

# Transportation Baseline Report

King City URA 6D Concept Plan  
King City, Oregon



FINAL  
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**SCJ ALLIANCE**  
CONSULTING SERVICES

# Final Transportation Baseline Report

## Project Information

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# 1. INTRODUCTION AND BACKGROUND

This technical report is one of several that are being prepared to support development of a Concept Plan for the King City Urban Reserve Area (URA) 6D. The Concept Plan is being prepared consistent with the requirements of Metro's *Regional Functional Plan, Title 11*, and must be completed and accepted prior to a decision on including the URA in the regional Urban Growth Boundary (UGB). The Concept Plan will address issues related to future urban development in the URA including designated land uses, required infrastructure, supportive economic analysis, financing, and identification of governmental implementation responsibilities.

The URA is located in unincorporated Washington County, immediately west of the existing King City limits, south of the City of Tigard, northwest of the City of Tualatin, and north of the City of Sherwood. The URA is bounded by Beef Bend Road to the north, existing King City limits to the east, the Tualatin River to the south and Roy Rogers Road to the west. The location of the URA is illustrated in **Figure 1-1**.

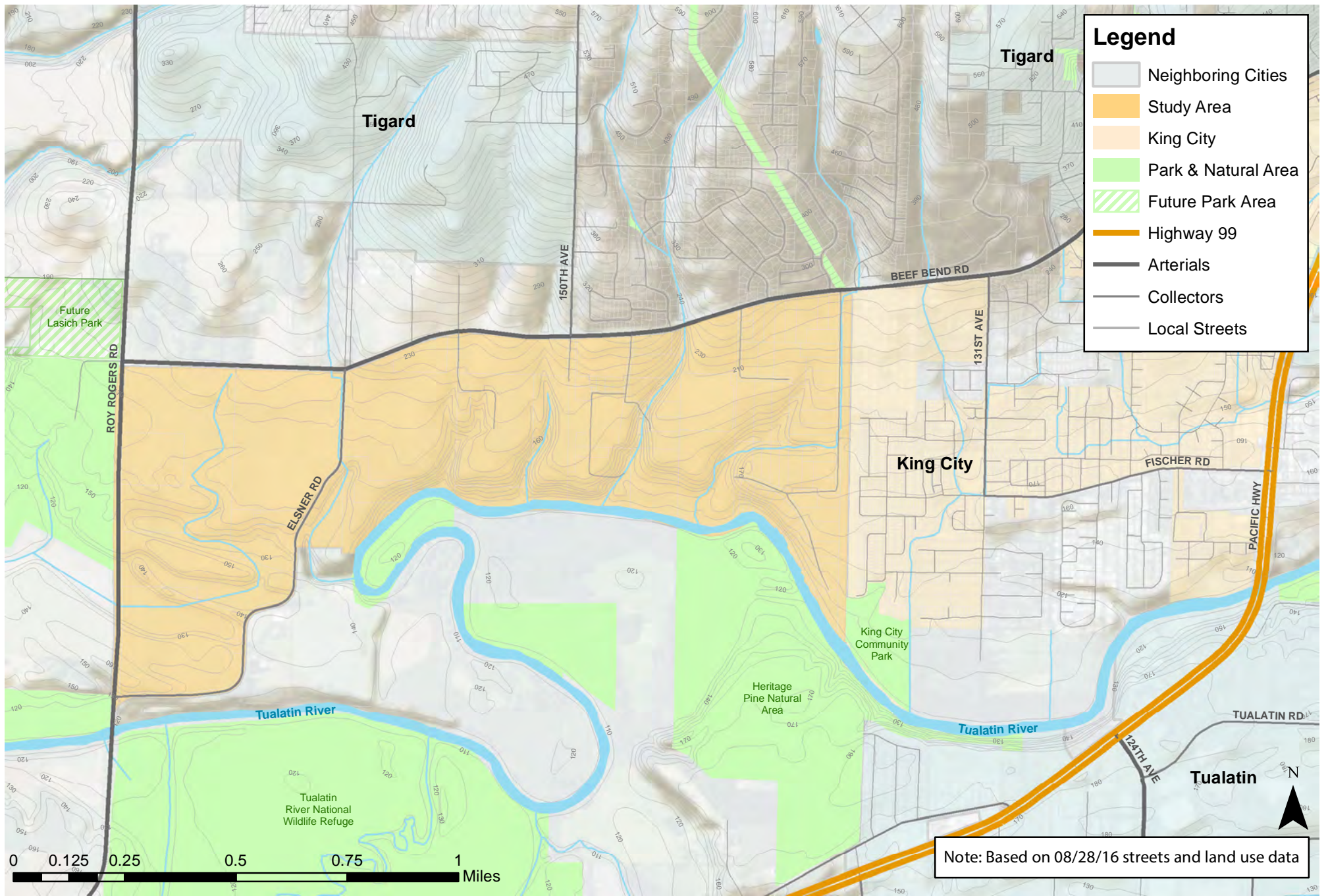
The purpose of this technical report is to summarize existing and projected future transportation and traffic conditions in the vicinity of the King City URA. This baseline conditions analysis will be used to guide planning for future multimodal transportation facilities within the URA, and to assess potential transportation implications of development in this area on the larger multimodal system.

King City does not currently have an adopted Transportation System Plan (TSP) as most of the major roads within the City are owned and operated either by the County or the Oregon Department of Transportation (ODOT). The City's transportation responsibilities are largely limited to local streets. The City relies on the policy direction and recommendations of the Washington County TSP to guide development and management of its transportation system. This may change with development of the URA Plan including identification of new collector streets and the possible extension of Fischer Road or other local streets into the URA.

The major roads adjacent to and serving the URA are also owned and operated by the County and include both arterials (Roy Rogers and Beef Bend Roads), and collectors (Elsner Road, Fischer Road and 131<sup>st</sup> Avenue). Thus, it will be important for the King City URA Concept Plan to address issues and needs on these and possibly other County roads that may be directly affected by development in the URA. However, the Concept Plan must also address the City's need for collector level streets and other multimodal facilities within the URA to achieve the area's overall vision for development.

Key components of the multimodal transportation system analysis that is addressed in this report include:

- Multi-modal transportation goals and policies
- Street and roadway system characteristics including existing facilities, travel patterns and operations, safety, future recommended facilities, and expected 2035 traffic operations
- Pedestrian Facilities including existing/proposed sidewalks and trails
- Bicycle Facilities including existing/proposed on-street facilities and trails
- Transit service including bus routes and park-and-ride facilities in the vicinity of the URA





## 2. REVIEWED DOCUMENTS AND PLANS

Numerous State, regional and local documents and plans were reviewed in the development of this report. These are listed and briefly described in this chapter.

### 2.1 STATE DOCUMENTS AND PLANS

Plans and other relevant documents prepared and/or adopted by the State of Oregon including the Oregon Department of Transportation (ODOT) that were reviewed include the following:

**Oregon Highway Plan (OHP)** – The OHP is the primary policy document governing planning and operation of the state’s highway system, which includes 99W through King City.

**Oregon Bicycle and Pedestrian Plan** – Serves as the planning and design manual for pedestrian and bicycle transportation in Oregon and is used to implement the actions recommended in the *Oregon Transportation Plan*. The technical section of the plan was updated in October 2010 and re-titled as the Bicycle and Pedestrian Design Guide to offer a greater level of guidance on the provision of bicycle and pedestrian facilities.

**State Transportation Improvement Program, Draft 2016-2016** – When adopted by the Oregon Transportation Commission, this document outlines the highway system improvements that will be constructed by ODOT during the coming biennium.

**Statewide Planning Goals** – These goals guide all land use and transportation planning in Oregon. Amendments to the King City *Comprehensive Plan* and Community Development Code to implement recommendations of the King City URA Concept Plan will require consistency with statewide goals.

### 2.2 REGIONAL DOCUMENTS AND PLANS

Plans, codes and other relevant documents prepared and adopted by Metro that were reviewed include the following:

**Metro Regional Transportation Plan (RTP)** – This region-wide plan provides general guidance about accommodating multimodal transportation needs on major streets and highways in the region – particularly 99W, Roy Rogers Road and Beef Bend Road. The RTP also identifies 24 regional mobility corridors in the region where travel movement is particularly important and should be facilitated to meet the RTP performance standards. The mobility corridor framework requires consideration of multiple facilities, modes, and land use when identifying transportation solutions for these key corridors. Particularly relevant to the King City URA is Regional Mobility Corridor #20 along Highway 99W from Tigard to Sherwood.

**Metro Regional Functional Plan (RFP)** – This plan includes land use guidance for the preparation of Concept Plans for Urban Reserve land prior to an Urban Growth Boundary (UGB) expansion (Title 11).

**Metro Regional Transportation Functional Plan (RTFP)** – The RTFP implements the goals, objectives and policies of the RTP and its constituent modal plans which are carried out by the cities and counties of the region in their plans and development regulations. Due to its small size and lack of jurisdiction over any

major streets, Metro granted King City an exemption from the requirements of the RTFP. However, it would be desirable for the city to comply with many of the RTFP provisions regarding multimodal transportation system design and coordinated transportation and land use planning.

**Metro 2040 Growth Concept** – The 2040 Growth Concept establishes a regional connection between urban form and transportation based on efficient use of land and a safe, efficient, cost-effective and multimodal transportation system that supports the identified land use concepts. The 2040 Plan designates King City near the intersection of Beef Bend Road with Highway 99W as a “town center.” The King City URA 6D was also designated in the 2040 Plan.

**Metro Westside Trail Master Plan** – This plan lays out a detailed concept for establishing a 25-mile regional trail between the Willamette and Tualatin Rivers on the west side of the Portland Metropolitan Area. When complete, the trail will provide a high quality connection between the communities of King City, Tigard and Portland for recreational and commuter bicyclists, pedestrians and, in some areas, equestrians. The trail will enhance local pedestrian and bicycle connectivity. The development of the trail will also pioneer a new concept for the region’s network of bicycle and pedestrian routes – the explicit use of the trail corridor for enhancing and preserving wildlife habitats and movements.

**Metro Tualatin River Greenway** – As proposed by Metro, this trail would follow the path of the Tualatin River through and beyond the study area, providing easy access between the river and a series of parks in the cities of Durham, Lake Oswego, Tigard and Tualatin, as well as the Tualatin River National Wildlife Refuge. A pedestrian bridge is proposed over the Tualatin River in the vicinity of the Westside Trail to bring north and south communities together with access to the trail. The trail would also reduce the barrier that I-5 poses east of the study area for pedestrians and bicyclists.

## 2.3 WASHINGTON COUNTY DOCUMENTS AND PLANS

Plans, codes and other relevant documents prepared and adopted by Washington County that were reviewed include the following:

**Washington County Transportation System Plan (TSP)** – Washington County recently adopted an update to its TSP (November 2015) to provide guidance on the planning, maintenance and operation of the County’s multimodal transportation system. The TSP provides background information about the system and its use; current transportation goals, objectives, and strategies; designations of functional classification and number of lanes for county roads; designation of facilities for other transportation modes (pedestrian, bicycle, transit, and freight); and information on plan implementation. Particularly relevant to the King City URA are the County’s functional classification and design designations for adjacent streets under its jurisdiction including Roy Rogers Road, Beef Bend Road, Elsner Road and Fischer Road. The TSP also identifies intersection spacing/access standards and acceptable levels of traffic operational performance.

**Washington County Development Code, Article IV: Development Standards** – Provides regulatory guidance for neighborhood circulation and multimodal accessibility. These standards identify public facilities and services that are necessary at a minimum level to accommodate development.

**Washington County Development Code, Article V: Public Facilities and Services** – This code provides regulatory context for street layout and design considerations.

**Washington County Road Design and Construction Standards** – These standards provide guidance on streets cross-sections by functional classification.

## 2.4 KING CITY DOCUMENTS AND PLANS

Plans, codes and other relevant documents prepared and adopted in King City that were reviewed include the following:

**King City Comprehensive Plan** – The *King City Comprehensive Plan* provides policy guidance for development and operation of the multimodal transportation system within the city. The *Comprehensive Plan* also identifies the functional classification of several city streets and provides general guidance on street standards as these were developed for the *West King City Planning Area* (incorporated by adoption into the *Comprehensive Plan*).

**West King City Concept Plan** – Prepared for the City’s last UGB expansion in 2001, the *West King City Concept Plan* was adopted by the city and incorporated in the *Comprehensive Plan* as the West King City Planning Area. This study provides transportation planning guidance that is applicable to the new proposed expansion, as well as a city street functional classification system and street standards for selected facilities.

**King City Community Development Code (CDC)** – The CDC includes guidance on street standards and property access (16.136 Circulation and Access). Amendments to zoning and development requirements will be required to support the outcome of the URA Concept planning process.

## 2.5 OTHER DOCUMENTS AND PLANS

Documents and plans prepared and/or adopted by other agencies that were reviewed for relevance to the King City URA include the following:

**Tigard Transportation System Plan** – The *Tigard Transportation System Plan (TSP)* provides the overall transportation guidance for the city which is immediately adjacent to the URA on the north side of Beef Bend Road. Goal 3 of the TSP encourages multimodal transportation including “direct pedestrian accessibility” to transit stops. Goal 4 deals with providing safe transportation, and Goal 5 calls for inter-agency coordination regarding transportation projects, and provision of improved transit service. The TSP also provides technical information about performance of the existing and expected future transportation system, as well as recommendations for improvements.

**West Bull Mountain Concept Plan (WBMCP)** –The WBMCP was developed in 2010 by Washington County to establish a vision and blueprint for development of the West Bull Mountain Planning Area as a largely residential community. The planning area lies south of Scholls Ferry Road, straddles Roy Rogers Road at the north end and lies east of Roy Rogers Road further south. The planning area also lies west of the existing developed portion of the City of Tigard, and continues south to an area north of (but not adjacent to) Beef Bend Road. The WBMCP identifies recommended land uses, strategies for resource protection, community parks, and a multimodal transportation network consisting of walkable streets,

trails and pedestrian and bike pathways, and tree-lined streets. The West Bull Mountain Concept Plan was intended to set the stage for more detailed planning to culminate in the adoption of the West Bull Mountain community plan. Since annexation to the City of Tigard, this area is known as River Terrace.

**River Terrace Concept Plan** - River Terrace is located within the City of Tigard and on the western edge of the UGB. As shown in **Figure 2-1**, the River Terrace area lies north of the King City Urban Reserve (which is located on the south side of Beef Bend Road, east of Roy Rogers Road). River Terrace includes approximately 400 acres that is proposed largely for residential development. The Concept Plan is designed to guide development and investment over the next several decades as the area transitions from rural to urban land use to accommodate needed housing in the region. The transportation system proposed for River Terrace will provide structure and guidance to the system proposed for the King City URA as proposed north/south internal roads and access locations onto Beef Bend Road will need to be coordinated. The River Terrace street plan is shown in **Figure 2-2**.

**River Terrace TSP Addendum** – This document provides an update to the City’s 2010 TSP specific to the River Terrace study area and contributes to the city’s broader goal of completing a River Terrace Community Plan. The River Terrace TSP Addendum evaluated existing and future transportation system needs for the nearly 500 acres included in the River Terrace Community Plan study area, as well as adjacent City of Tigard Urban Reserves. The Plan addresses both local multimodal circulation needs within the River Terrace community, as well as regional needs including the major streets that provide access to/from River Terrace.

