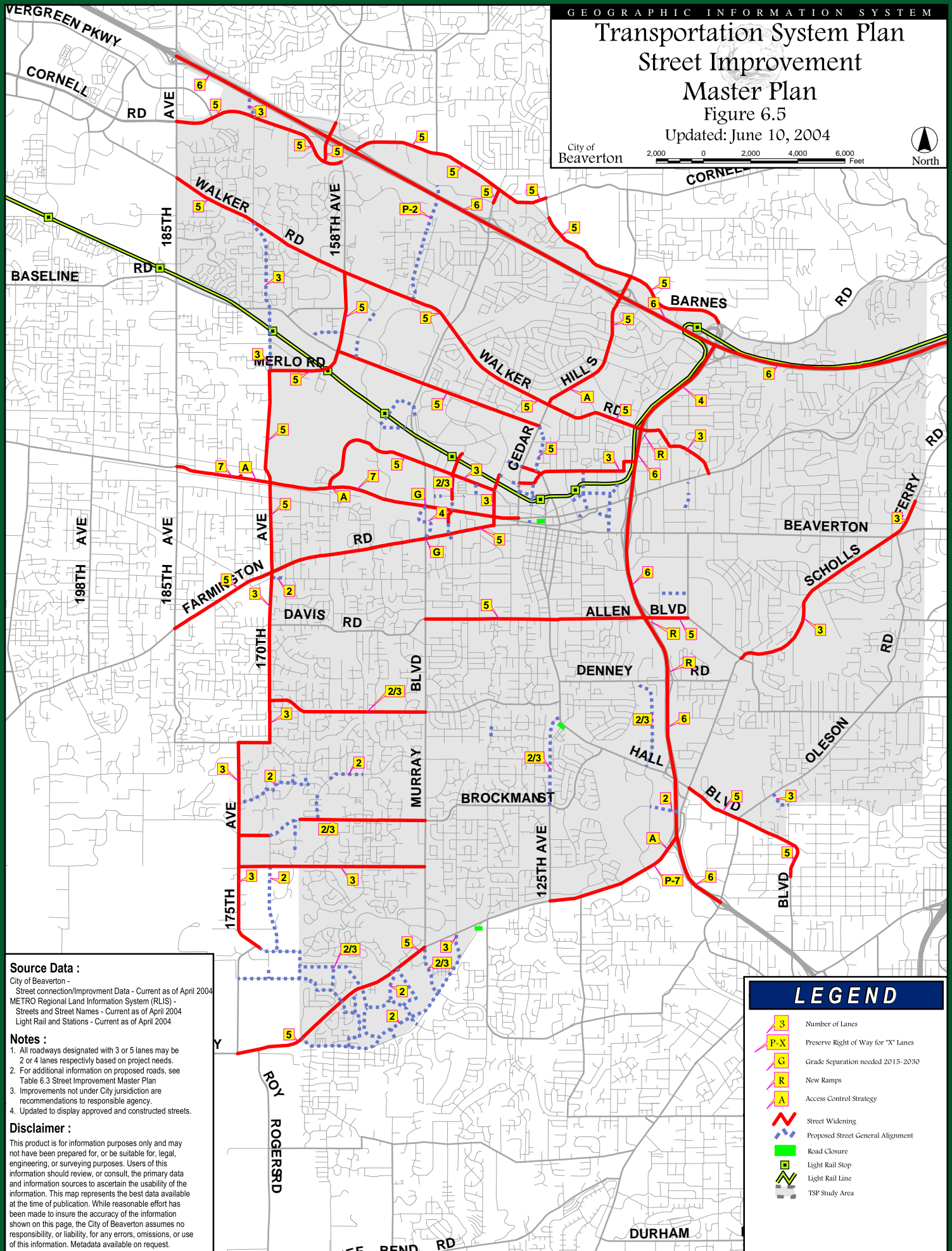
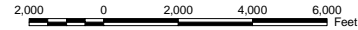
Functional Classification			
	Freeway		Beaverton City Limits
	Principal Arterial		Hillsboro
	Arterial		Portland
	Proposed Arterial		Tigard
	Collector		County Line
	Proposed Collector		Neighborhood Route
	Neighborhood Route		Proposed Neighborhood Route
	Proposed Neighborhood Route		Road Closed
	Road Closed		Light Rail Line
			Light Rail Station

Transportation System Plan Street Improvement Master Plan

Figure 6.5

Updated: June 10, 2004

City of
Beaverton



Source Data :

City of Beaverton -
Street connection/Improvement Data - Current as of April 2004
METRO Regional Land Information System (RLIS) -
Streets and Street Names - Current as of April 2004
Light Rail and Stations - Current as of April 2004

Notes :

1. All roadways designated with 3 or 5 lanes may be 2 or 4 lanes respectively based on project needs.
2. For additional information on proposed roads, see Table 6.3 Street Improvement Master Plan
3. Improvements not under City jurisdiction are recommendations to responsible agency.
4. Updated to display approved and constructed streets.

Disclaimer :

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LEGEND

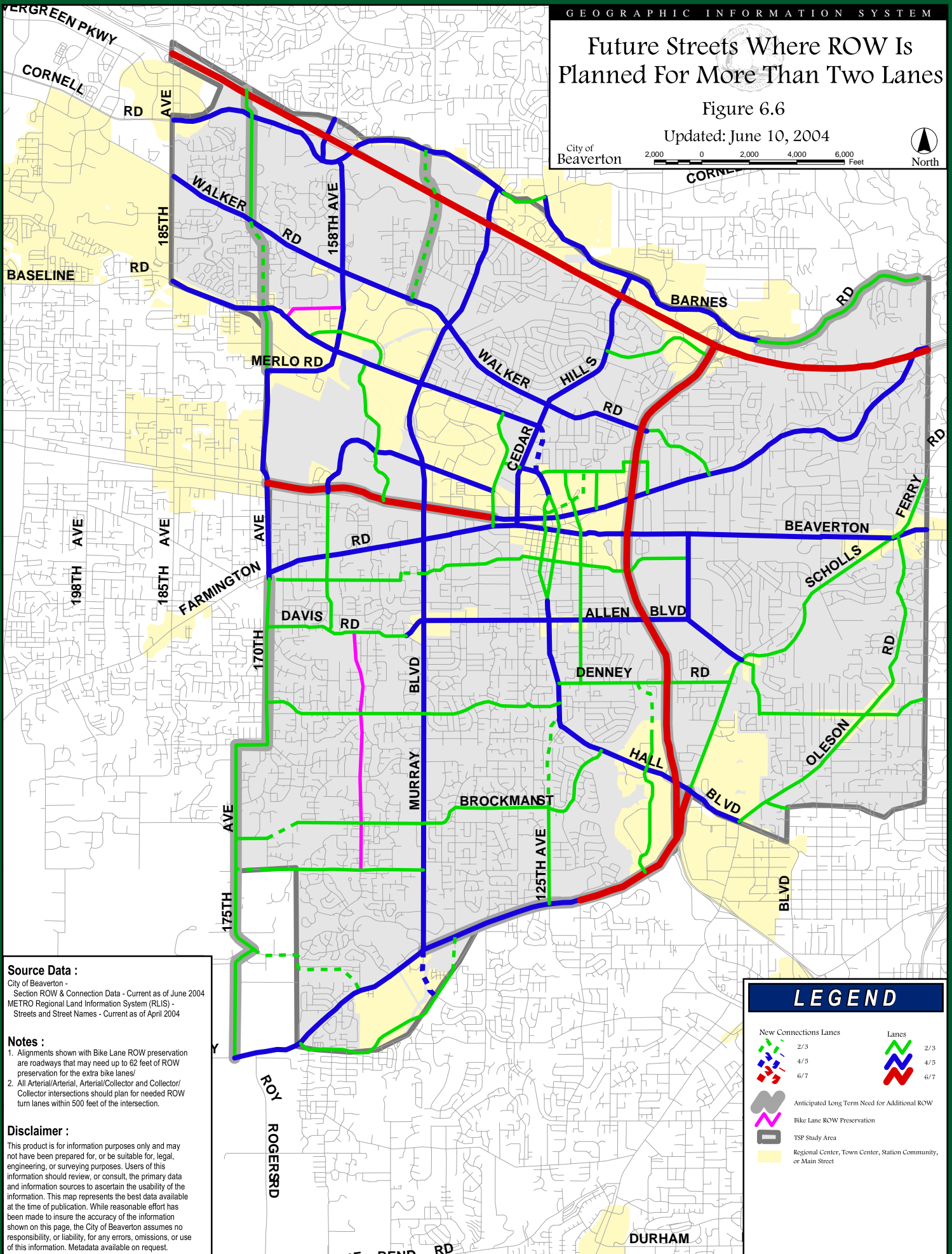
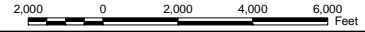
- Number of Lanes
- Preserve Right of Way for "X" Lanes
- Grade Separation needed 2015-2030
- New Ramps
- Access Control Strategy
- Street Widening
- Proposed Street General Alignment
- Road Closure
- Light Rail Stop
- Light Rail Line
- TSP Study Area