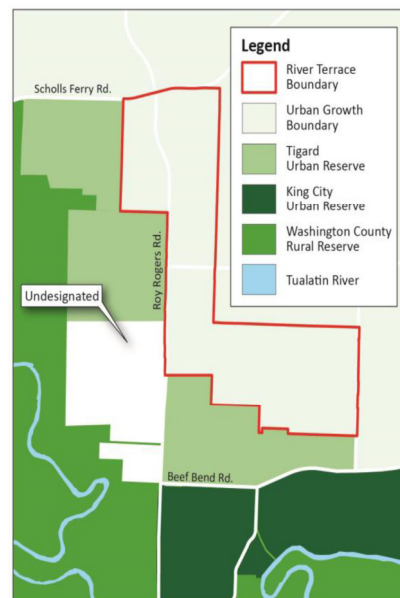
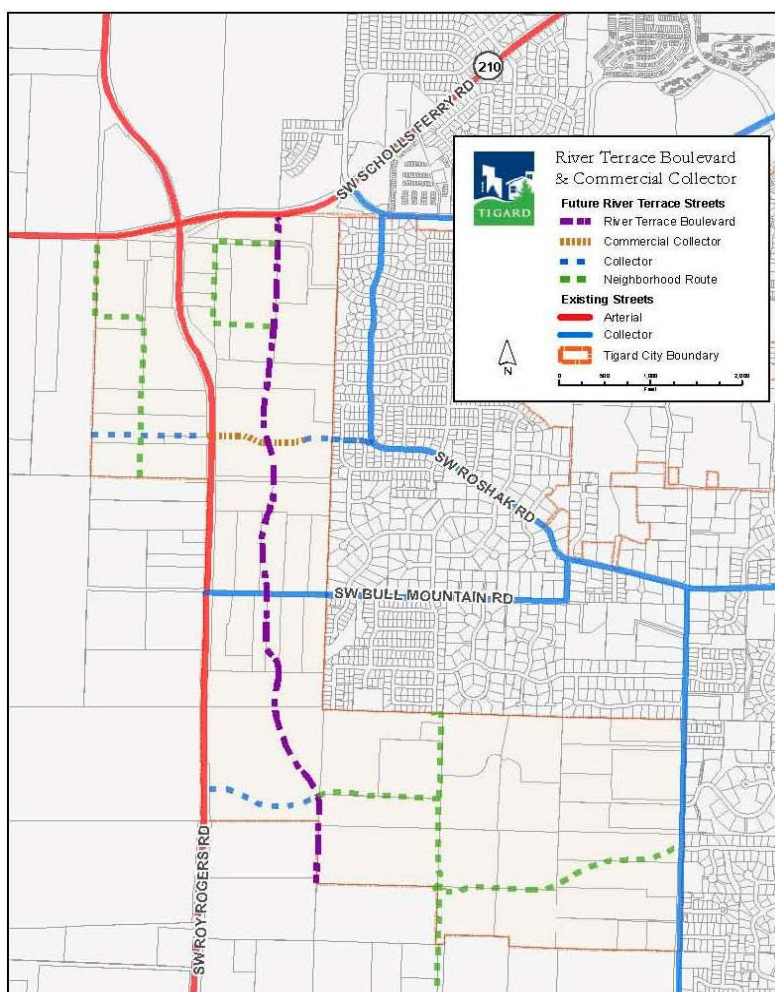


Figure 2-1. River Terrace Boundary

Figure 2-2. River Terrace Proposed Street System



**TriMet Southwest Service Enhancement Plan** – This Plan outlines a long-term vision to improve transit service in the southwestern portion of the Portland Metropolitan Area including the communities of Durham, King City, Lake Oswego, SW Portland, Tigard, Tualatin, Sherwood and West Linn. The Plan aligns future improvements to bus service with current and projected needs by recommending better transit connections, improved frequency, safer pedestrian facilities, and increased access to jobs and community services. The Plan identifies:

- Near-term service enhancements that can be made with little or no additional cost
- Long-term service improvements and expansion when revenues allow
- Opportunities for partnering with public and private sectors to improve access to transit including walking and biking to the bus and WES.

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## 3. GOALS AND POLICIES

The transportation goals and policies of the County's TSP and the Transportation Element of the City's *Comprehensive Plan* form the vision for how the local transportation system will be developed and maintained over the next 20 years. Key goals, policy statements and action strategies related to the development of a transportation framework plan for the King City URA are described in this chapter.

### 3.1 WASHINGTON COUNTY TRANSPORTATION SYSTEM PLAN

The policy framework of the plan was organized as follows:

**Goal** - A statement that describes an ideal condition that the City desires to attain over time for various aspects of the transportation system. Four specific goals are identified in the County's TSP.

**Objective** - One or more statements that are intended to outline specific measures that will be taken to achieve a goal.

**Strategies** - Discrete steps to be completed that support or enact a specific objective.

The following section lists the recommended goals, policies and actions from the Washington County TSP that are particularly relevant to preparation of the King City URA Concept Plan.

#### 3.1.1 Guiding Principles

The TSP includes four broad goals intended to provide safety, enhance community livability, protect the natural environment and support economic vitality. These four broad goals serve as guiding principles for the planning, development and operation of the transportation system throughout Washington County.

<b>Goal 1:</b>	<b><i>Safety - Provide a safe transportation system for all users.</i></b>
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**Objective 1.1** Provide a transportation system that is structurally and operationally safe for all users and all modes.

- *Strategy 1.1: Plan, engineer, design and construct the transportation system using accepted design standards that promote safety and that provide the intended multimodal function.*
- *Strategy 1.1.4: Where and when practicable, separate travel modes and minimize conflicts between and within modes.*

**Objective 1.3** Review all development proposals, including those within incorporated areas, to continue the safe operation of county roads.

- *Strategy 1.3.2: Apply access management standards as set forth in the Community Development Code (CDC) in order to reduce traffic conflicts and improve safety.*

**Goal 2: Economic Vitality - Provide a reliable transportation system that enhances the economic health of Washington County.**

**Objective 2.1** Designate a roadway freight system that facilitates the efficient movement of goods, services, and agricultural equipment.

- *Strategy 2.1.1 Coordinate planning, development, maintenance, and operation of an efficient and safe roadway freight system with the private sector, ODOT, TriMet, Metro, the Port of Portland, and the cities of Washington County.*

**Objective 2.3** Invest in transportation to encourage economic development.

- *Strategy 2.3.1 Prioritize economic development-focused transportation investments within and connecting to regional centers, industrial areas, freight and passenger intermodal facilities.*
- *Strategy 2.3.3 Recognize the economic benefits that active transportation and transit investments have for recruiting and retaining businesses and employees, and facilitate these investments appropriately.*

**Goal 3: Livability - Preserve and enhance Washington County's quality of life for all residents, workers and visitors.**

**Objective 3.1** Strive to maintain and enhance the livability of existing and future communities and neighborhoods.

- *Strategy 3.1.1 When considering transportation improvements that create new, expanded or extended roadways, evaluate and balance the needs of the traveling public with the livability and viability of neighborhoods, business districts, agricultural areas, historic places and other cultural resources.*
- *Strategy 3.1.2 Strive to limit inappropriate through-traffic and speeding in residential areas using the Neighborhood Streets Program, while maintaining adequate neighborhood and emergency access.*
- *Strategy 3.1.3 Consider low-impact strategies to improve traffic flow including appropriate lane-markings, safety improvements, roundabouts and other operational devices.*
- *Strategy 3.1.4 Identify scenic view corridors and vistas and strive to maintain and enhance these visual resources for residents and users of the transportation system.*

**Objective 3.2** Coordinate transportation and land use planning.

- *Strategy 3.2.1 Plan and provide a multimodal transportation system that encourages the land uses, mixes and densities indicated in the Comprehensive Plan, community plans and/or other applicable, adopted land use plans.*
- *Strategy 3.2.2 Plan for the anticipated multimodal travel demand generated by proposed development within and near Washington County.*
- *Strategy 3.2.3 Explore opportunities to further improve accessibility, including jobs/housing balances, through integrated transportation and land use solutions.*

**Goal 4: Natural Environment - Create and maintain a transportation system that first avoids, then minimizes, then mitigates impacts to the natural environment.**



**Objective 4.2** Reduce and/or mitigate negative impacts of the transportation system on the natural environment.

- *Strategy 4.2.1 Identify and first avoid, then limit and/or mitigate adverse impacts of transportation projects on mapped Significant Natural Resources.*

### 3.1.2 Roadway Goals, Objectives and Strategies

**Goal 5: Mobility – Promote the efficient and cost-effective movement of people, goods and services by all modes.**

**Objective 5.1** Provide a county roadway system that is cost-effective, designed to operate efficiently, and serves all travel modes.

- *Strategy 5.1.1 Recognize that the functional classification system represents a continuum in which through traffic increases and provisions for vehicle access decrease in the higher classification categories. Designate a roadway Functional Classification Map utilizing some or all of the following criteria for defining or modifying the functional classification.*
- *Strategy 5.1.2 Determine ultimate street design requirements and street profile for development review and/or public improvement based on the Functional Classification Map designation ... and utilize the Pedestrian System Map, the Bicycle System Map, and the Lane Numbers Map to determine the appropriate right-of-way dedication and design treatment applicable within the currently adopted roadway standards.*

**Objective 5.3** Utilize the Interim Washington County Motor Vehicle Performance Measures to manage congestion.

- *Strategy 5.3.1 Provide a transportation system that accommodates travel demand consistent with applicable performance standards for all modes of travel where feasible.*
- *Strategy 5.3.5 Help provide a roadway system that addresses travel demand associated with anticipated new development or redevelopment, by applying appropriate access management standards as defined and required within the Community Development Code (CDC).*
- *Strategy 5.3.6 Recognize that flexibility is necessary and it may not be desirable or practicable to meet the interim level-of-service standard in all cases.*

**Goal 6: Accessibility – Provide safe and efficient access to destinations within Washington County.**

**Objective 6.1** Provide an accessible, multimodal transportation system that meets the needs of the community.

- *Strategy 6.1.1 Coordinate with private and public developers and the public to provide access via a safe, efficient, and appropriately balanced system of complete streets.*
- *Strategy 6.1.5 Consider measures to increase the accessibility of essential destinations.*
- *Strategy 6.1.6 Encourage the development of appropriate multimodal connections within destination areas.*
- *Strategy 6.1.7 Consider all abilities and travel options when planning, designing and implementing transportation improvements.*

- *Strategy 6.1.8 Provide adequate access for emergency service vehicles throughout the system.*

**Goal 7: Connectivity – Provide improved and new transportation connections within and between developed and developing areas.**

**Objective 7.1** Provide an interconnected transportation network that offers multi-modal travel choices and minimizes out-of-direction travel for all modes.

- *Strategy 7.1.1 Require development to provide an interconnected local street system, as set forth in the Community Development Code and/or Community Plans, including a pedestrian and bicycle network. Require accessways in locations where street connections are undesirable or impracticable.*
- *Strategy 7.1.2 Require development to provide connections to established or planned accessways, trails, easements and other non-motorized facilities.*
- *Strategy 7.1.3 Require development to address connectivity standards on lands designated on the local street connectivity maps and/or within areas designated as transit oriented districts.*
- *Strategy 7.1.5 Encourage the off-street trail networks to be integrated with on-street pedestrian and bicycle facilities.*

### 3.1.3 Active Transportation Goals, Objectives and Strategies

**Goal 8: Active Transportation – Create a built environment that encourages safe, comfortable and convenient active transportation options that are viable for all users.**

**Objective 8.1** Provide an integrated network of “complete streets” that safely and comfortably accommodate road users of all ages and abilities, including people walking, cycling, using mobility devices, taking transit and driving.

**Objective 8.2** Provide a pedestrian network that is safe, comfortable and convenient for people of all ages and abilities.

- *Strategy 8.2.3 Inside the Urban Growth Boundary, require that sidewalks are constructed along new or improved streets and along street frontages of new developments.*

**Objective 8.3** Expand and improve the quality of bicycling infrastructure.

**Objective 8.4** Assist partners in developing and maintaining an off-street trail and accessway network that serves both recreational and transportation functions

- *Strategy 8.4.1 Require new development and redevelopment to provide adequate neighborhood connectivity by constructing public accessways, both within the site and connecting to adjacent land uses, in cases where street connections are not possible or not desired.*
- *Strategy 8.4.2 Ensure that new development and redevelopment does not preclude implementation of the planned off-street trail network shown in the TSP.*

**Objective 8.5** Improve access to and encourage the enhancement of transit service in Washington County.

- *Strategy 8.5.2 Coordinate with TriMet and other transit providers in their efforts to provide new or improved transit service to underserved locations in the urban area where concentrations of households, jobs or transit-dependent populations may warrant better service.*

### 3.2 KING CITY COMPREHENSIVE PLAN, TRANSPORTATION ELEMENT

The King City *Comprehensive Plan* was adopted in 1991 and has been amended several times since then to update background information, comply with state and Metro requirements, and to include amendments related to the West King City Planning Area. The plan goals and policies are generally organized according to the Oregon Statewide Planning Goals with Goal 12 being related to the transportation system. At the statewide level, Goal 12 requires that cities provide and encourage safe, convenient and economic transportation systems through the development of transportation system plans. Goal 12 is implemented through OAR 660, division 12, Transportation Planning Rule (TPR) which contains requirements governing transportation planning and project development. Goal 12 as paraphrased in the City's *Comprehensive Plan* is defined below.

***Goal 12: Transportation - Provide a Safe, Convenient, and Economic Transportation System including supporting policies calling for agency coordination, multimodal transportation, accommodating special transportation needs, and safe facilities.***

Implementing Policies direct the City to create a transportation system which:

1. Is coordinated with other agencies including the Oregon Department of Transportation, Washington County, city of Tigard, TriMet and Metro;
2. Provides suitable facilities for all modes of transportation including walking, bicycling and transit;
3. Provides for special needs for individuals who do not have ready access to automobiles or transit; and
4. Encourages the use of other transportation alternatives to the automobile by providing improvements to facilities, amenities and programs.

### 3.3 WEST KING CITY PLANNING AREA GOALS

The City's last UGB expansion occurred in 2001 with the addition of URA #47 on the west side of the, then, existing city limits. This area was bounded by Beef Bend Road on the north, 131<sup>st</sup> Avenue on the east, the Tualatin River on the south, and the BPA power alignment east of 137<sup>th</sup> Avenue on the west. Transportation goals and policies adopted for this area as part of the Concept Plan are highlighted below.

#### **Transportation**

13. Design the street system to direct through traffic to collector and arterial streets.
14. Reduce traffic congestion by:
  - Providing direct and convenient access to transit stops and park-and-rides;
  - Designing new streets to meet Metro connectivity requirements;

- Limiting the use of private streets, because they generally discourage street connectivity between properties; and
  - Providing direct, safe, and convenient pedestrian and bicycle connections to important destinations in the King City area.
15. Provide transportation facilities and improvements to accommodate increasing demand associated with new development.
  16. Provide transportation improvements, which are consistent with the *Regional Transportation Plan*, the *Washington County Transportation System Plan*, and the *Neighborhood Circulation Plan Map* (Figure 5 in the *West King City Concept Plan*).
  17. Design transportation system improvements to be consistent with those described in the *Plan Implementation - Transportation* section.
  18. Support Metro 2040 regional non-SOV (single occupancy vehicle) modal targets of forty-five to fifty-five percent for town centers (city center area) and corridors (along SW Pacific Highway) and forty to forty-five percent for inner neighborhoods (city residential areas).

## 4. STREETS AND ROADS

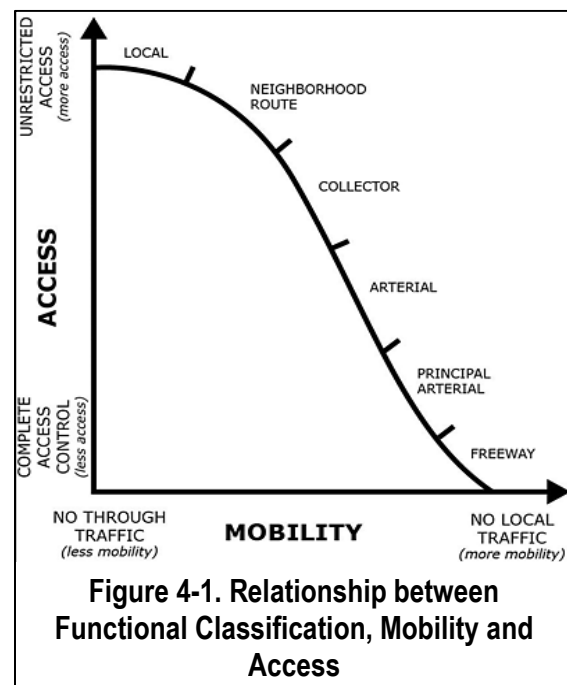
This chapter presents detailed information about the existing street and roadway system, and its existing patterns of use and deficiencies. A discussion of future (2035) roadway needs and improvements recommendations based on the TSP is included in Section 8. Included in this chapter is information related to the following:

- Functional Classification of Streets
- Street Jurisdiction
- Roadway Design Characteristics (including cross-sections, local street connectivity, street grades and green streets)
- Existing Street Characteristics (including pavement condition, speeds and intersection traffic control)
- Existing Traffic Volumes
- Existing Traffic Performance
- Existing Traffic Safety

### 4.1 FUNCTIONAL CLASSIFICATION OF STREETS

The functional classification system is designed to serve a variety of transportation needs within the community ranging from short local trips to longer distance regional trips. The classification of a road or street relates to the predominate type of trip it serves (i.e., local, community or regional) and addresses the competing functional nature of roadway facilities as they relate to access, mobility, multi-modal transport, and facility design for these different types of trips. The goal of selecting functional classes for particular roadways is to provide a suitable balance of these four competing objectives that range from a high degree of through movement with little property access (arterials) to a high degree of local property access with minimal through movement (i.e., local street). **Figure 4-1** illustrates the balance between mobility and accessibility by road classification.