Future Streets Where ROW Is Planned For More Than Two Lanes

Figure 6.6

Updated: June 10, 2004

City of Beaverton



Source Data :

City of Beaverton - Section ROW & Connection Data - Current as of June 2004
METRO Regional Land Information System (RLIS) - Streets and Street Names - Current as of April 2004

Notes :

- Alignments shown with Bike Lane ROW preservation are roadways that may need up to 62 feet of ROW preservation for the extra bike lanes/
- All Arterial/Arterial, Arterial/Collector and Collector/Collector intersections should plan for needed ROW turn lanes within 500 feet of the intersection.

Disclaimer :

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LEGEND

	New Connections Lanes		Lanes
	2/3		2/3
	4/5		4/5
	6/7		6/7
	Anticipated Long Term Need for Additional ROW		
	Bike Lane ROW Preservation		
	TSP Study Area		
	Regional Center, Town Center, Station Community, or Main Street		

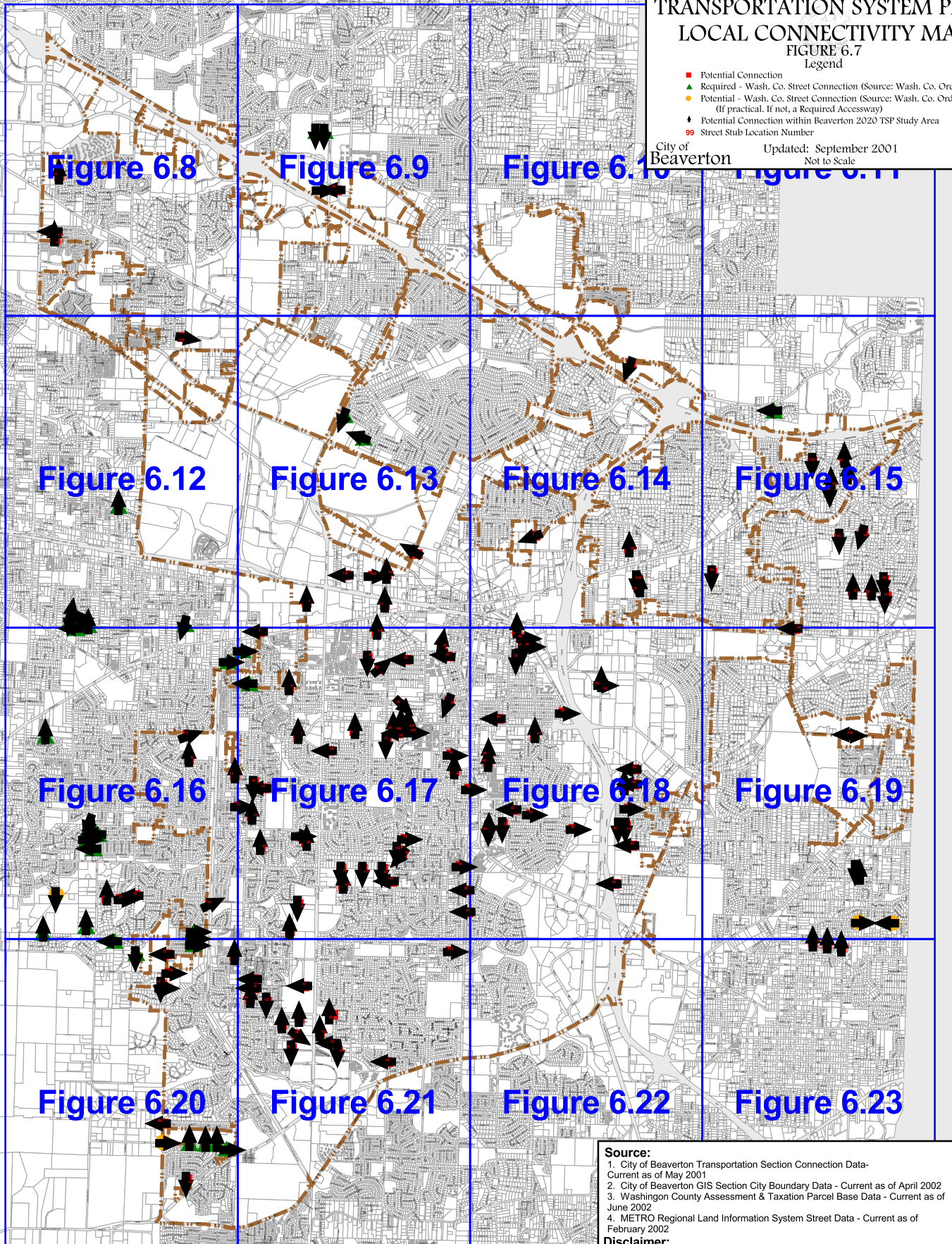
TRANSPORTATION SYSTEM PLAN LOCAL CONNECTIVITY MAP

FIGURE 6.7
Legend

- 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)
- ◆ Potential Connection within Beaverton 2020 TSP Study Area
- 99 Street Stub Location Number

City of
Beaverton

Updated: September 2001
Not to Scale



Source:

1. City of Beaverton Transportation Section Connection Data - Current as of May 2001
2. City of Beaverton GIS Section City Boundary Data - Current as of April 2002
3. Washington County Assessment & Taxation Parcel Base Data - Current as of June 2002
4. METRO Regional Land Information System Street Data - Current as of February 2002

Disclaimer:

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Figure 6.8

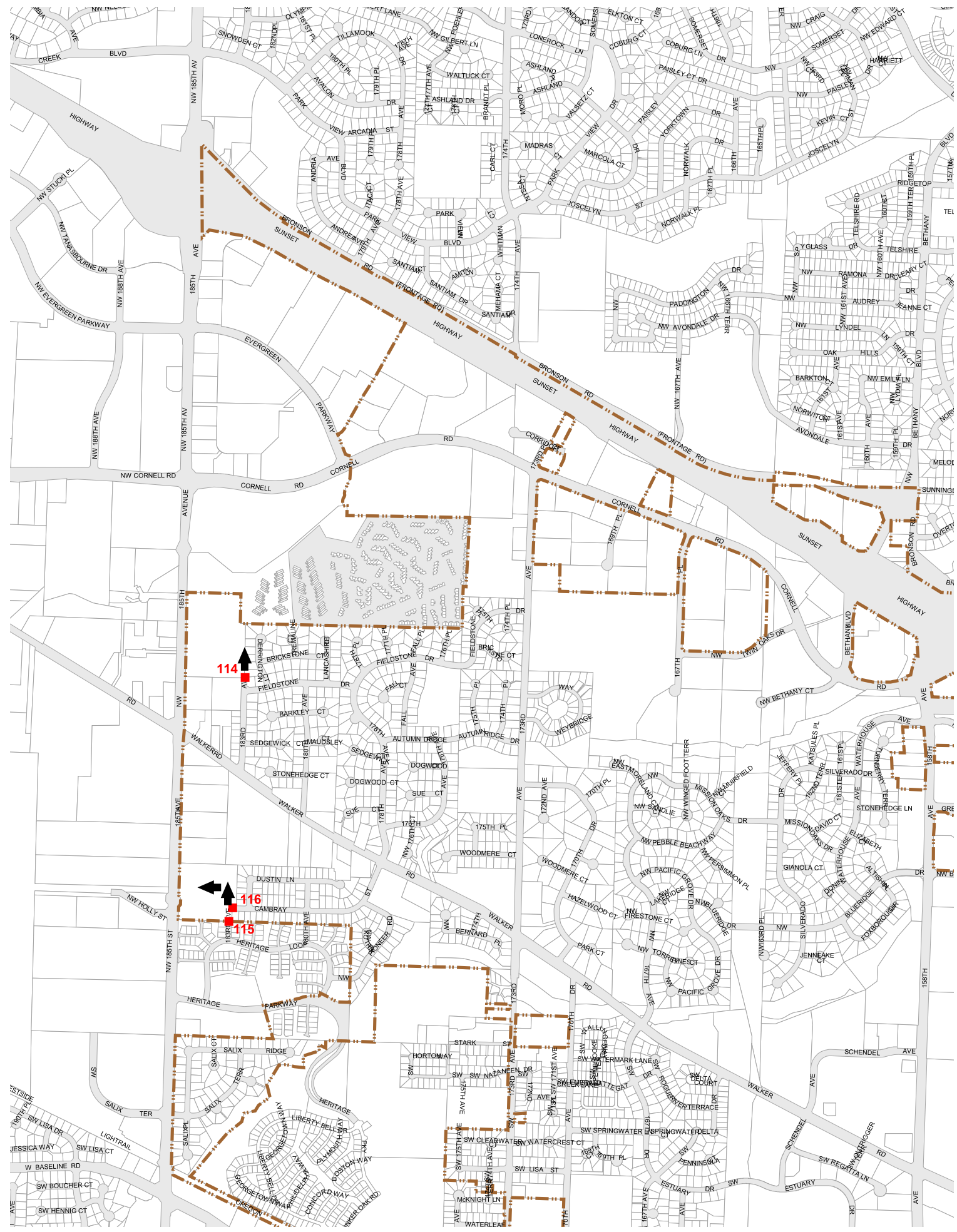


Figure 6.9

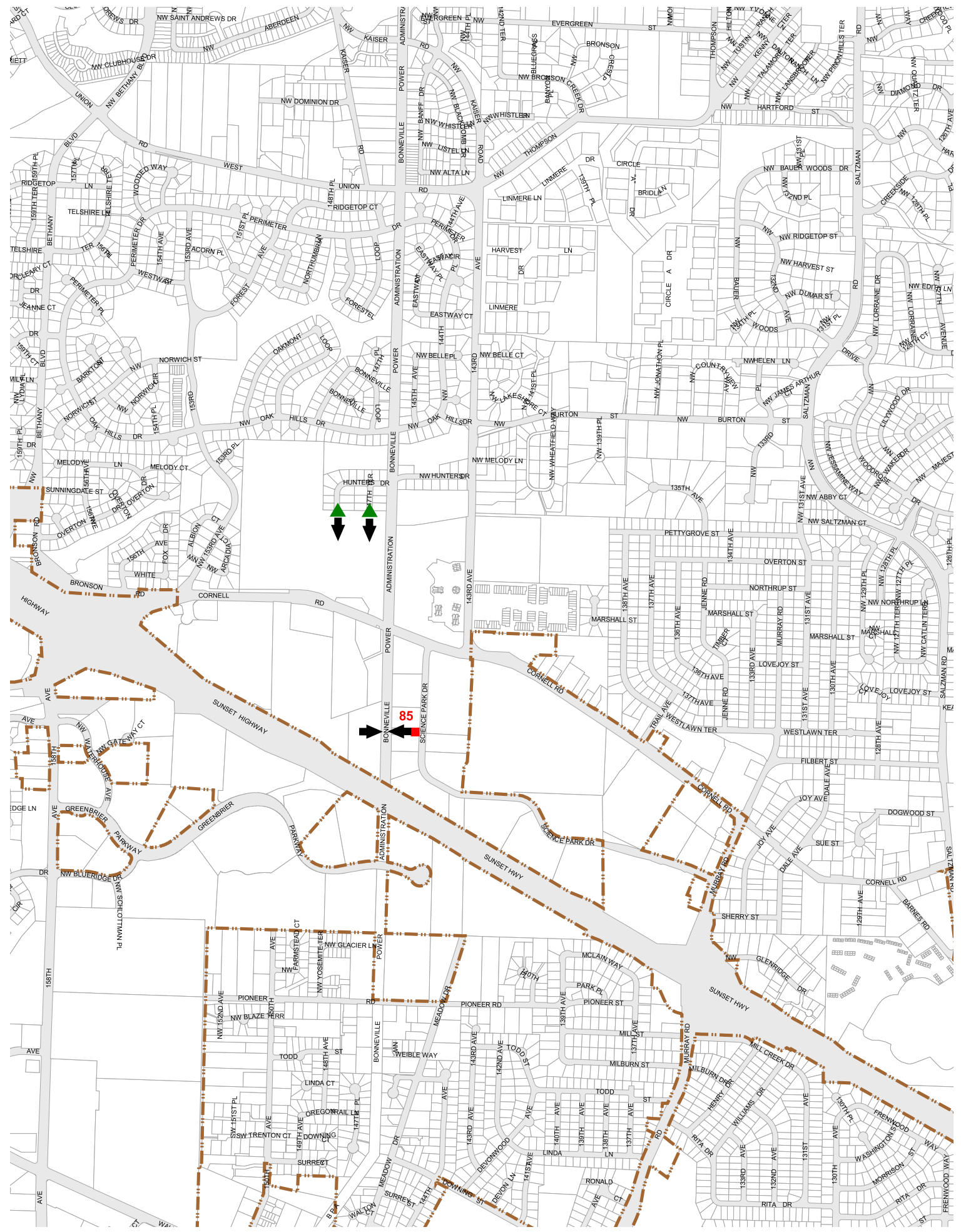


Figure 6.10

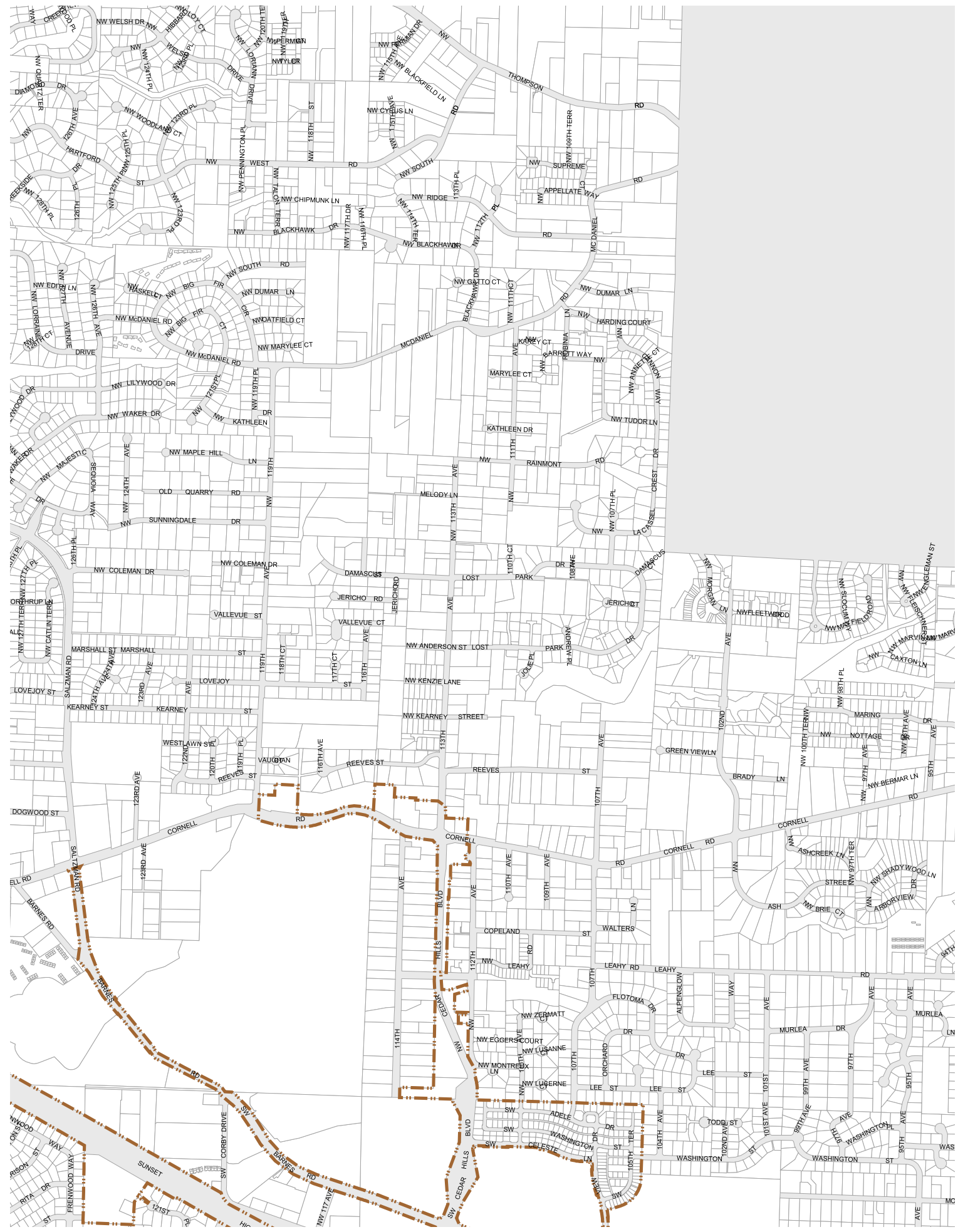


Figure 6.13

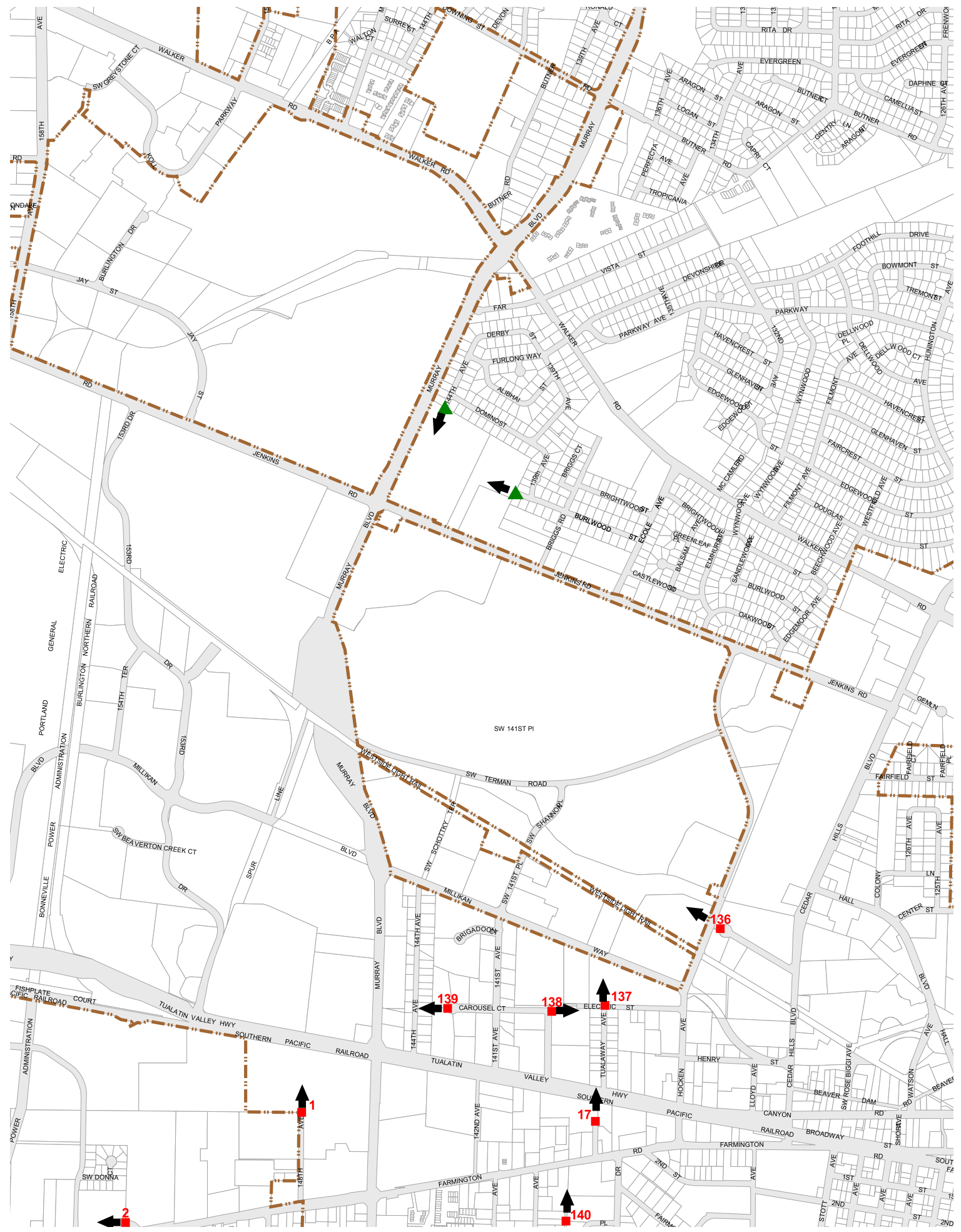


Figure 6.14

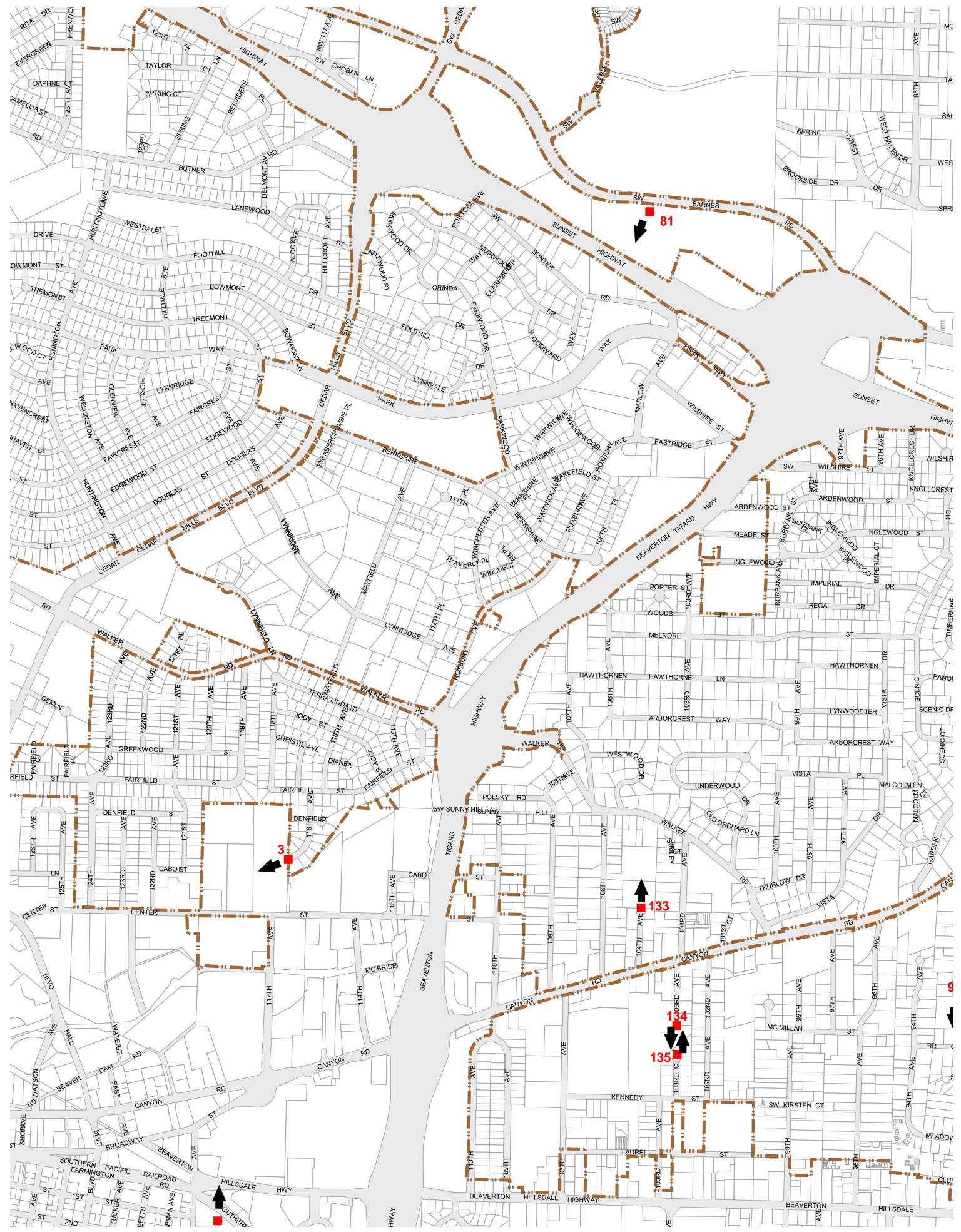


Figure 6.15

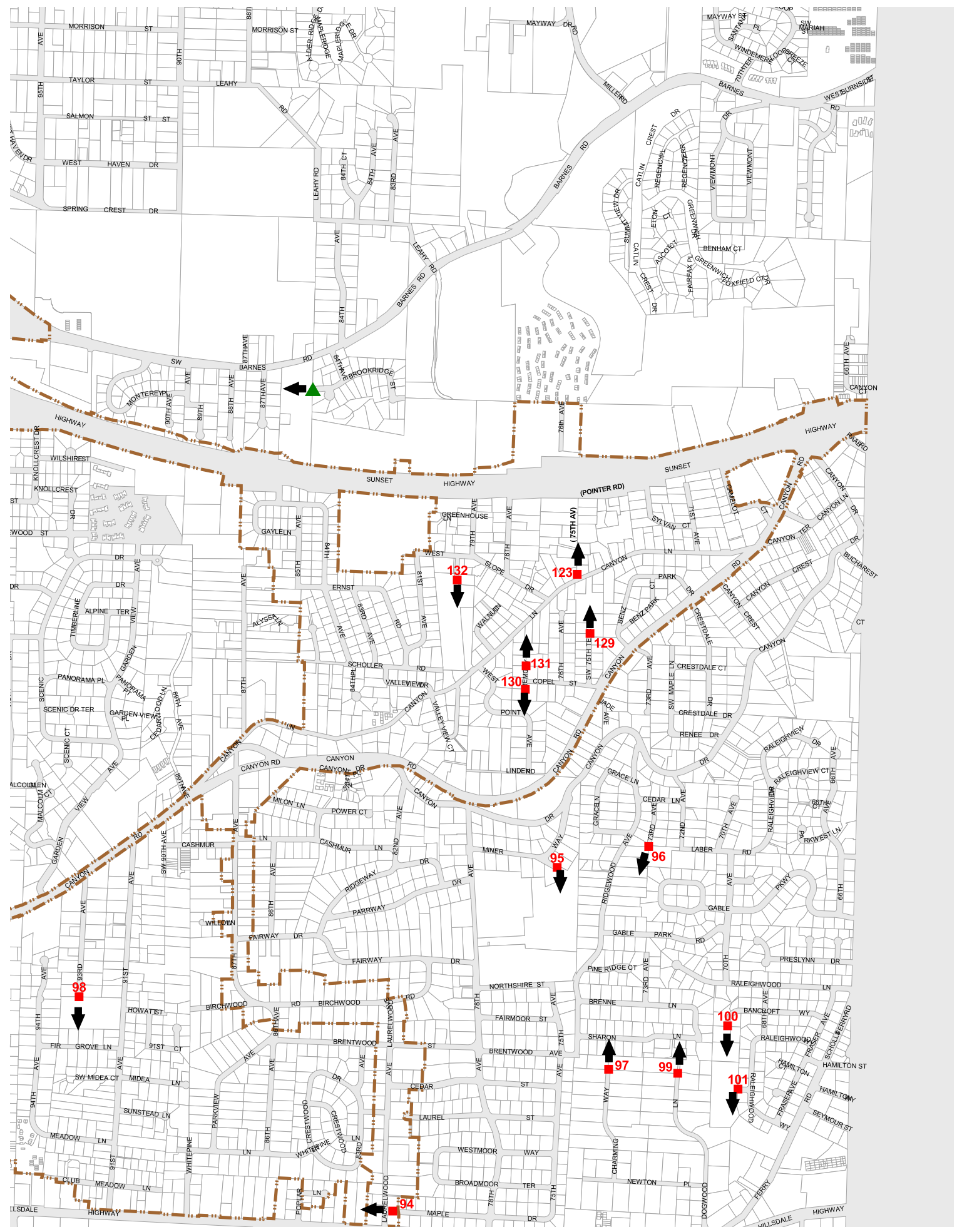


Figure 6.16



Figure 6.18

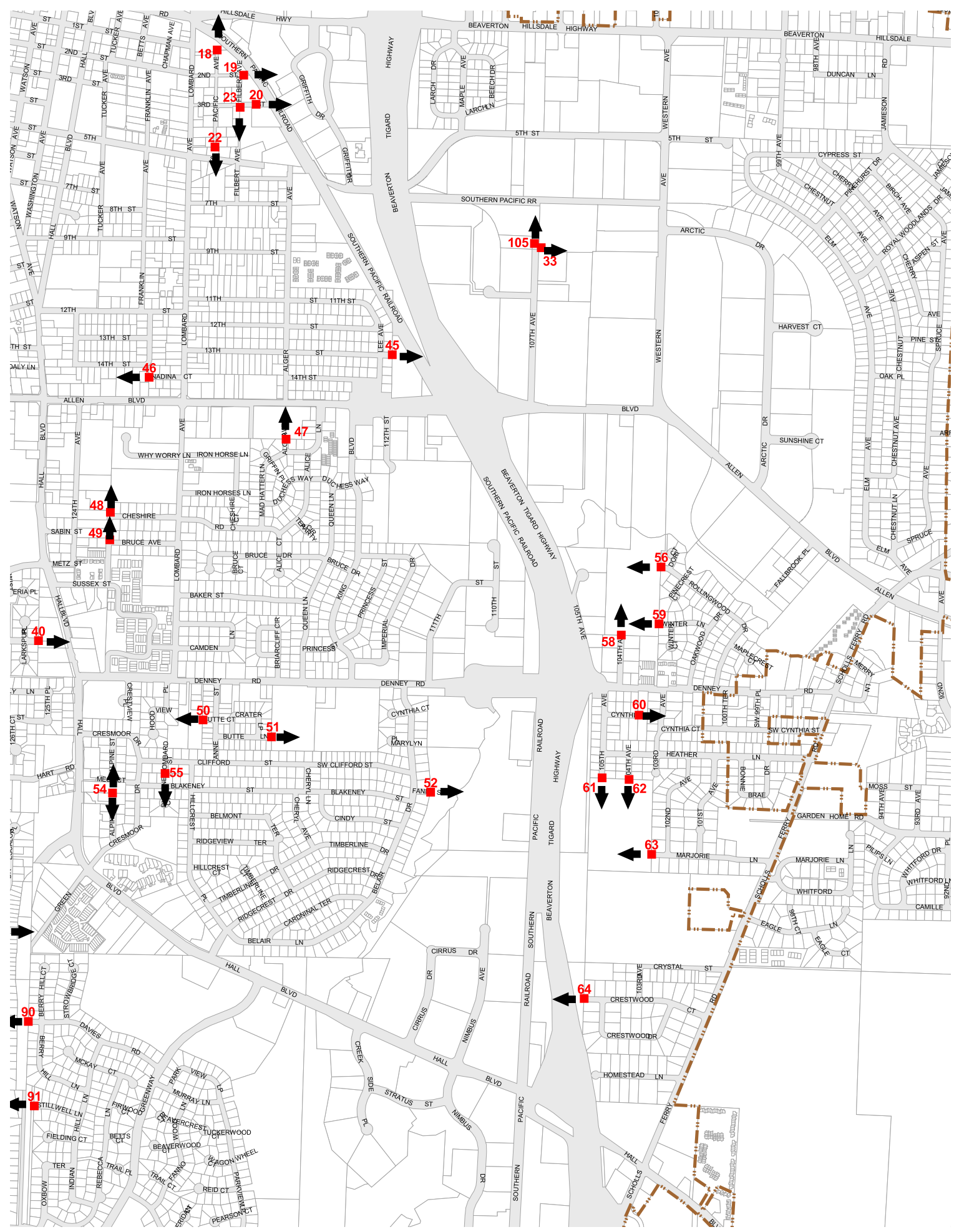


Figure 6.19

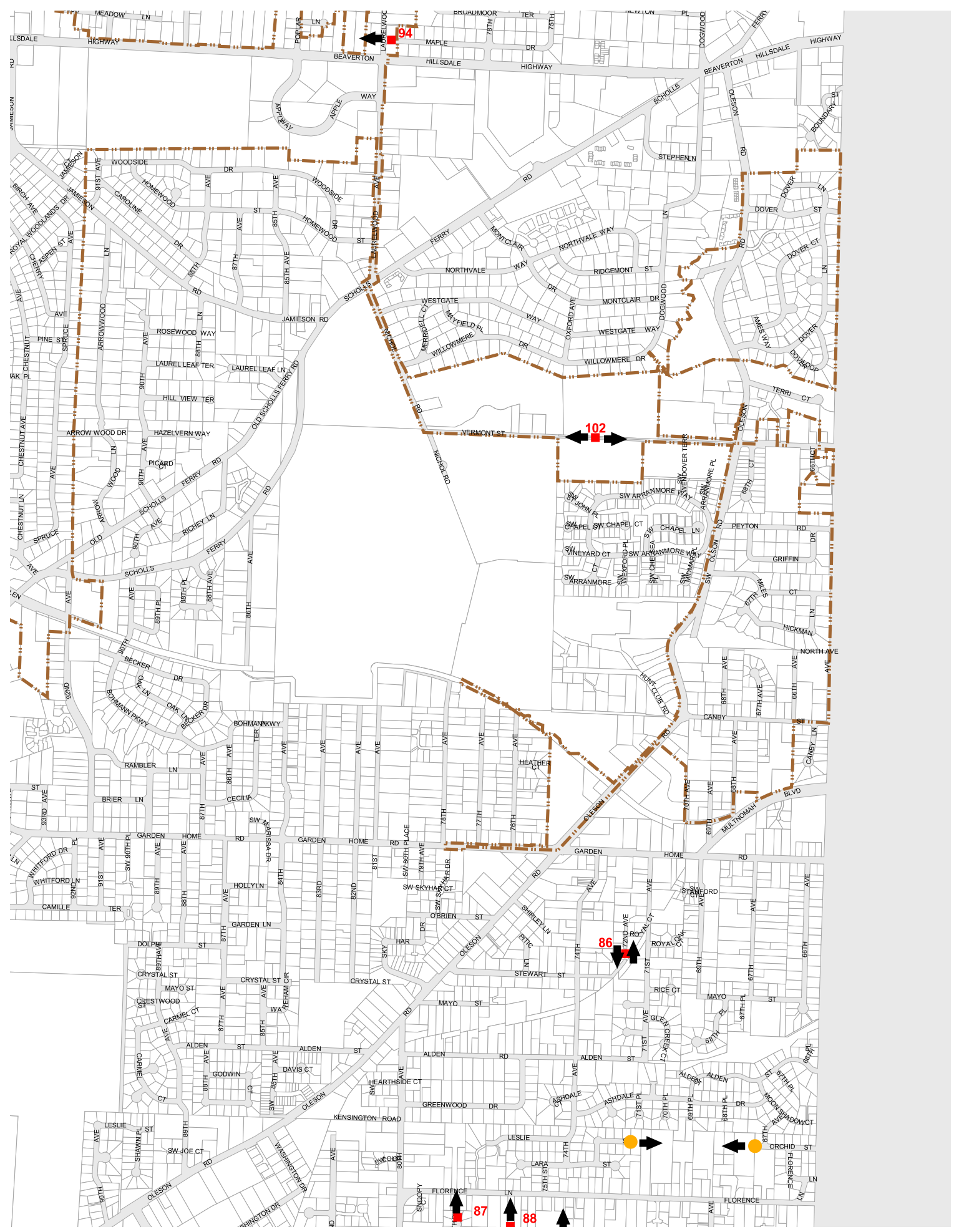


Figure 6.21

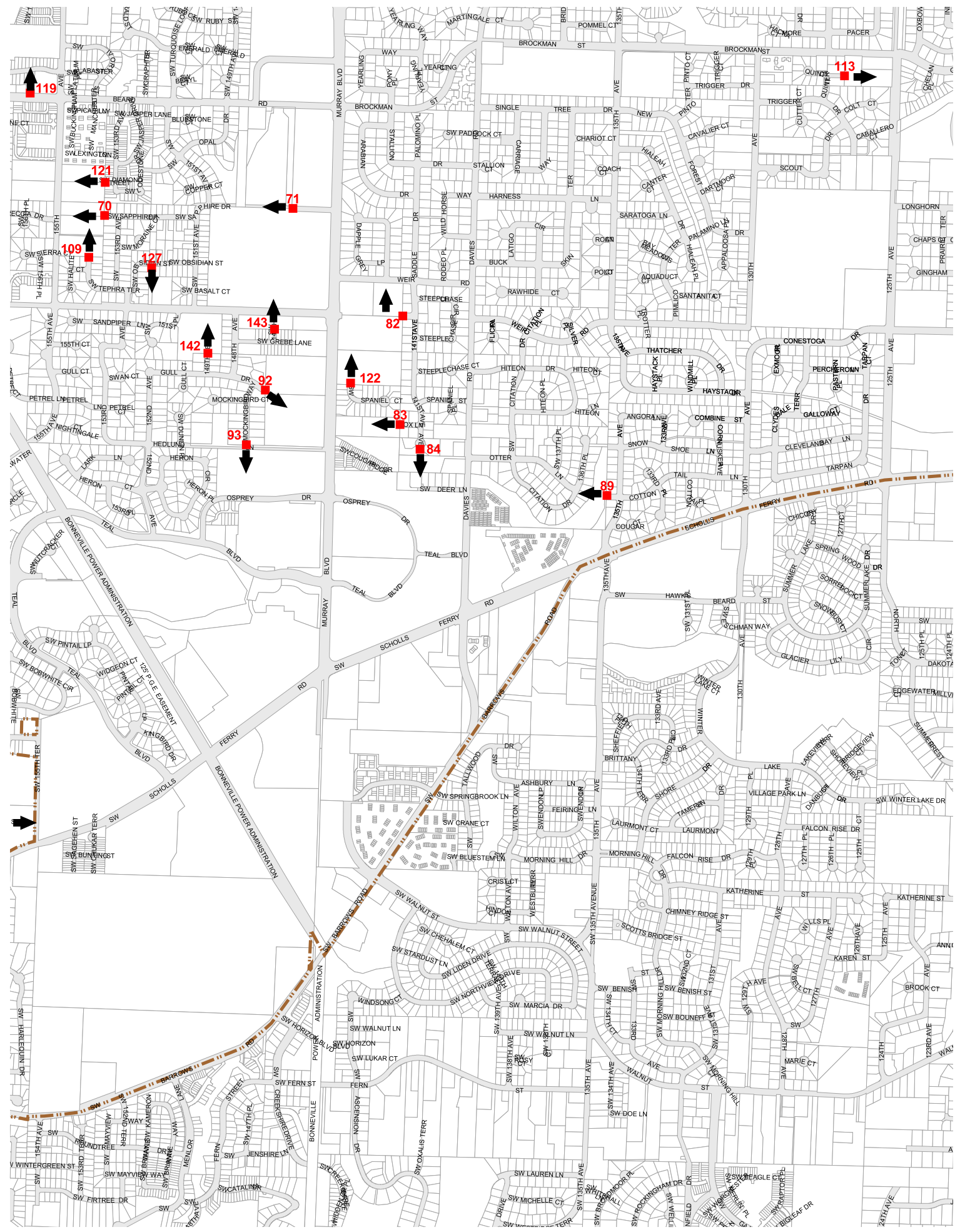


Figure 6.22



Figure 6.23



TRANSPORTATION SYSTEM PLAN THROUGH TRUCK ROUTES

MASTER PLAN

FIGURE 6.24

Legend



Existing Truck Routes



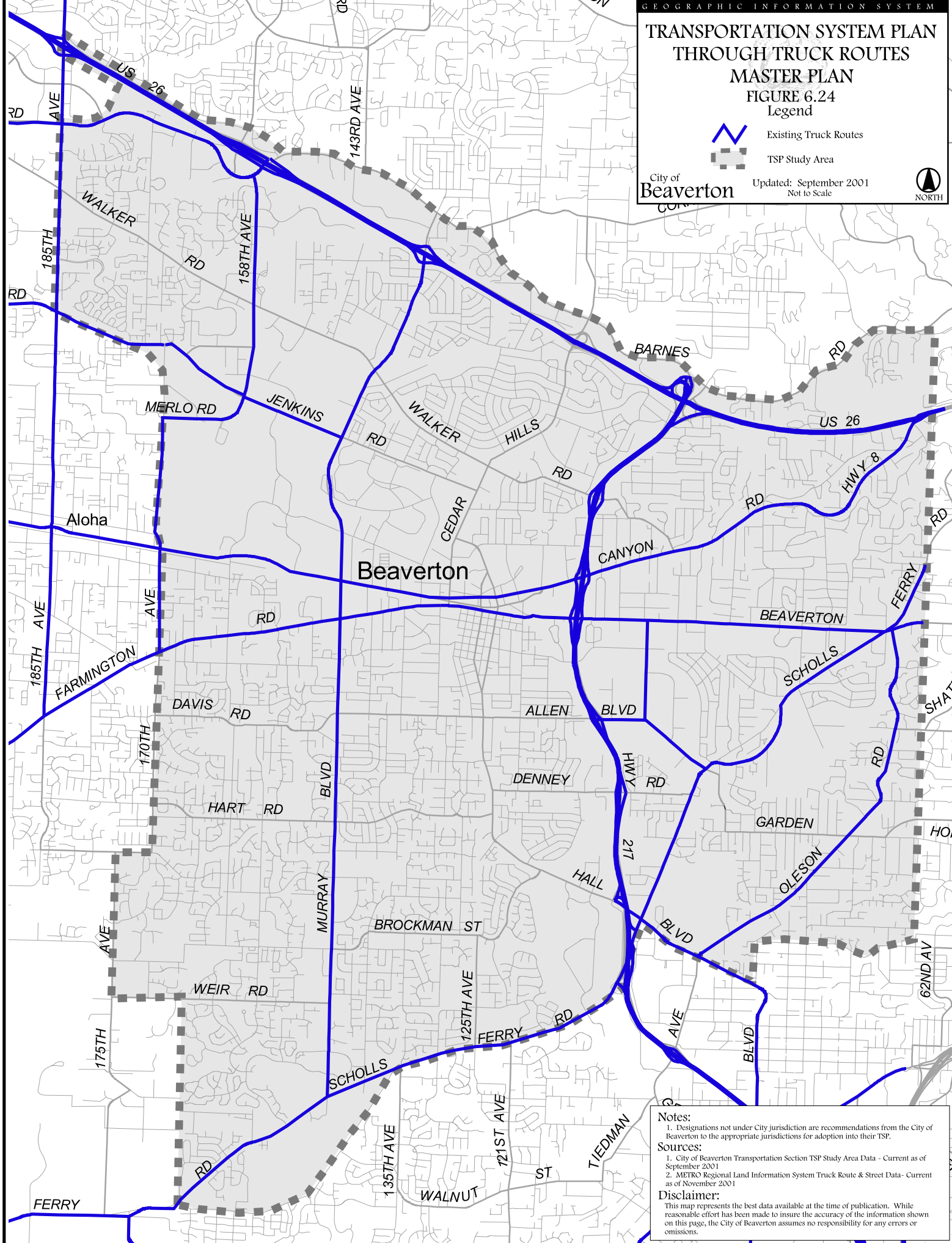