Within the vicinity of the King City URA functional classification definitions for arterial and collector streets have been excerpted from the Washington County TSP since these types of facilities are all county roads. Definitions for collector have also been excerpted from the King City *Comprehensive Plan* as developed for the West King City Planning Area, as have definitions for neighborhood collector and local streets.



### 4.1.1 Washington County TSP Definitions

**Principal Arterials** form the backbone of the road network and are generally labeled freeways and highways. These routes connect over the longest distance (miles) and are spaced less frequently than other arterials. These freeways and highways generally span several jurisdictions and can have statewide importance. At a minimum, highways that are classified by ODOT as Interstate or Statewide Highways are considered principal arterials. General characteristics of principal arterials can include:

- Freeways have the highest level of access control, including grade separated interchanges. No at-grade driveways or connections are allowed.
- Highways generally have limited at-grade connections.

Freeways and highways provide connections for the movement of people, services and goods between the central city, regional centers and destinations beyond the region.

Principal arterials that are not freeways are managed to minimize the degradation of capacity while providing limited access to abutting properties.

**Arterial Streets** interconnect with the principal arterial highway system. Arterials provide general mobility for travel throughout Washington County and into neighboring counties. Correctly sized arterials at appropriate intervals (generally at approximately one mile spacing) allow through trips to remain on the arterial system and discourage the use of local streets for cut-through traffic. Arterial streets link major commercial, residential, industrial and institutional areas. General characteristics of arterials may include:

- Arterials serve as primary connections to principal arterials and connect to other arterials, collector and local streets, where appropriate.
- Arterials in the rural area provide connections to neighboring cities and farm-to-market access between urban and rural areas. Most rural arterials serve a mix of rural-to-urban and farm-to-market traffic. In some cases, rural arterials, especially in rural/urban fringe areas, accommodate significant amounts of urban-to-urban through-traffic during peak commuting time periods. This is not the intended function of the rural arterial designation and is often the result of congestion on urban arterials.
- Arterials may provide for freight movement similar to principal arterials.
- Arterials have moderate access control for cross streets and driveways. Typically, residential driveways are not allowed access to arterials.

**Collector Streets** provide both access and circulation between residential, commercial, industrial and agricultural community areas and the arterial system. As such, collectors tend to carry fewer motor vehicles than arterials, with reduced travel speeds. Collectors may serve as freight access routes providing local connections to the arterial network. General collector characteristics can include:

- Collectors connect neighborhoods to nearby centers, corridors, station areas, main streets and nearby destinations in the urban area. Land development should not be sited to obstruct the logical continuation of collector streets.

- In the rural area, collectors are a primary link between the local street system and arterials for freight, people, goods and services.
- Access control on collectors is lower than on arterials. Commercial, industrial, and institutional uses will be eligible for direct access to collectors in accordance with provisions of Article V of the County's Community Development Code. Direct access to new residential lots is not permitted.

#### 4.1.2 King City Comprehensive Plan Definitions

Three different street classifications were defined for use within the West King City Planning Area to accommodate vehicular, pedestrian, and bicycle movement. These classifications were subsequently incorporated into the City's *Comprehensive Plan*.

**Collector Street** - The primary purpose of a collector street is to collect and distribute traffic between local and neighborhood collector streets and the area's regional transportation system.

**Neighborhood Collector Street** - The primary purpose of a neighborhood collector street is to provide access to residential neighborhoods. A neighborhood collector has a similar width and design to a local residential street, and the primary difference is a partial limitation of direct driveway access to the street from adjoining properties. The neighborhood collector street has a curb-to-curb pavement width of 36 feet. The desired range of daily traffic volume (ADT) for this street classification is 1,000 to 3,000 vehicles. Based on average trip generation for a single family home of ten trips per day (in and out), no more than 300 residences should totally rely upon one neighborhood collector for access.

**Local Street** - The primary purpose of this street type is to provide access to abutting properties. The design is intended to encourage slow traffic speeds and low traffic volumes, provide on-street parking, and accommodate local neighborhood traffic. There are three local street designs with curb-to-curb pavement widths including: 32, 28, and 22 feet (no on-street parking in the last width). The two narrower options are intended for local streets that will have modest traffic and parking demand. Alleys may also be used to provide access to garages in the rear. The desired maximum ADT for this street classification is 1,200 vehicles. Because single family residences in suburban locations typically generate approximately ten daily trips per unit, local streets should not have more than 120 residences that totally rely upon one local street for access.

#### 4.1.3 Existing Street Functional Classification in Study Area

The existing functional classification of streets in King City study area as adopted in either the County's TSP or the City's *Comprehensive Plan* is presented in Table 4-1. Any street not designated as either an arterial, collector, or neighborhood route is considered a local street. Since most of the streets within or near the study area are under the jurisdiction of Washington County, most of these streets follow the County's classification system. In a few instances, the City street classification is also identified. Table 4-1 table also includes information about the number of travel lanes planned to be provided on each of these streets.

**Table 4-1. Classification of Major Study Area Streets**

Street	Functional Classification		Planned Lanes
	King City	Washington County	
Oregon 99W (SW Pacific Hwy)	--	Principal Arterial	5
Roy Rogers Road	--	Arterial	4/5
Beef Bend Road	--	Arterial	2/3
Elsner Road	--	Collector	2
150 <sup>th</sup> Avenue	--	Collector	2
146 <sup>th</sup> Avenue	--	N'hood Route	2
131 <sup>st</sup> Avenue north of Fischer Road	Collector	Collector	2
131 <sup>st</sup> Avenue south of Fischer Road	Collector	N'hood Route	2
Fischer Road east of 131 <sup>st</sup> Avenue	Collector	Collector	2

Source: Washington County 2015 TSP and King City West Concept Plan

## 4.2 STREET JURISDICTION

Roadway ownership and maintenance responsibilities of the various roads throughout the study area are identified in Table 4-2. The arterial and street system is primarily owned and operated by Washington County, with the exception of Highway 99W (SW Pacific Highway) which is owned and operated by ODOT. The Washington County TSP identifies potential jurisdictional transfers for many of the existing collector streets and neighborhood routes. These potential transfers are also indicated in the table.

**Table 4-2. Roadway Jurisdictional Ownership**

Street	Current Jurisdiction	Long-Term Jurisdiction
Oregon 99W (SW Pacific Highway)	Oregon Dept. of Transportation	Oregon Dept. of Transportation
Roy Rogers Road	Washington County	Washington County
Beef Bend Road	Washington County	Washington County
Elsner Road	Washington County	Other
150 <sup>th</sup> Avenue	Washington County	Other
146 <sup>th</sup> Avenue	Washington County	Other
131 <sup>st</sup> Avenue	Washington County	Other
Fischer Road	Washington County	Other

Source: Washington County TSP, 2015.

## 4.3 ROADWAY DESIGN CHARACTERISTICS

Design characteristics of roads in the King City URA were developed as part of the Washington County TSP and articulated in the County's Road Standards. Because the actual design of a roadway can vary, the objective was to define a system that allows standardization of key characteristics for each functionally-classified facility to provide consistency, but also to provide criteria for some flexibility, while meeting standards. This section highlights key design parameters including street and right-of-way widths, street cross-sections, requirements for local connectivity and grades. In addition, guidance for the development of Green Streets consistent with regional policy is also provided.



**Table 4-3. Design Parameters for Major Study Area Streets**

Street	Lanes	Bike Lanes	Max. ROW	Max. Paved Width
Oregon 99W	5	Yes	170-230 feet	100-115 feet
Roy Rogers Road	5	Yes	98 feet	74 feet
Beef Bend Road	3	Yes	90 feet	50 feet
Elsner Road	2	Yes	74 feet	50 feet
150 <sup>th</sup> Avenue	2	Yes	74 feet	50 feet
146 <sup>th</sup> Avenue	2	No	60 feet	36 feet
131 <sup>st</sup> Avenue north of Fischer Road	2	Yes	74 feet	50 feet
131 <sup>st</sup> Avenue south of Fischer Road	2	No	60 feet	36 feet
Fischer Road east of 131 <sup>st</sup> Avenue	2	Yes	74 feet	50 feet

Source: Washington County 2015 TSP and King City West Concept Plan

### 4.3.1 Street Cross-Sections

**Figures 4-2 to 4-7** depict sample street cross-sections and design criteria for arterials, collectors, neighborhood routes and local streets. The most common roadways in the King City URA are two, three and five lanes wide. Where center left turn lanes are identified, the actual design of the street may include sections without center turn lanes or with median treatments, where feasible. The actual treatment will be determined within the design and public process for implementation of each project. Specific right-of-way needs must be monitored continuously through the development review process to reflect current needs and conditions.

The City of King City will need to coordinate with regional agencies to assure consistency in cross-section planning with the Washington County *Transportation System Plan* for roadways under the County's jurisdiction.

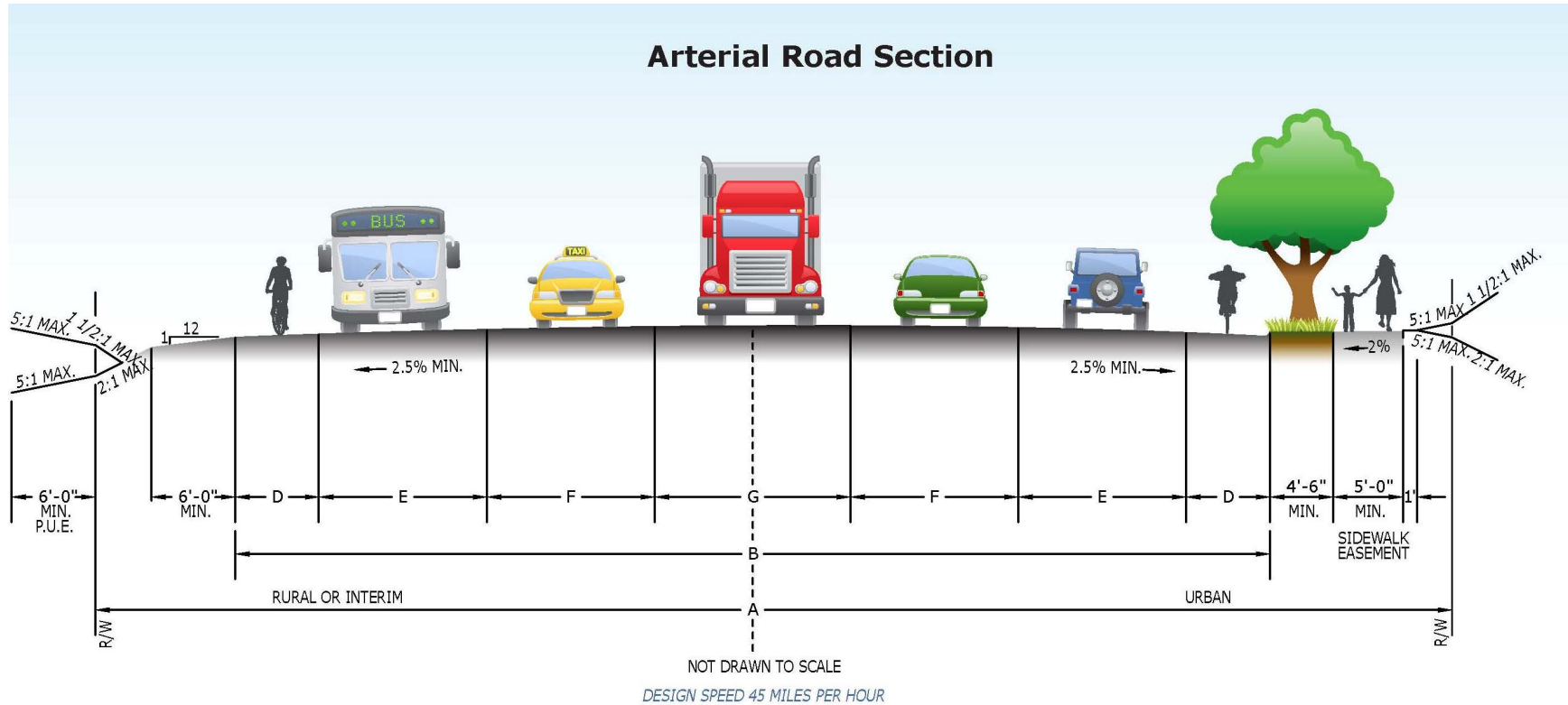
### 4.3.2 Local Street Connectivity

Much of the local street network within the existing King City limits is fairly well connected in a north/south direction with multiple access opportunities for entering or exiting most neighborhoods. Key north/south streets include Royalty Parkway (and connecting streets of King Charles Avenue and 124<sup>th</sup> Avenue), El Dorado Drive/126<sup>th</sup> Avenue, and 131<sup>st</sup> Avenue.

SW Fischer Road, a designated County collector street, provides good east/west connectivity through the existing residential portion of the city between Highway 99W and 131<sup>st</sup> Avenue. This street offers a potentially good future connection into the King City URA. The recommended functional classification of this future connection will be determined in the planning process.

There are few other east/west connections that unite existing King City neighborhoods. Particularly isolated are the mobile villages including El Dorado and King Village on the south side of the city, and Mountain View Mobile Estates in the northwest corner of the existing city. Access into, out of or through these villages provide little opportunity for connectivity with the remainder of the City.

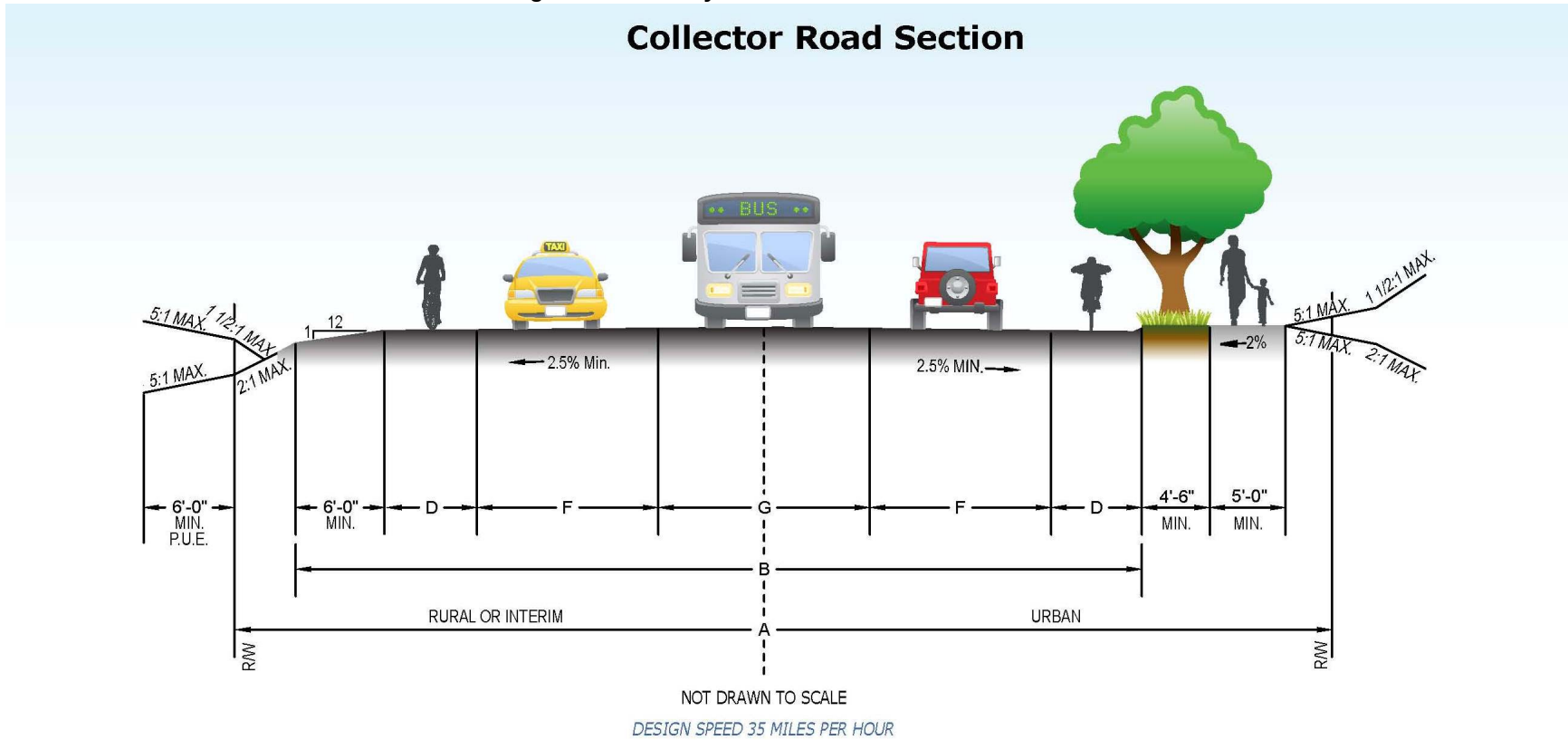
Figure 4-2. County Arterial Road Cross-Section



\*GRAVEL SHOULDERS AND DITCHES ALLOWED FOR THESE WIDTH ONLY. STANDARD INTERIM SECTION  
 ‡ P.U.E.'S REQUIRED OUTSIDE OF R/W IF SHOULDERS AND DITCHES ARE USED.

The applied "Washington County Designation" is determined by the county's transportation plan and the land use decision. See Appendices A and B for maps of County arterial roads.

Figure 4-3. County Collector Road Cross-Section



Road Classification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Number of Lanes	Bike Lane/ Paved Shoulder	Travel Lane	Center Turn Lane	Parking Allowed
Collectors		A	B		D	F	G	
	C-1	74	50	3	6	12	14	NONE
	C-2	**	36 ‡	2	6	12	0	NONE

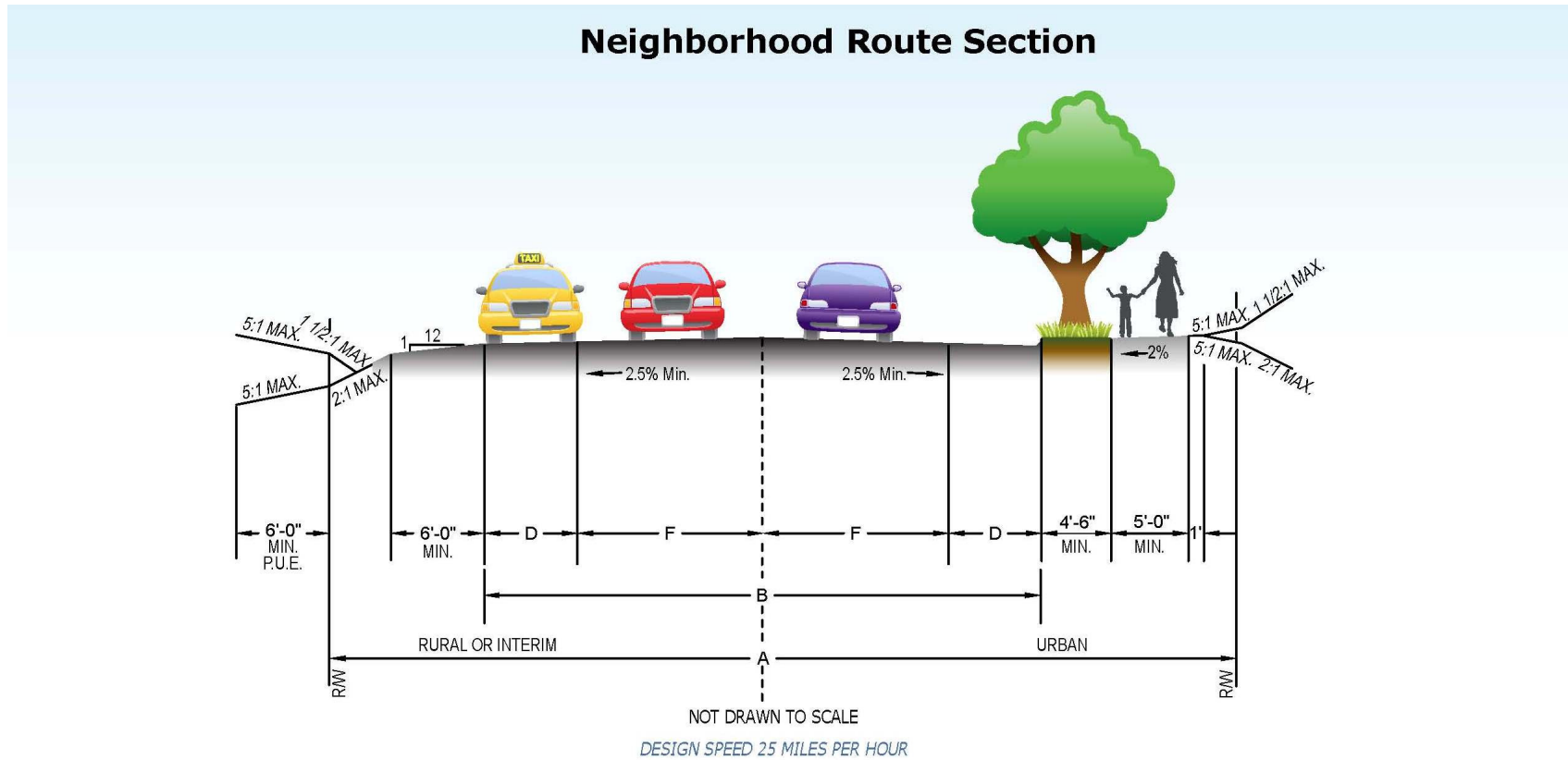
\*GRAVEL SHOULDERS AND DITCHES ALLOWED FOR THESE WIDTHS ONLY. STANDARD INTERIM SECTION

\*\* USE ULTIMATE R/W FOR PAVED WIDTH IDENTIFIED IN THE TRANSPORTATION PLAN, IF NOT KNOWN USE 74 FOOT R/W, IN RURAL AREAS 60' OF RIGHT OF WAY IS REQUIRED.

‡ P.U.E.'S REQUIRED OUTSIDE OF R/W IF SHOULDERS AND DITCHES ARE USED.

The applied "Washington County Designation" is determined by the county's transportation plan and the land use decision. See Appendices C and D for maps of County collector roads.

Figure 4-4. County Neighborhood Route Cross-Section



Road Classification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Number of Lanes	Bike Lane	Parking Lane	Travel Lane(s)	Parking Allowed
Neighborhood Routes		A	B		D	D	F	
	NR-1	60	28*±~	2	0	0	14	NONE
	NR-2	60	32*±~	2	0	8	12	ONE SIDE
	NR-3	60	36	2	0	8	10	BOTH SIDES
	NR-4	60	36	2	6	0	12	NONE
	NR-5	50 ~	28	2	0	0	14	NONE
NR-6	50 ~	32	2	0	8	12	ONE SIDE	

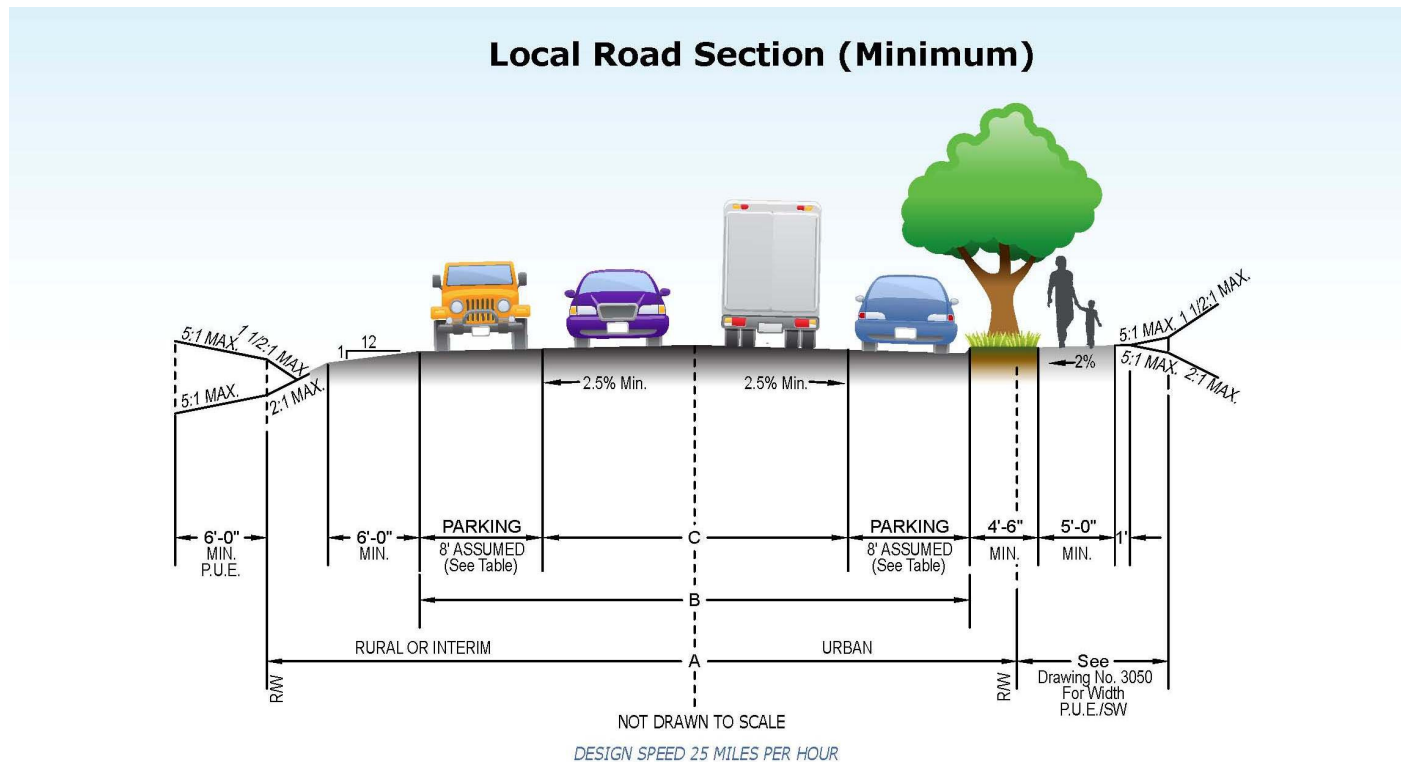
\*GRAVEL SHOULDERS AND DITCHES ALLOWED FOR THESE WIDTHS ONLY. STANDARD INTERIM SECTION.

± P.U.E.'S REQUIRED OUTSIDE OF R/W IF SHOULDERS AND DITCHES USED.

~ FOR THESE SECTIONS, 60 FEET OF R/W FOR 200 FEET FROM THE INTERSECTIONS WITH ALL COLLECTOR OR ARTERIALS SHALL BE DEDICATED AND A 36 FOOT SECTION BUILT AT SUBJECT INTERSECTIONS.

The applied "Washington County Designation" is determined by the county's transportation plan and the land use decision.

Figure 4-5. County Local Road Cross-Section



Road Classification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Traveled Way	Parking Allowed
Local Roads(Standard)		A	B	C	
	L-1	50	24*	24	NONE
	L-2	38	32	16	BOTH SIDES
	L-3	34	28***	12	BOTH SIDES
L-4	30	24	16	ONE SIDE	
Local Roads (Alternate) <sup>1</sup>	L-5	26	20	20	NONE

\* GRAVEL SHOULDERS AND DITCHES ALLOWED FOR THESE WIDTHS ONLY. STANDARD INTERIM SECTION.

\*\*\* PARKING SHALL BE PROHIBITED WITHIN 50' OF A PUBLIC STREET INTERSECTION.

1) USE OF THE DESIGN STANDARDS FOR ALTERNATE LOCAL ROADS REQUIRES APPROVAL THROUGH THE LAND USE PROCESS.

USE OF NEIGHBORHOOD TRAFFIC MANAGEMENT DEVICES ARE PERMITTED ON THE MODIFIED LOCAL ROADS AND SHALL BE PLACED AS DETERMINED THROUGH THE LAND USE PROCESS AND SHALL MEET THE STANDARDS FOR NEIGHBORHOOD TRAFFIC MANAGEMENT DEVICES AS SPECIFIED HEREIN.

The applied "Washington County Designation" is determined by the county's transportation plan and the land use decision.

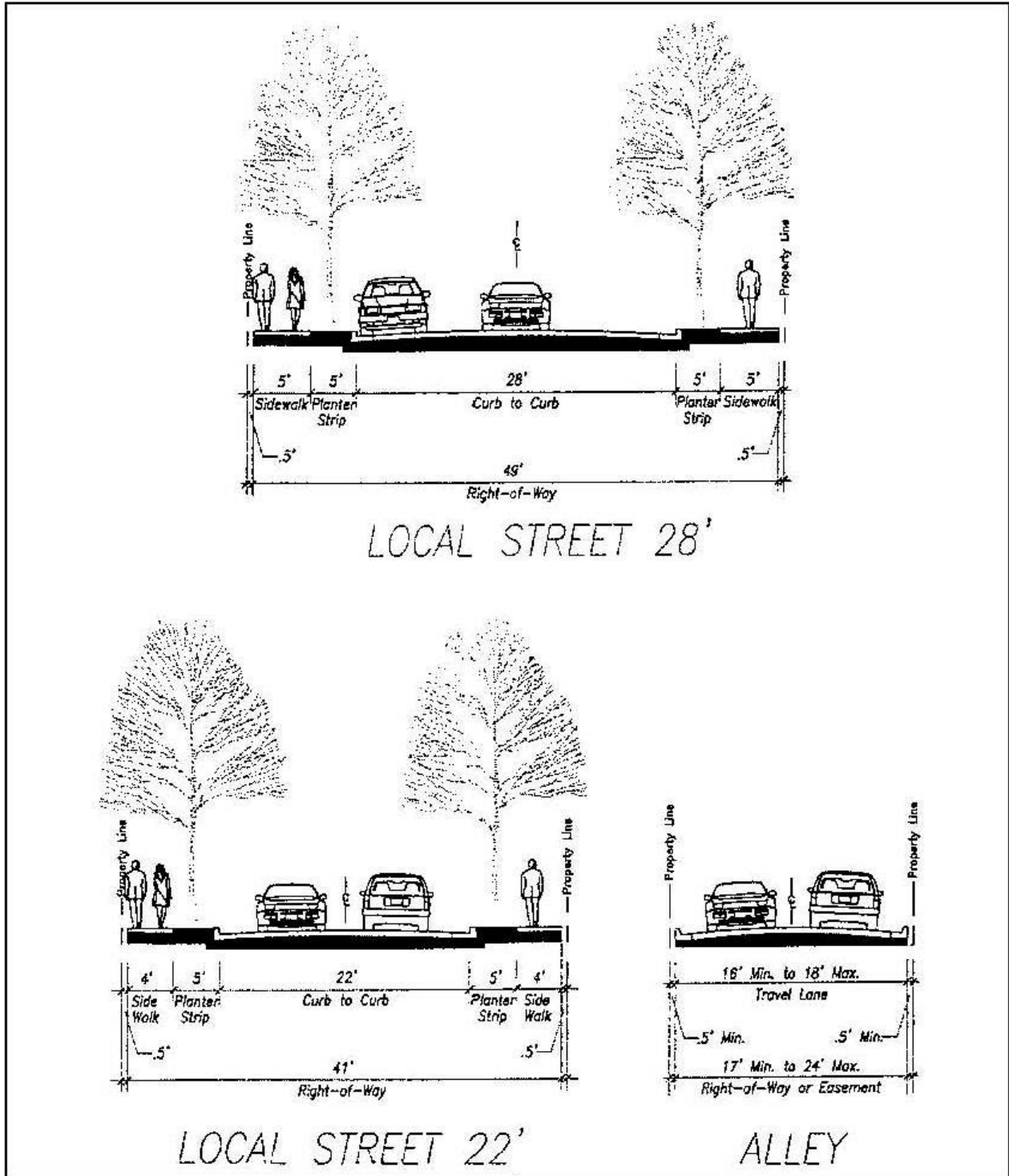
Figure 4-6. King City Neighborhood Collector and Local Street Cross-Sections



Neighborhood Street Designs

West King City Planning Area

Figure 4-7. King City Local Street Cross-Sections



Neighborhood Street Designs

West King City Planning Area

Due to the lack of connections, traffic is funneled largely onto SW Fischer Road or onto Beef Bend Road. This type of street network can result in out-of-direction travel for motorists and create an imbalance in traffic volumes. In addition to motor vehicles, direct connections contribute greatly to accessibility for pedestrians and bicyclists.