TSP Study Area

City of
Beaverton

Updated: September 2001
Not to Scale



NORTH



Notes:

1. Designations not under City jurisdiction are recommendations from the City of Beaverton to the appropriate jurisdictions for adoption into their TSP.









Sources:

- 1. City of Beaverton Transportation Section TSP Study Area Data - Current as of September 2001
- 2. METRO Regional Land Information System Truck Route & Street Data - Current as of November 2001

Disclaimer:

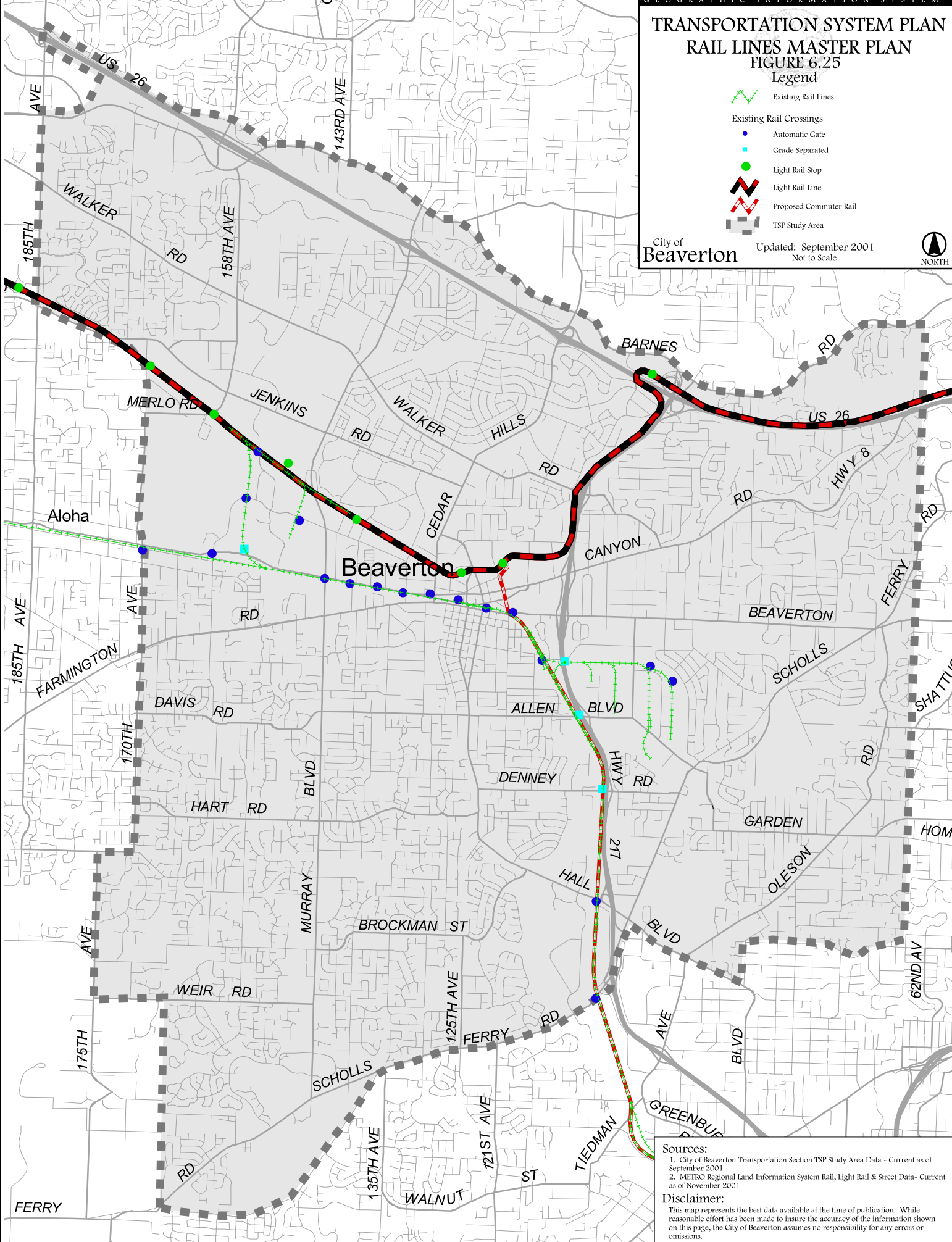
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TRANSPORTATION SYSTEM PLAN RAIL LINES MASTER PLAN FIGURE 6.25

- Legend**
-  Existing Rail Lines
 -  Existing Rail Crossings
 -  Automatic Gate
 -  Grade Separated
 -  Light Rail Stop
 -  Light Rail Line
 -  Proposed Commuter Rail
 -  TSP Study Area

City of
Beaverton

Updated: September 2001
Not to Scale






Sources:

1. City of Beaverton Transportation Section TSP Study Area Data - Current as of September 2001
2. METRO Regional Land Information System Rail, Light Rail & Street Data - Current as of November 2001