In developing a proposed road network for the URA, local street connectivity will be an important consideration. By providing good connectivity throughout the URA and into the existing city, out-of-direction travel and the need to use Beef Bend Road can be reduced. Good local road connections can reduce potential neighborhood traffic impacts by balancing traffic volumes between various streets and can mitigate capacity deficiencies by better dispersing traffic. Additionally, accessibility between various modes can be enhanced to encourage the use of non-automotive travel.

### ***Criteria for Planning Street Connectivity***

Guidance in planning for street connectivity in the King City URA can be found in many sources including the Metro *Regional Transportation Functional Plan (RTFP)*, the Washington County Community Development Code (CDC), the Washington County Road Standards, and the King City Municipal Code (KCMC) and *Comprehensive Plan (West King Planning Area)*.

***Metro Regional Transportation Functional Plan*** – Title 1 of the Metro RTFP (3.08.110) lays out criteria for planning new street construction or reconstruction to meet the objectives of the Regional Transportation Plan. The RTFP identifies the need for a network of major arterial roads on approximate one-mile spacing, and a network of minor arterial or collector streets at one-half mile spacing. Consideration in laying out these facilities is given to existing topography, constraints in built and natural environmental features, and other issues. The RTFP encourages development of a street network that is logical and direct, and that incorporates connections not only within the development but also to existing streets. Provision of direct public right-of-way routes with limited closed end street design is supported.

The RTFP requires city and/or county regulations to provide:

- Full street connections with spacing of no more than 530 feet between connections except where not reasonably practical or cost-effective.
- Bicycle and pedestrian accessways on public easements or right-of-way spaced not more than 330 feet apart where full street connections are not possible (and where not precluded for the same reasons that full street connections cannot be made).
- Full street crossings of water features protected under Title 3 every 800 to 1,200 feet, or bicycle and pedestrian crossings every 530 feet unless habitat quality or the length of the crossing prevents a full street crossing.
- Limitations on cul-de-sacs or other closed-end streets to a length of 200 feet and serving no more than 25 dwellings.

***Washington County Community Development Code (CDC)*** – The CDC provides standards for managing access along roads under the County’s jurisdiction (section 501-8.5 B). Pertinent for arterial and collector roads in the study area are the following:



- Arterials - Direct access to arterial roads shall be from collector or other arterial streets. Exceptions for local streets and private accesses may be allowed if collector or arterial access is not available. The spacing of direct access onto an arterial should not be less than 600 feet from any intersection or other access.
- Collectors - All commercial, industrial and institutional uses with one hundred fifty (150) feet or more of frontage will be permitted direct access to a Collector. Uses with less than one hundred fifty (150) feet of frontage shall not be permitted direct access to Collectors. New Collector Street alignments identified in the TSP may be adjusted within the subject property, as approved by the County Engineer.
- For those block faces that are more than 600 feet in length on an arterial or collector, an accessway for pedestrian and bicycle circulation must be provided every 400 feet. Within designated "Connectivity Lands," these maximums are reduced to 530 and 330 feet. As indicated in the TSP, these standards may result in pedestrian crossing demand where local streets and accessways meet the arterial/collector. While R&O 10-107 may still allow a crossing within 300 feet of a signalized intersection, the CDC requirement essentially establishes a de facto minimum spacing of 600 feet between arterial pedestrian crossings.

**Washington County Road Standards** – The Road Standards provide specific guidance on the design and development of cul-de-sac or other closed end roads. Cul-de-sacs will be allowed only on local roads and commercial/industrial roads. Cul-de-sacs shall not be more than six hundred (600) feet in length.

**King City Municipal Code (KCMC)** – The KCMC (section 16.212) establishes requirements for local street connectivity in neighborhoods consistent with the Transportation Planning Rule and Title 6, Section 3 of the Metro *Urban Growth Management Functional Plan*. The same section of the KCMC establishes the following criteria related to block size and access spacing:

1. Block lengths for local and collector streets shall not exceed 530 feet between through streets.
2. The total length of a perimeter of a block for local and collector streets shall not exceed 1,800 feet between through streets, measured along the nearside right-of-way line.
3. Streets shall connect to all existing or approved public stub streets that abut the developing area.
4. Within the West King City Planning Area, the KCMC required that street system design include a minimum of two future local street connections to SW 137th Avenue and a minimum of one future local street connection to the property presently occupied by the Mountain View Mobile Estates manufactured home park. The Code indicates that the northern street shall be dedicated or otherwise reserved for future public street use.
5. While an interconnected street system is required, local street systems should be designed to discourage motorists traveling between destinations that are outside of the neighborhood being served by the local streets.
6. Cul-de-sacs and permanent dead-end streets are prohibited except where construction of a through street is found to be impractical. When cul-de-sacs are allowed, they shall be limited to 200 feet and no more than 25 dwelling units unless a modification is justified.

7. A circulation analysis is required in conjunction with site plan review, conditional use, partition and/or subdivision application to show proposed location of streets and accessways in the vicinity of the development site.

The code also indicates that for blocks abutting an arterial or major collector and exceed lengths of five hundred thirty feet, an accessway shall be provided to connect streets for every 330 feet of block length or portion thereof.

**West King City Planning Area** – This portion of the *Comprehensive Plan* identified an extension of SW Fischer Road west of 131<sup>st</sup> Avenue as the primary access route connecting the planning area to the remainder of the city. East of 131<sup>st</sup> Avenue, Fischer Road is designated as a collector street; while to the west the *Comprehensive Plan* designated this street as a local road. This street could not connect with 137<sup>th</sup> Avenue since this facility was located outside of the UGB. Such a connection would require an exception from the Transportation Planning Rule (OAR 660-12-065) to allow the use of a rural local road by urban development within the UGB.

The *West King City Planning Area study* noted that the UGB may be expanded at a future date to include SW 137th and land to the west, thereby allowing access from the West King City Planning Area. The street system design for development in the West King City Planning Area allowed for at least two future local street connections to SW 137<sup>th</sup> Avenue if and when the UGB is moved farther west. In addition, it was recommended that a possible future connection be identified that would correspond with one of the dead-end driveways in the Mountain View Mobile Estates. A public street right-of-way or access easement should be reserved as part of the planning effort for the area west of the BPA alignment to provide for this connection in the future to be used if and when the Mobile Estates redevelop.

### 4.3.3 Street Grades

Based on the Washington County Road Standards (320.030) the maximum road gradients for roads under the County's jurisdiction are fifteen (15) percent for neighborhood routes and local streets, and ten (10) percent for all other roads. Grades in excess of these maximums would need to be approved by the County Engineer through the design exception process.

### 4.3.4 Green Streets

An additional element of roadway design that should be considered for construction projects in the King City URA is to include "green street" characteristics. The main concept behind green street design is the incorporation of storm water management with environmentally sound street design to help protect streams and wildlife habitat. Green streets also have the additional benefit of adding other enhancing elements to the street right-of-way area, including increased safety and attractiveness for pedestrians and maximizing opportunities for street trees and other landscaping. Additionally, green street design allows for multimodal travel choices, and a visual and physical connection to public and open spaces. Table 4-4 is a matrix outlining different green street design elements/techniques.

Application of green street design is generally not based on functional classification and can span across and be applicable to multiple types of streets. Green street design may not be suitable in many circumstances. The soils within an area where green street design could be implemented need to be

tested to determine the rate of infiltration they can sustain. In addition to green streets, traditional storm water management facilities need to be designed to control overflow if the capacity of the green streets are exceeded.

**Table 4-4. Green Street Design Elements**

Element	Application	How It Works
Rainwater Harvesting	Capture and re-use stormwater runoff for landscape irrigation.	Stormwater is conveyed to storage facilities and collected during the wet season for use during the dry season.
Permeable Paving	Replace most of the impermeable surfaces in the right-of-way with permeable materials, such as permeable pavement, concrete, or paving blocks.	The permeable materials allow water infiltration through the surface to the subgrade.
Bio-retention	Aboveground or subgrade containers are used to promote infiltration and evapotranspiration of stormwater.	Engineered or amended soils can be used to promote this process.
Bio-swales	Subgrade channels with vegetation used to convey and treat stormwater.	Vegetation is used to control flow velocities and settle pollutants.

## 4.4 EXISTING STREET CHARACTERISTICS

This section provides a brief overview of the existing street and roadway system in the vicinity of the King City URA. Data collected includes a general description of the physical characteristics of key roadways, pavement conditions, posted speed limits and intersection controls at key locations. These features characterize the backbone transportation system upon which new roadway improvement concepts for the URA will be developed. They also help to define factors that affect roadway and intersection capacity and influence driver route choices.

### 4.4.1 Existing Streets and Roadways

Located on the east side of Roy Rogers Road between Beef Bend Road and the Tualatin River, the study area is characterized by higher speed roads on its perimeter, and narrow, rural roads in its interior. The following is a short description of each key roadway.

**Roy Rogers Road** – This arterial provides for high capacity north/south travel that connects the study area with Highway 99W and the City of Sherwood to the south and the City of Tigard to the north. Roy Rogers has one travel lane in each direction with wide shoulders to accommodate bicycle travel. Left turn channelization is provided at key intersections and driveways. The posted speed is 45-55 mph. A traffic signal and turn lane channelization is provided at the intersection with Beef Bend Road.

**Beef Bend Road** – This arterial provides for high capacity east/west travel for study area traffic, connecting the URA with Highway 99W, and, ultimately, OR 217 and I-5. Beef Bend Road has one travel lane in each direction with minimal shoulders west of 150<sup>th</sup> Avenue. There are sidewalks along the south side for portions of this road between 150<sup>th</sup> and east of 137<sup>th</sup> Avenues. The posted speed is 35-45 mph in

the study area. A traffic signal and turn lane channelization is provided at the intersection with 131<sup>st</sup> Avenue.

**Elsner Road** – This collector road provides for local circulation and property access in the western portion of the URA. The road has one travel lane in each direction and has minimal shoulders. The road runs between Roy Rogers Road on the west and south, and Beef Bend Road on the north and east. The intersections with Roy Rogers and Beef Bend Roads are stop sign-controlled. The speed limit is unposted but there are several 30-35 mph curves.

**150<sup>th</sup> Avenue** – This north/south collector road provides residential property access and circulation for the area north of Beef Bend Road, and connects the study area to Bull Mountain Road. This road is narrow with no shoulders or sidewalks and a posted 40 mph speed. Within the URA on the south side of Beef Bend Road, 150<sup>th</sup> Avenue is a narrow, paved facility with no shoulders that provides local access only. It dead ends at private properties adjacent to the Tualatin River. The speed limit along this roadway segment is unposted.

**137<sup>th</sup> Avenue** – This local street provides a north/south connection between Beef Bend Road and the Rivermeade community located along the north bank of the Tualatin River. The BPA powerline corridor runs parallel and immediately east of 137<sup>th</sup> Avenue which creates a barrier between the existing King City limits and the URA. 137<sup>th</sup> Avenue is a narrow, paved facility with no shoulders. This road is posted for a 25 mph speed limit.

It should be noted that regional mobility to and from the King City URA is hindered along its southern edge by the Tualatin River. Connectivity across the river to the regionally significant Highway 99W corridor is provided only along Roy Rogers Road or via Beef Bend Road and other local streets after Highway 99W crosses north of the river itself.

#### 4.4.2 Pavement Conditions

As noted in the County's TSP, a computerized pavement system is used to monitor and evaluate the condition of all paved roads under County jurisdiction. Arterial and collector roads are visually inspected and their surface condition assessed every two years, while Neighborhood Routes and Local Roads are inspected every four years. Based on this assessment, each road or roadway segment is assigned a Pavement Condition Index (PCI) score and grouped into one of the following five condition categories:<sup>1</sup>

- *Very Good Condition* - Pavement structure is stable, with no cracking, patching, or deformation evident. Roadways in this category are usually new or recently constructed (average PCI of 85-100).
- *Good Condition* – Pavement structure is stable, but may have surface erosion or minor hairline cracking, patching or deformation. Riding qualities are still very good (average PCI of 70-84).
- *Fair Condition* - Pavement structure is generally stable with minor areas of structural weakness. Cracking is easier to detect and pavement might be patched, but not excessively. Riding quality is good, but deformation is more pronounced and more easily noticed (average PCI of 55-69).

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<sup>1</sup> Washington County Transportation System Plan, 2015.

- *Poor Condition* - Roadway has areas of instability, marked evidence of structural deficiency, large cracking patterns known as “alligatoring,” heavy and numerous patching and very noticeable deformation. Riding quality ranges from acceptable to poor. Spot repair of the pavement base may be required (average PCI of 25-54).
- *Very Poor Condition* – Costs of saving the pavement structural section would equal or exceed complete reconstruction (average PCI of 0-24).

Table 4-5 presents current pavement conditions for key streets in the study area. With the exception of Beef Bend Road between 131<sup>st</sup> Avenue and Roy Rogers Road, the County roads are generally in fair condition. ODOT does not use PCI scores and has identified OR 99W in the study area as being in poor condition.

**Table 4-5. Pavement Conditions for Major Streets in Study Area**

Street	Limits of Segment	PCI	Condition
Beef Bend Road	Highway 99W to 131 <sup>st</sup> Avenue	67	Fair
	131 <sup>st</sup> Avenue to Roy Rogers Road	86	Very Good
Roy Rogers Road	Scholls Ferry Road to Sherwood City Limits	69	Fair
	Sherwood City Limits to Highway 99W	65	Fair
OR Highway 99W	Beef Bend Road to Roy Rogers Road	--	Poor

#### 4.4.3 Traffic Speed

Speed zones on key arterials and collectors within the King City URA are summarized in this section.

- Roy Rogers Road – 55 mph in vicinity of Beef Bend Road, dropping to 45 mph just north of Scholls-Sherwood Road and then 35 mph entering developed area.
- Beef Bend Road – 45 mph from Roy Rogers Road to just west of Myrtle Avenue, then 35 mph to Highway 99W
- Elsner Road – unposted
- 150<sup>th</sup> Avenue – 40 mph north of Beef Bend Road, unposted to the south
- 137<sup>th</sup> Avenue – 25 mph south of Beef Bend Road
- 131<sup>st</sup> Avenue – 25 mph south of Beef Bend Road
- SW Fischer Road – 25 mph
- OR 99W – 40 mph from Beef Bend to Durham Roads, 45 mph from Durham Road to 124<sup>th</sup> Avenue, and 35 mph from 124<sup>th</sup> Avenue to Roy Rogers Road

There are three ways a speed zone can be established by statute. One is in a "residence district," another is a “business district” and the third is a school zone.<sup>2</sup> A residence district can be posted at 25 mph. A business district and a school zone can be posted at 20 mph. In all other cases, an engineering

<sup>2</sup> Speed zones can be established by statute which is vaguely defined in the Oregon Vehicle Code in 801.430.

study is required to determine the appropriate speed zone (the basis is the 85th percentile speed).<sup>3</sup> The study is typically done by the appropriate ODOT region office. The recommendation (based on the engineering study) is then forwarded from the ODOT region office to Salem to be approved by the State Traffic Engineer.

If the jurisdiction requesting the speed study does not agree with the results of the engineering study and recommendation to the State Traffic Engineer, the jurisdiction can appeal the decision to the Speed Zone Review Panel (which meets once a year).

Vehicle speeds on several collector and residential streets are a concern for the community. In most cases, speeding becomes very noticeable when it is above 30-35 miles per hour. Speeding typically occurs on local streets where the streets are wide and straight for long stretches, or where downhill grades are extended.

#### 4.4.4 Intersection Control

Most intersections within the study area are stop signed-controlled for minor street movements (i.e., for traffic entering Roy Rogers Road or Beef Bend Road). Traffic signals currently operate at the following intersections:

- Roy Rogers Road at Beef Bend Road, Scholls-Sherwood Road, and Borchers Drive
- Beef Bend Road at 131<sup>st</sup> Avenue
- OR 99W at Beef Bend Road, Durham Road, Fischer Road, 124<sup>th</sup> Avenue, and Roy Rogers Road

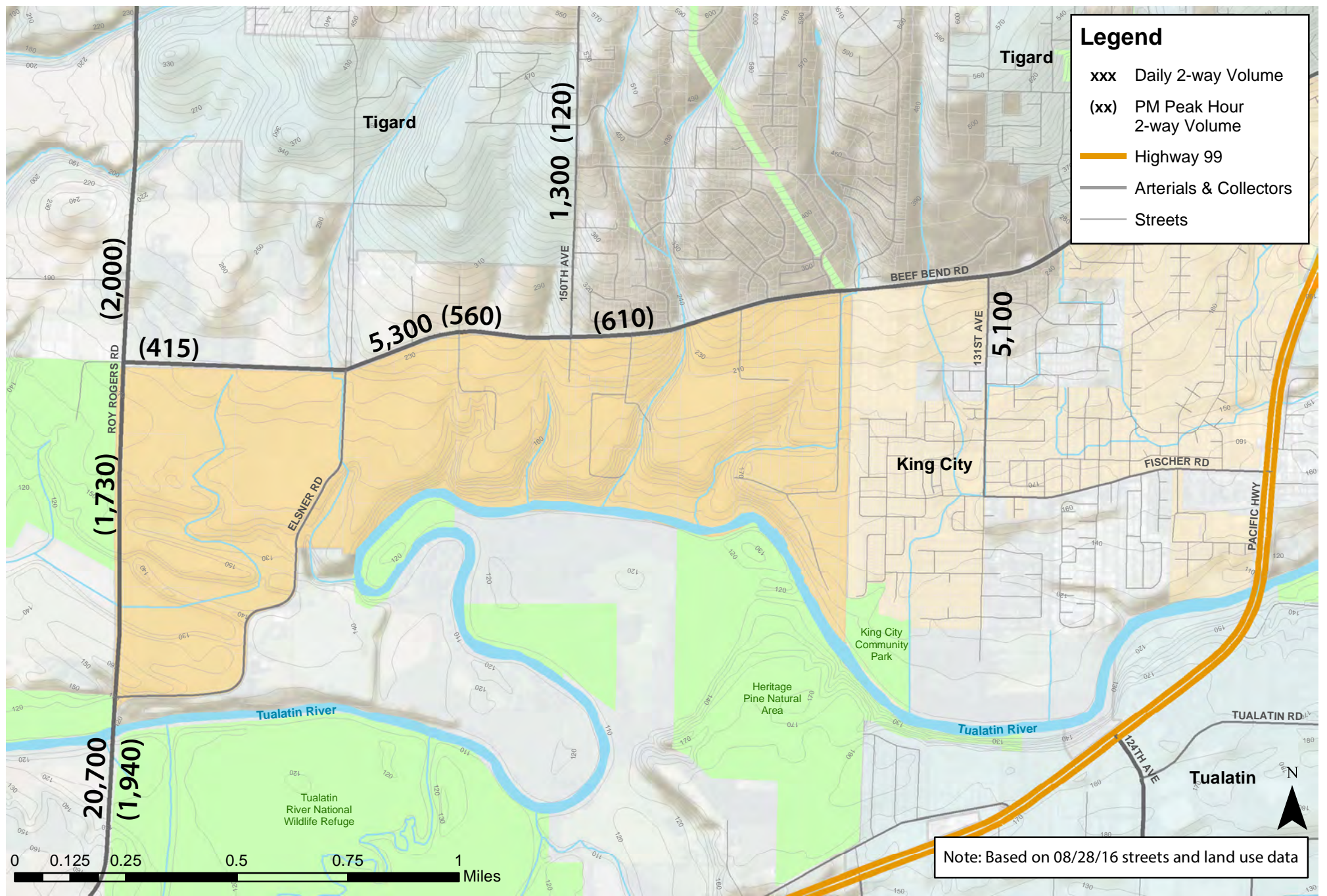
### 4.5 EXISTING TRAFFIC VOLUMES

Figure 4-8 presents existing daily and PM peak hourly traffic volumes on key roadways in the study area. Daily volumes are from the Washington County traffic count data file and represent conditions in 2016. Except for the intersection of Roy Rogers Road with Beef Bend Road, PM peak hour volumes represent 2013 conditions and were obtained from turning movement counts taken for either the River Terrace traffic analysis or the signal warrant study conducted for the intersection of Roy Rogers Road at Beef Bend Road. No new traffic counts were taken for this study. PM peak hour volumes for the Roy Rogers/Beef Bend Road intersection are estimated 2016 volumes used in evaluating the results of signal installation at this location. Since the signal has been installed and is currently operational, this data was determined to be the most representative of existing conditions.

As indicated in the figure, daily traffic volumes along Roy Rogers Road are slightly less than 21,000 vehicles south of Beef Bend Road. Traffic levels rise further north of Roy Rogers Road to approximately 25,000 daily vehicles just south of Scholls Ferry Road (not shown in the figure). Daily traffic volumes on Beef Bend Road were about 5,300 vehicles east of Elsner Road. PM peak hour volumes range from approximately 9 to 10 percent of daily volumes, depending on location.

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<sup>3</sup> The 85<sup>th</sup> percentile vehicle speed represents a condition when 15 percent of the vehicles surveyed were traveling faster than the 85<sup>th</sup> percentile speed and 85 percent were traveling slower than the 85<sup>th</sup> percentile speed.



## 4.6 EXISTING TRAFFIC PERFORMANCE

Table 4-6 presents a summary of existing intersection traffic operations in the study area. This analysis is based on the PM peak hour counts described above provided either as part of the Tigard River Terrace transportation system analysis or the County's signal warrant analysis conducted for the intersection of Roy Rogers Road at Beef Bend Road. As indicated in the table, all intersections are currently operating within their identified mobility target. This target was established by Metro for the intersection of Highway 99W with Beef Bend Road (Table 3.08-2 in the Regional Transportation Functional Plan), and by Washington County in its TSP for the other intersections. It should be noted that the intersection of Roy Rogers Road with Beef Bend Road (as well as with Scholls-Sherwood Road further south) has been signalized since the original existing conditions traffic analysis was conducted using 2013 data. The analysis included in Table 4-6 reflects the addition of traffic signals at this location.

**Table 4-6. Summary of Existing Intersection Traffic Operations**

Intersection	Mobility Target	PM Peak Hour		
		Volume/ Capacity	Avg Delay (sec.)	Level of Service
Beef Bend Road @ Roy Rogers Road (signalized) <sup>1</sup>	v/c 0.90	0.78	17.5	B
Beef Bend Road @ Elsner Road (unsignalized) <sup>2</sup>	v/c 0.99	0.03	11.4	B
Beef Bend Road @ 150 <sup>th</sup> Avenue (unsignalized) <sup>2</sup>	v/c 0.99	0.10	13.6	B
Highway 99 @ Beef Bend Road (signalized) <sup>2</sup>	v/c 0.99	0.85	27.2	C
Highway 99 @ Durham Road (signalized) <sup>2</sup>	V/c 0.99	0.90	57.5	E

Note: Performance results for the unsignalized intersections represent the worst movement.

1 Source: SW Roy Rogers Road Traffic Signal Warrant Analysis, DKS Associates 6/14/13

2 Source: Tigard River Terrace Transportation Analysis Appendix, 12/9/13

## 4.7 TRAFFIC SAFETY

Safety on the roadways in the vicinity of the King City URA was addressed through the review of recent crash history along Roy Rogers Road, Beef Bend Road, Fischer Road, and OR 99W. Review of data included identification of the total number of crashes, crashes by type and severity and crash rates for locations where existing peak hour turning movement count data was available. Crash data was collected for a six-year period beginning on January 1, 2010 and ending on December 31, 2015. Crash data by type and totals for all three roads is summarized in Table 4-7. One pedestrian-related crash resulting in an injury occurred on Beef Bend Road just east of 147<sup>th</sup> Avenue. One crash involving bicyclist also resulting in an injury occurred on Roy Rogers Road near Lasich Lane.

As indicated in the table, there were 87 crashes over the six-year period (or over 14 per year) along Roy Rogers Road between Scholls Ferry Road and Beef Bend Road. There were 133 crashes on Roy Rogers Road between Beef Bend Road and Highway 99W, and 63 crashes along Beef Bend Road between Roy Rogers Road and Highway 99W or an average of 22 and 10.5 crashes per year, respectively. Ten crashes occurred on Fischer Road between the city limits and OR 99W. A total of 486 crashes were reported on Highway 99W of which the majority (64 percent) involved rear end collisions. This type of crash is characteristic of heavy traffic congestion and frequent signalized intersections.



**Table 4-7. Summary of Roadway Crashes by Type, 2010-2015**

Road	Segment	Type of Crash						Total Crashes
		Angle	Turn	Rear End	Side-swipe	Fixed Object	Other	
Roy Rogers Road	Scholls Ferry Rd to Beef Bend Rd	12	9	45	5	12	4	87
Roy Rogers Road	Beef Bend Road to OR 99W	5	36	60	7	18	7	133
Beef Bend Road	Roy Rogers Road to OR 99W	1	29	15	2	11	5	63
Fischer Road	City Limits to OR 99W	3	2	3	1	1	0	10
OR 99W	Beef Bend Rd to Roy Rogers Rd	35	69	313	27	30	12	486

Source: ODOT, 2016

Table 4-8 presents a summary of crashes by severity. As indicated in the table, there were three fatal collisions along Roy Rogers Road during the six-year period included in the data. One of these crashes occurred near Bull Mountain Road and involved a head-on collision. Another occurred just north of Scholls-Sherwood Road and also involved a head-on collision. The third occurred just south of Scholls-Sherwood Road and involved a side-swipe collision. Crashes along Highway 99W were roughly split between those involving injuries and those resulting only in property damage (259 versus 227, respectively).

**Table 4-8. Summary of Roadway Crashes by Severity, 2010-2015**

Road	Segment	Severity of Crash			Total Crashes
		Fatal	Injury	PDO	
Roy Rogers Road	Scholls Ferry Rd to Beef Bend Rd	1	43	43	87
Roy Rogers Road	Beef Bend Road to OR 99W	2	80	51	133
Beef Bend Road	Roy Rogers Road to OR 99W	0	34	29	63
Fischer Road	City Limits to OR 99W	0	4	6	10
OR 99W	Beef Bend Road to Roy Rogers Road	0	259	227	486

Note: PDO means Property Damage Only

Source: ODOT, 2016

Table 4-9 summarizes crash history by intersection along Roy Rogers Road, Beef Bend Road and OR 99W in the general vicinity of the King City URA. As noted in the table the highest numbers of crashes are currently being experienced along Highway 99W including 68 at Durham Road and 44 at Roy Rogers Road. There were 25 crashes at the intersection of Roy Rogers Road with Scholls Ferry Road and 14 at Scholls-Sherwood Road. Crash rates were calculated for the intersections of Beef Bend Road with Roy Rogers Road, Elsner Road/April Lane, 150<sup>th</sup> Avenue and OR 99W where peak hour turning movement counts data was available. Crash rates were also calculated at the intersections of Roy Rogers Road with Scholls Ferry and Scholls-Sherwood Roads, as well as at OR 99W with Durham Road. As the crash rates at all locations are very low, none exhibits any significant existing crash problems.

**Table 4-9. Intersection Crashes in Vicinity of King City URA, 2010-2015**

Intersection	Total Crashes	Crash Rate	Predominate Crash Type
Roy Rogers Road @ Scholls Ferry Road	25	0.35	Rear End
Roy Rogers Road @ Beef Bend Road	9	0.17	Turns
Roy Rogers Road @ Elsner Road	2	--	Turns
Roy Rogers Road @ Scholls-Sherwood Road	14	0.29	Turns
Roy Rogers Road @ Lynnly Way	1	--	Angle
Roy Rogers Road @ Borchers Drive	5	--	Turns
Beef Bend Road @ April Lane/Elsner Road	1	0.08	Angle
Beef Bend Road @ 150 <sup>th</sup> Avenue	1	0.07	Turn
Beef Bend Road @ 147 <sup>th</sup> Avenue	4	--	Turns
Beef Bend Road @ 146 <sup>th</sup> Avenue	2	--	Turns
Beef Bend Road @ Westminster Drive	1	--	Sideswipe
OR 99W @ Durham Road	68	0.69	Rear End
OR 99W @ Beef Bend Road	15	0.18	Turns
OR 99W @ Fischer Road	0	--	--
OR 99W @ 124 <sup>th</sup> Avenue	29	--	Rear End
OR 99W @ Roy Rogers Road	44	--	Rear End

Note: Crash rates can be calculated only where traffic count data is available.

Source: ODOT, 2016

## 5. PEDESTRIAN TRANSPORTATION SYSTEM

This section summarizes key features of the existing and proposed pedestrian transportation system in and around the King City URA. Included is a discussion of:

- Existing pedestrian facilities,
- Planning context for the development of new pedestrian facilities, and
- Planned or programmed facilities

Key destinations for the active pedestrian transportation system within and near the study area include various schools, parks, and employment/retail commercial centers located within reasonable proximity. The study area is also the focus of a significant regional trail system which maximizes proximity to the Tualatin River, the Tualatin River National Wildlife Refuge and the Bonneville Power Administration's utility corridor.

### 5.1 EXISTING PEDESTRIAN FACILITIES

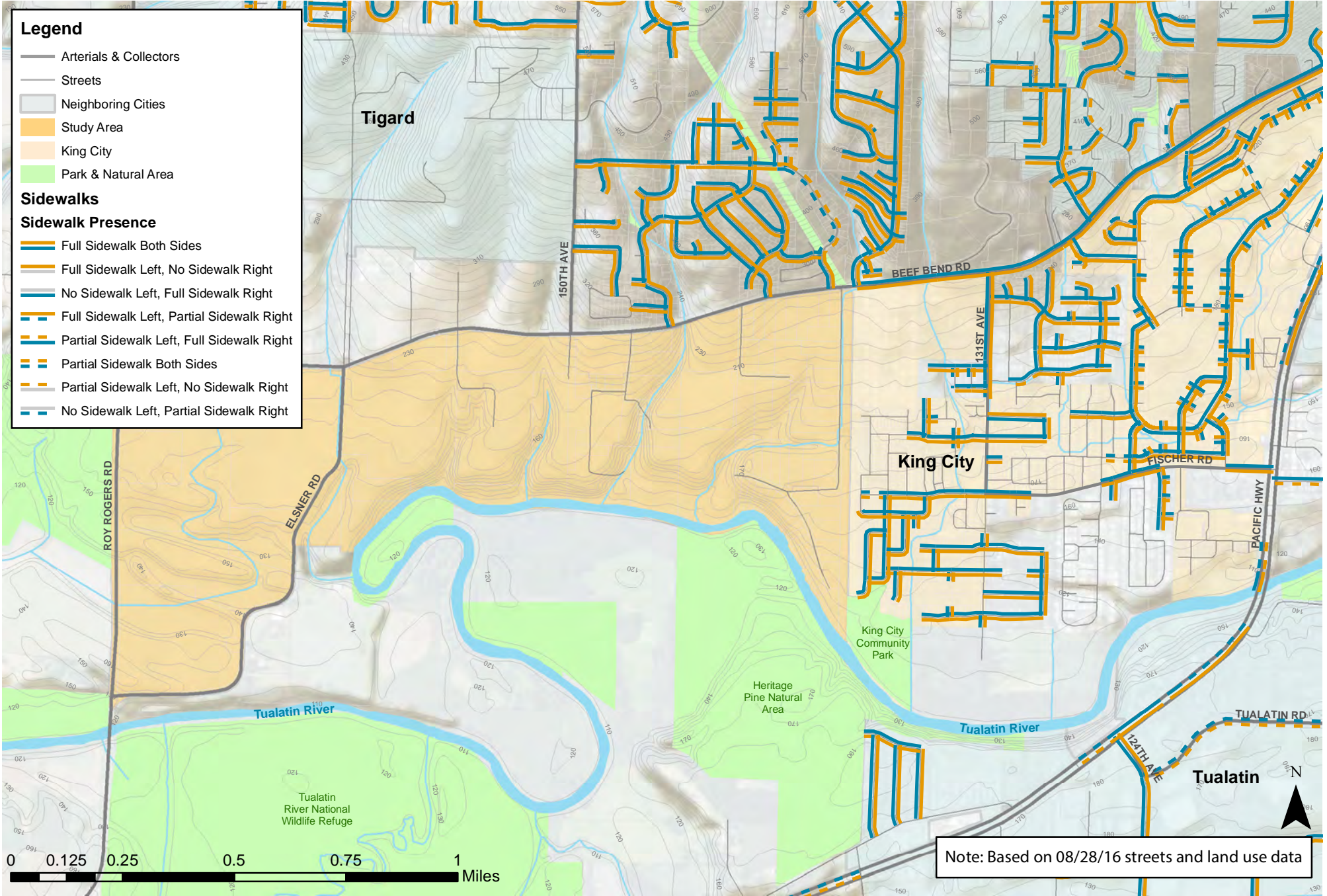
An inventory of pedestrian facilities was conducted for the Washington County TSP Update. This inventory considered sidewalks, trails and any enhanced pedestrian crossings to major streets or highways in unincorporated areas or along roads under County jurisdiction. As shown in **Figure 5-1**, connectivity and pedestrian linkages are generally good on the local street system in the existing developed portions of King City. A key deficiency is the lack of sidewalks along the north side of Fischer Road generally between 129<sup>th</sup> Avenue and Queen Anne Avenue. Washington County is currently constructing an improvement along this street to add sidewalks and bike lanes in this segment.