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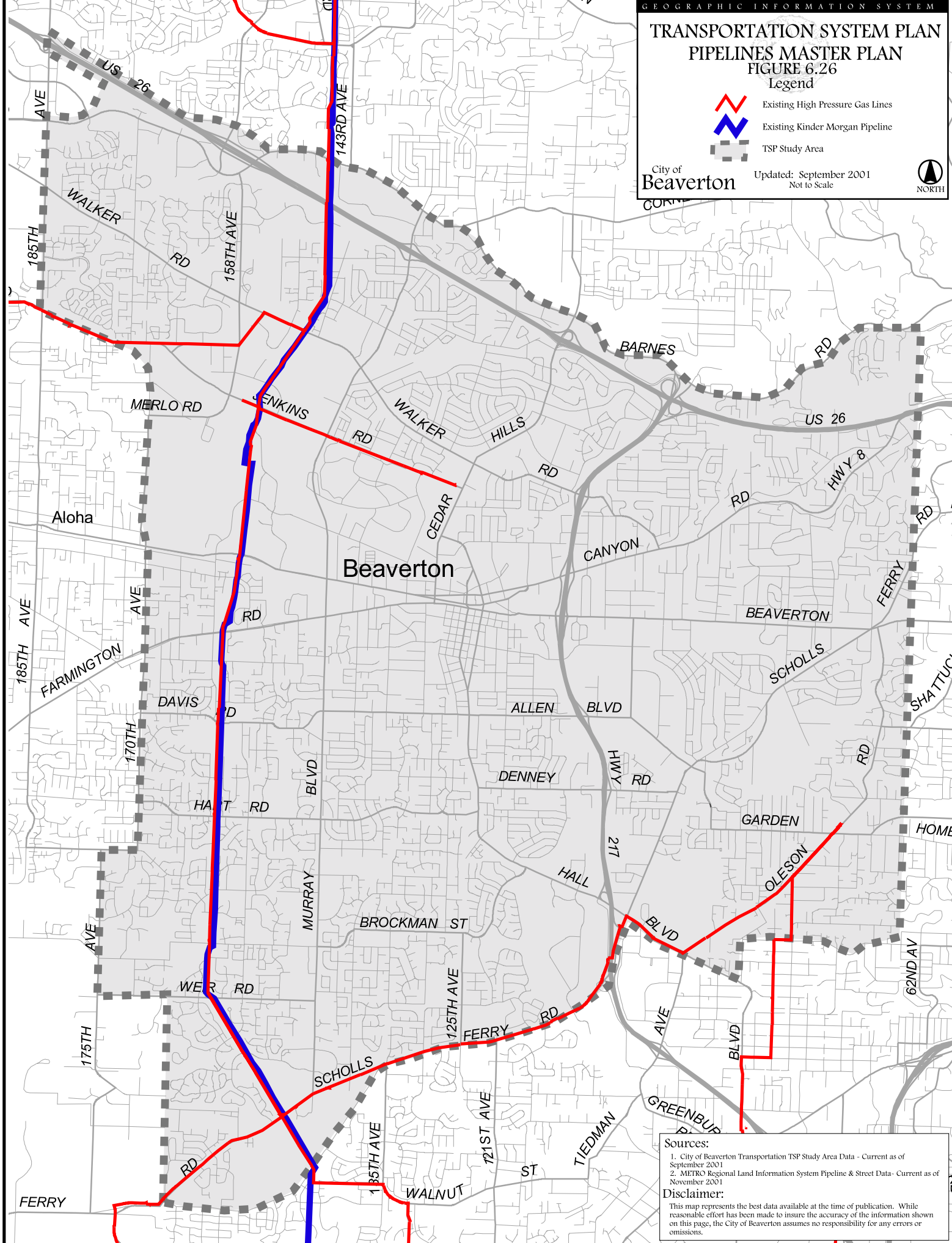
TRANSPORTATION SYSTEM PLAN PIPELINES MASTER PLAN FIGURE 6.26

Legend

-  Existing High Pressure Gas Lines
-  Existing Kinder Morgan Pipeline
-  TSP Study Area

City of
Beaverton

Updated: September 2001
Not to Scale



Sources:

1. City of Beaverton Transportation TSP Study Area Data - Current as of September 2001
2. METRO Regional Land Information System Pipeline & Street Data - Current as of November 2001

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TRANSPORTATION SYSTEM PLAN AIR FACILITIES MASTER PLAN FIGURE 6.27

Legend

Existing Airports

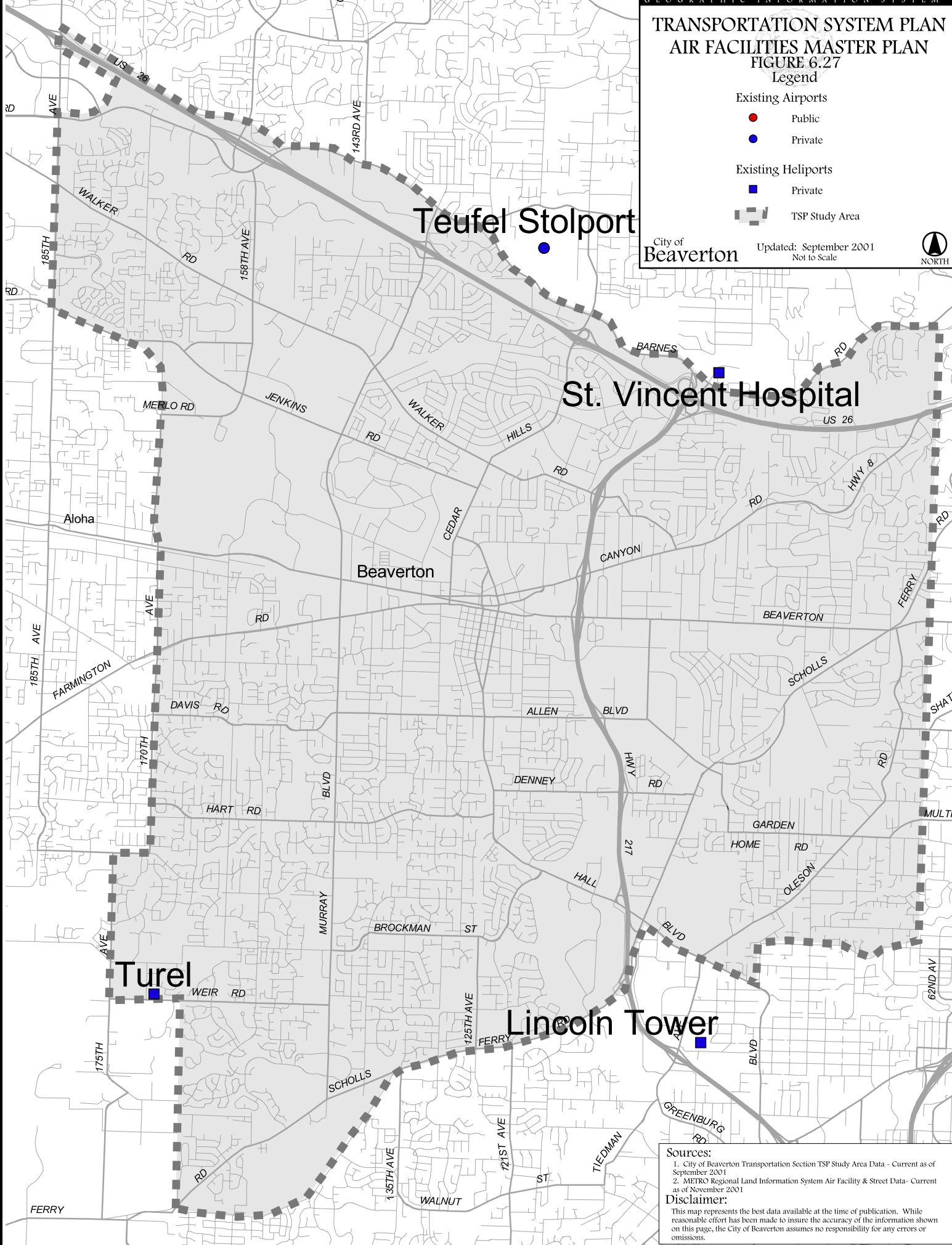
- Public
- Private

Existing Heliports

- Private
- TSP Study Area

City of
Beaverton

Updated: September 2001
Not to Scale



Sources:

1. City of Beaverton Transportation Section TSP Study Area Data - Current as of September 2001
2. METRO Regional Land Information System Air Facility & Street Data- Current as of November 2001

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