As also shown in **Figure 5-1**, there are little or no pedestrian facilities in the King City URA with walking being largely accommodated on existing roadway shoulders. Sidewalks have recently been constructed along the north side of Beef Bend Road for most of the segment between 137<sup>th</sup> Avenue and 150<sup>th</sup> Avenue with a few short gaps. There are no protected pedestrian crossing locations along this street which is signed for 45 mph speeds. There are no existing trails in the vicinity of the URA except on the south side of the Tualatin River in the Wildlife Refuge. Existing and proposed regional and community trails in the study area are illustrated in **Figure 5-2**.

### 5.2 PLANNING CONTEXT

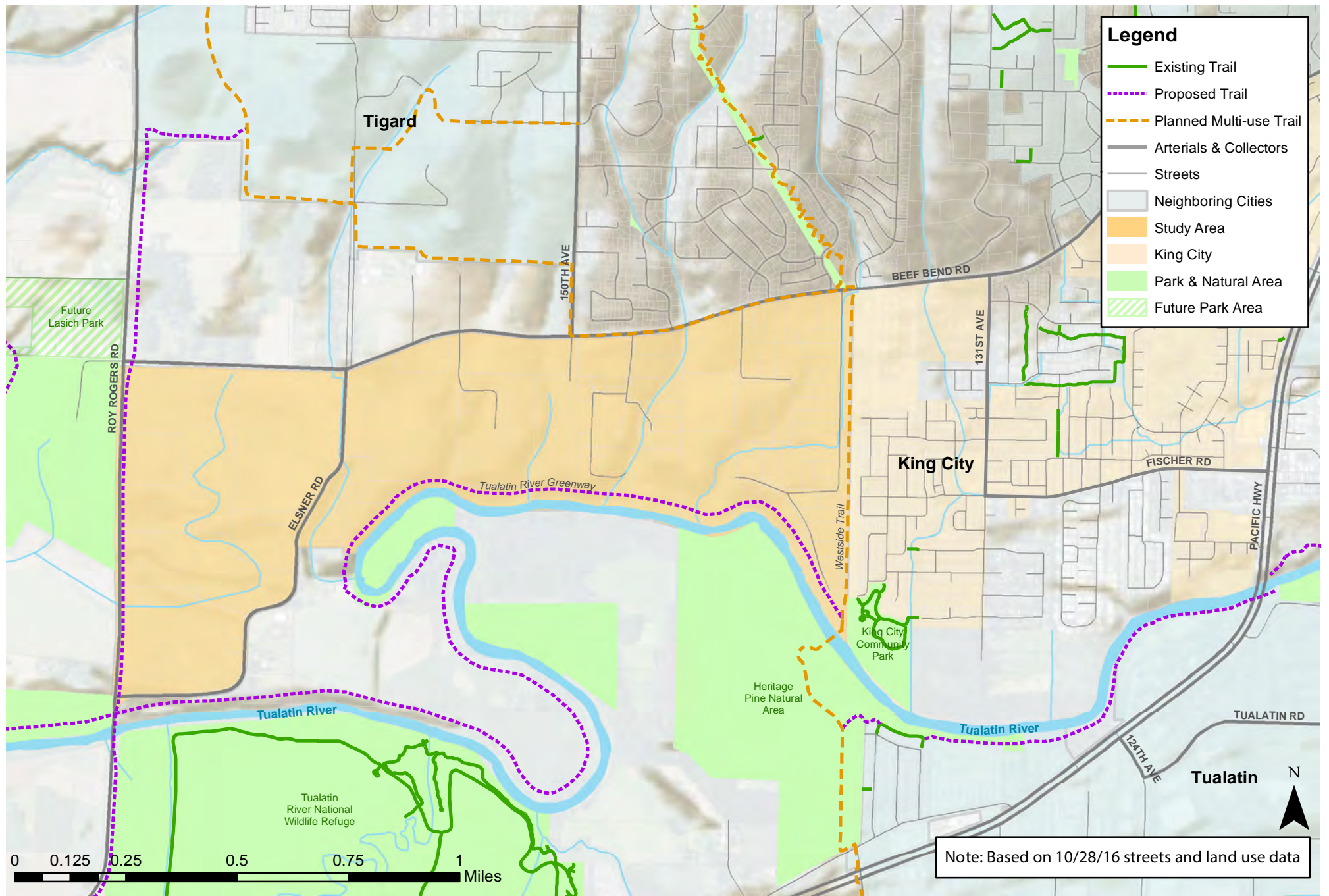
Planning for development of a pedestrian circulation system in and adjacent to the King City URA is guided by several documents including the West King City Planning Area in the *City's Comprehensive Plan*, the *Washington County TSP* and Road Standards, and the *River Terrace Community Plan*.

**West King City Planning Area** – The West King Planning Area in the *City's Comprehensive Plan* identifies several street cross-sections (see Figures 4-6 and 4-7) that can be applied to the planning of new collectors and local streets, and associated pedestrian facilities in the URA. Based on these guidelines, pedestrian circulation will primarily be provided with sidewalks on both sides of all streets within and adjacent to the URA. Additionally, the *Comprehensive Plan* encourages the city to look for opportunities to provide pathways or trails in conjunction with development and in coordination with other agencies.



**Figure 5-1**

Existing Sidewalks  
King City URA Concept Plan



Special attention should be paid to pathways that will complement existing or planned parks and open space areas.

The *Comprehensive Plan* further identifies the need to develop safe pedestrian facilities to provide access between residential areas and the Deer Creek Elementary School. Whether this school will serve the entire URA or if a new school facility is located within the URA, the city will need to work closely with the Tigard-Tualatin School District and Washington County to provide permanent sidewalks or temporary pathways that provide access to these institutions.

**Washington County TSP** – Figure 3-25 in the *Washington County TSP* provides regional context for the development of pedestrian facilities in the King City URA. This figure identifies locations for pedestrian parkways, streetscape overlay zones, proposed regional trails, and regional trail refinement areas. Particularly pertinent to the development of a pedestrian circulation system in the King City URA are the proposed regional trails in the vicinity and two of the designated regional trail refinement areas. The refinement areas include along the Tualatin River immediately south of the URA, and along Roy Rogers Road immediately west of the URA. Regional trails are only conceptually planned in a refinement area, and a specific alignment has not yet been determined. A feasibility study or master plan is necessary to determine the specific alignment. Coordination with Washington County on these refinement areas should occur during the URA planning process.

The Washington County TSP also includes an extensive regional trail system as part of both the Plan’s Pedestrian Element and Bicycle Element. According to the TSP, *“a regional trail is a multi-use pathway that accommodates regional and local utilitarian pedestrian and bicycle trips. Regional trails serve a transportation function and are encouraged to be designed and constructed in ways that facilitate comfortable, convenient travel.”*

Figure 3-25 and Table 3.14 of the TSP identifies the major existing and proposed regional trails in the County. Of particular relevance to the King City URA are the following:

- **Westside Trail** – This trail generally follows a north/south power line corridor across Washington and Multnomah counties, eventually connecting the Tualatin River near King City with the Willamette River in far northwest Portland. Many portions are complete between Barrows Road in Tigard and TV Highway in Beaverton. Major challenges in the remaining sections include steep topography on Bull Mountain, and costly crossings of Sunset Highway and the Tualatin River. Figures 5-3 and 5-4 show the proposed alignment for the Westside Trail in the vicinity of the King City URA. Figure 5-5 presents an alternative alignment for the Bull Mountain portion of the corridor which would rely on a segment of Beef Bend Road to make a less topographically challenging segment.



Westside Trail Segment 1- Looking North (Metro Photo)

Figure 5-3. Westside Trail Segment 1 - Tualatin River to Beef Bend Road



Figure 5-4. Westside Trail Segment 2 – Beef Bend Road to Tigard City Limits





Figure 5-5. Westside Trail Segments 2 & 3 Alternative – Beef Bend Road to Barrows Road



- Tualatin River Greenway Trail. This riverside trail would extend from the Wildlife Refuge eastward through downtown Tualatin, underneath Interstate 5 and into Clackamas County, where it would enter the Stafford urban reserve.
- Ice Age Tonguin Trail. A three-pronged network of trails will eventually connect Tualatin, Sherwood and Wilsonville. One section has been completed within Metro’s Graham Oaks Nature Park in Clackamas County. The northern prong of the trail would connect with the Westside Trail at a proposed pedestrian/bicycle bridge over the Tualatin River near King City. The western prong would pass through the City of Sherwood as the Cedar Creek Trail.

**River Terrace Community Plan** – This Plan envisions a comprehensive trail system for pedestrians and cyclists in the River Terrace development located north of Beef Bend Road and east of Roy Rogers Road. This trail system would link the many existing natural resource areas, proposed parks, future schools and services, and other planned and proposed regional trails in the area.

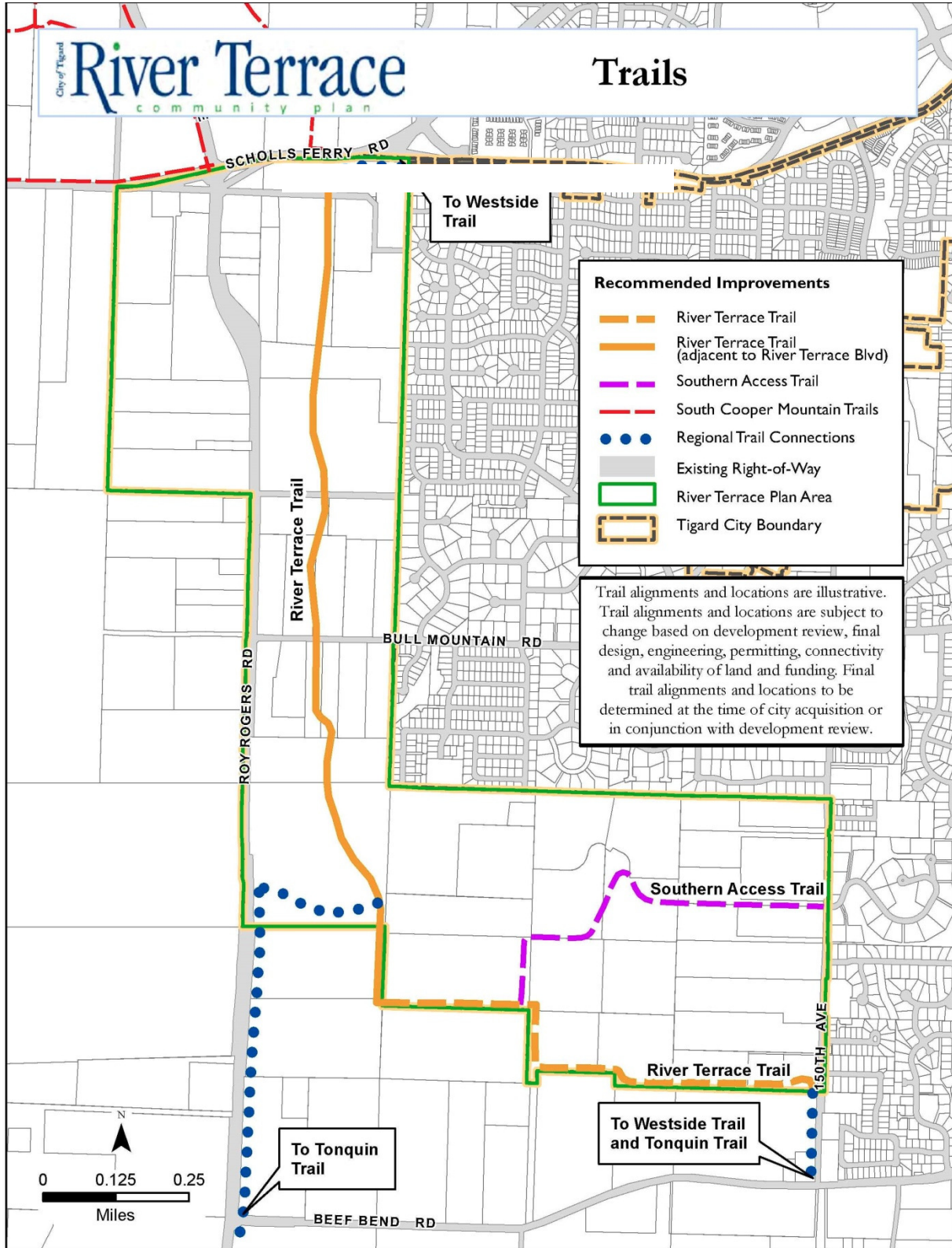
Figure 5-6 illustrates the proposed River Terrace trail system. The backbone of this system is a north/south facility intended to take the place of the Roy Rogers Road regional trail originally identified in the *Washington County TSP*. The trail alignment within the River Terrace development was preferred over a Roy Rogers Road alignment by most community stakeholders, who also felt that the inclusion of both alignments was neither feasible nor necessary given the proximity of both trails to each other. The River Terrace trail would travel from Scholls Ferry Road on the north to 150th Avenue on the southeast. It would be co-located with the development’s main north/south boulevard for approximately 1.5 miles of its 2.25-mile length. This trail was planned, in part, to complement Metro’s Westside Trail as it provides a less steep travel option around Bull Mountain. This option is illustrated in the *Westside Trail Master Plan* and is included in this report as Figure 5-5. When planning active transportation facilities and/or trails for the King City URA, it will be important to coordinate proposed trail alignments with the River Terrace facilities.

The TSP Addendum prepared for the River Terrace Community Plan also recommends safe and appropriate bicycle and pedestrian facilities along the whole length of Roy Rogers Road when it is widened to its full planned width, including a buffered bike lane or cycle track to ensure the highest level of protection for cyclists.

### 5.3 PEDESTRIAN SYSTEM IMPROVEMENTS

Table 5-1 lists pedestrian improvement projects along with implementation responsibilities and timing for facilities proposed in the general vicinity of the King City URA. The table identifies projects specifically focusing on pedestrian facilities, while the roadway improvements in Chapter 8 focus on street system improvements (e.g., new street corridors) that would also include sidewalks or other walkways. Table 5-1 includes joint bicycle/pedestrian improvement projects (e.g., a project to add bike lanes and sidewalks to an existing street), as well as projects that specifically benefit pedestrians.

Figure 5-6. River Terrace Proposed Trails



**Table 5-1. Pedestrian Improvement Projects in Vicinity of King City URA**

<b>Project</b>	<b>Segment</b>	<b>Description</b>	<b>Implementing Agency</b>	<b>Timing</b>
Highway 99W (Pacific Highway)	Beef Bend Road to Durham Road	Construct sidewalk on west side of highway	ODOT	2016-2018
SW Fischer Road	131 <sup>st</sup> Avenue to Pacific Highway	Construct sidewalks and bike lanes, painted crosswalks at SW 126 <sup>th</sup> and SW 131 <sup>st</sup> Avenue, installation of LED street lights and speed display signs.	Washington County	Expected completion in 2017
Beef Bend Road	Colyer Way to Peachtree Drive	Construct 125 feet of 5-foot wide pave pathway on north side of street to fill existing gap	Washington County	2016-2017

Sources: 2016-2018 ODOT State Transportation Improvement Program and Washington County Transportation Capital Improvement Projects, 2016.

## 6. BICYCLE TRANSPORTATION SYSTEM

This section summarizes key features of the existing and proposed bicycle transportation system in and around the King City URA. Included is a discussion of:

- Existing bicycle facilities,
- Planning context for the development of new bicycle facilities, and
- Planned or programmed facilities

Key destinations for the active bicycle transportation system within and near the study area include various schools, parks, and employment/retail commercial centers located within reasonable proximity. As discussed in Chapter 5, the study area is also the focus of a significant regional trail system which maximizes proximity to the Tualatin River, the Tualatin River National Wildlife Refuge and the Bonneville Power Administration's utility corridor.

### 6.1 BICYCLE FACILITIES

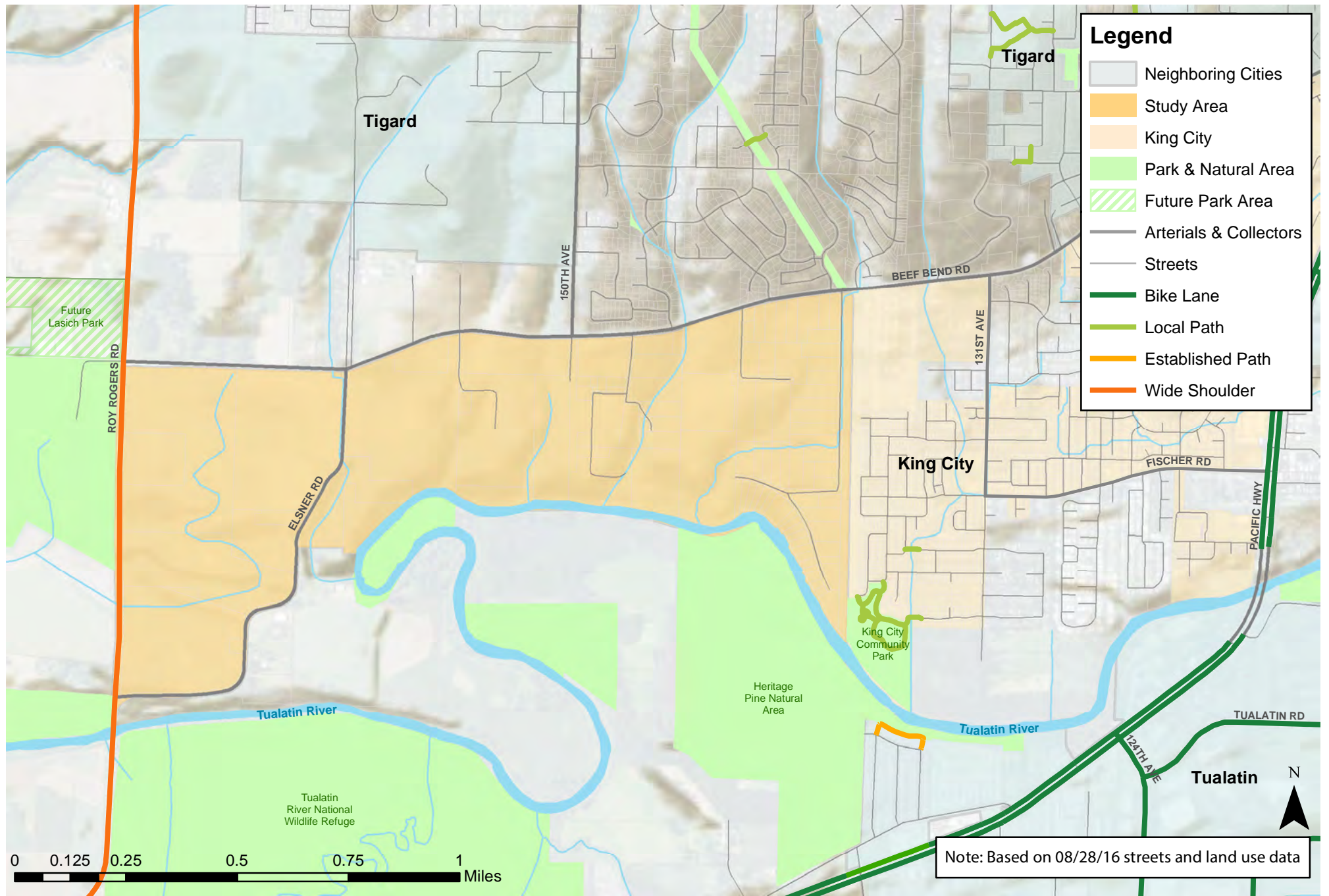
An inventory of bicycle facilities was conducted for the Washington County TSP Update. This inventory considered bike lanes, wide shoulders, trails and any enhanced crossings to major streets or highways in unincorporated areas or along roads under County jurisdiction. With the exception of the wide shoulders on Roy Rogers Road as shown in **Figure 6-1**, none of the arterial and collector streets in King City URA study area have bike lanes or wide shoulders to accommodate bicycle travel. Additionally, while there are many planned trails in the vicinity of the URA (see Figure 5-2), there are no existing trails that specifically benefit the URA.

**Figure 6-2** presents a qualitative evaluation of the existing bicycle circulation system in the study area. As noted in the figure, Beef Bend Road, Elsner Road and 150<sup>th</sup> Avenue are all identified as "Ride with Caution" due to the narrow roadway cross-section, lack of shoulders and relatively high vehicle speed. 131<sup>st</sup> Avenue is identified as "Bike Friendly", largely due to low speeds. It should be noted that Washington County is currently improving Fischer Road to add bike lanes and sidewalks from 131<sup>st</sup> Avenue to Pacific Highway.

### 6.2 PLANNING CONTEXT

Planning for development of a bicycle circulation system in and adjacent to the King City URA is guided by several documents including the West King City Planning Area in the City's *Comprehensive Plan*, the *Washington County TSP* and *Road Standards*, and the *River Terrace Community Plan*.

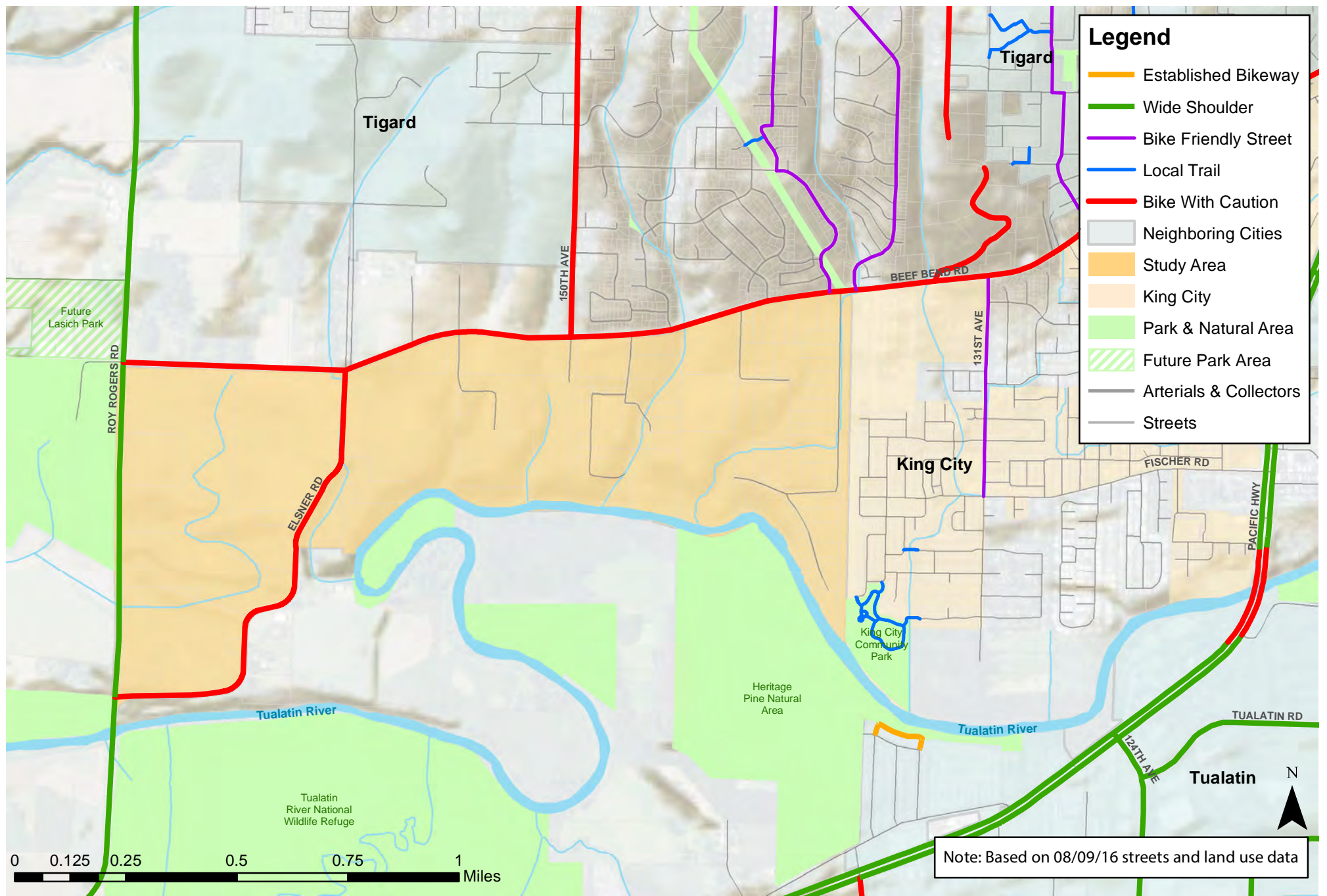
**West King City Planning Area** – The West King Planning Area in the City's *Comprehensive Plan* indicates that, when developed, the bicycle circulation system would largely rely on shared use with vehicular traffic on the existing and proposed street system. This system would consist of local and collector facilities that were expected to carry low traffic volumes at relatively low speeds. The sidewalks and pathways would also be available to novice cyclists. The plan notes that bicycle lanes would generally be appropriate when average daily traffic volumes exceed 3,000, and therefore, they are part of the Washington County improvement standards for SW 131st Avenue and SW Fischer Road. As with



**Legend**

- Neighboring Cities
- Study Area
- King City
- Park & Natural Area
- Future Park Area
- Arterials & Collectors
- Streets
- Bike Lane
- Local Path
- Established Path
- Wide Shoulder

Note: Based on 08/28/16 streets and land use data



pedestrian routes, bicycle connections between important destinations may include separate pathways in addition to on-street facilities. The *Comprehensive Plan* also encourages the city to look for opportunities to provide pathways or trails in conjunction with development and in coordination with other agencies. Special attention should be paid to pathways that will complement existing or planned parks and open space areas.

As the *Comprehensive Plan* does not identify street cross-sections that include bicycle lanes, consideration should be given to using Washington County standards for collector streets and neighborhood routes when developing the backbone street system in the King City URA.

**Washington County TSP** – Figure 3-27 in the *Washington County TSP* provides regional context for the development of bicycle facilities in the King City URA. This figure identifies locations for major street bikeways, proposed regional trails, and regional trail refinement areas. Particularly pertinent to the development of a bicycle circulation system in the King City URA are the proposed regional trails in the vicinity and two of the designated regional trail refinement areas. As discussed in Chapter 5, the refinement areas include along the Tualatin River immediately south of the URA, and along Roy Rogers Road immediately west of the URA. Regional trails are only conceptually planned in a refinement area, and a specific alignment has not yet been determined. A feasibility study or master plan is necessary to determine the specific alignment. Coordination with Washington County on these refinement areas should occur during the URA planning process.

The Washington County TSP also includes an extensive regional trail system as part of both the Plan’s Pedestrian Element and Bicycle Element. According to the TSP, “*a regional trail is a multi-use pathway that accommodates regional and local utilitarian pedestrian and bicycle trips. Regional trails serve a transportation function and are encouraged to be designed and constructed in ways that facilitate comfortable, convenient travel.*”

Figure 3-25 and Table 3.14 of the TSP identifies the major existing and proposed regional trails in the County. Of particular relevance to the King City URA are the following:

- Westside Trail
- Tualatin River Greenway Trail.
- Ice Age Tonquin Trail.

Table 3-18 in the TSP highlights locations in the rural portions of Washington County (outside of existing UGBs) where the addition of widened roadway shoulders would help to accommodate the need for bicycle travel in these areas. Specifically pertinent to the King City URA are identified needs for bicycle lanes (or wider shoulders) along Beef Bend Road and Fischer Road. Table 6-1 summarizes these improvement needs.

**Table 6-1. Identified Bike Lane Needs in Washington County**

Road Name	From	To	Total Length (lane feet)
Beef Bend Road	150th Avenue	Pacific Highway	20,868
Fischer Road <sup>1</sup>	131st Avenue	Pacific Highway	6,916

Source: *Washington County Transportation System Plan, 2015.*

<sup>1</sup> Project to add bicycle lanes and sidewalks currently under construction by Washington County.



**River Terrace Community Plan** – As noted in Chapter 5, this Plan envisions a comprehensive trail system for pedestrians and cyclists in the River Terrace development located north of Beef Bend Road and east of Roy Rogers Road. This trail system would link the many existing natural resource areas, proposed parks, future schools and services, and other planned and proposed regional trails in the area. When planning active transportation facilities and/or trails for the King City URA, it will be important to coordinate proposed trail alignments with the proposed River Terrace trail system, illustrated in Figure 5-6. The TSP Addendum prepared for the River Terrace Community Plan also recommends safe and appropriate bicycle and pedestrian facilities along the whole length of Roy Rogers Road when it is widened to its full planned width, including a buffered bike lane or cycle track to ensure the highest level of protection for cyclists.

### 6.3 BICYCLE SYSTEM IMPROVEMENTS

Table 6-1 lists bicycle system improvement projects along with implementation responsibilities and timing for facilities proposed in the general vicinity of the King City URA. The table identifies one project specifically focused on bicycle facilities and one major roadway improvement that would also include bike lanes.

**Table 6-2. Bicycle System Projects and Programs**

Project	Segment	Description	Implementing Agency	Timing
SW Fischer Road	131 <sup>st</sup> Avenue to Pacific Highway	Construct sidewalks and bike lanes, painted crosswalks at SW 126 <sup>th</sup> and SW 131 <sup>st</sup> Avenue, installation of LED street lights and speed display signs.	Washington County	Expected completion in 2017
Roy Rogers Road	Scholls Ferry Road to Bull Mountain Road	Widen road to full five-lane cross-section (two travel lanes in each direction with a center turn lane) plus bicycle and pedestrian facilities along both sides of the road, and street lighting.	Washington County	2018

Source: Washington County Transportation Capital Improvement Projects, 2016.

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## 7. TRANSIT SYSTEM

Transit service is not currently provided within the King City URA, but it is provided along the Highway 99W corridor and from this corridor to other destinations in nearby Tigard and Tualatin. Two fixed bus routes currently operate on Highway 99W and connect King City to the rest of the Portland Metropolitan Area, as well as to the regional commuter rail and light rail systems. The alignment of these two routes, as well as others in the vicinity of the King City URA is illustrated in Figure 7-1. Bus stops are located at most major intersections through King City and these are also illustrated in the figure, along with two park-and-ride lots. The northern park-and-ride lot serving the URA area is on Highway 99W at Bull Mountain Road (in the parking lot at Christ the King Lutheran church). A total of 30 spaces are available. The southern park-and-ride lot is located just off Highway 99W on Tualatin-Sherwood Road. A total of 50 spaces are available. Americans with Disabilities Act (ADA) paratransit service is also provided in the study area.

### 7.1 FIXED ROUTE BUS SERVICE

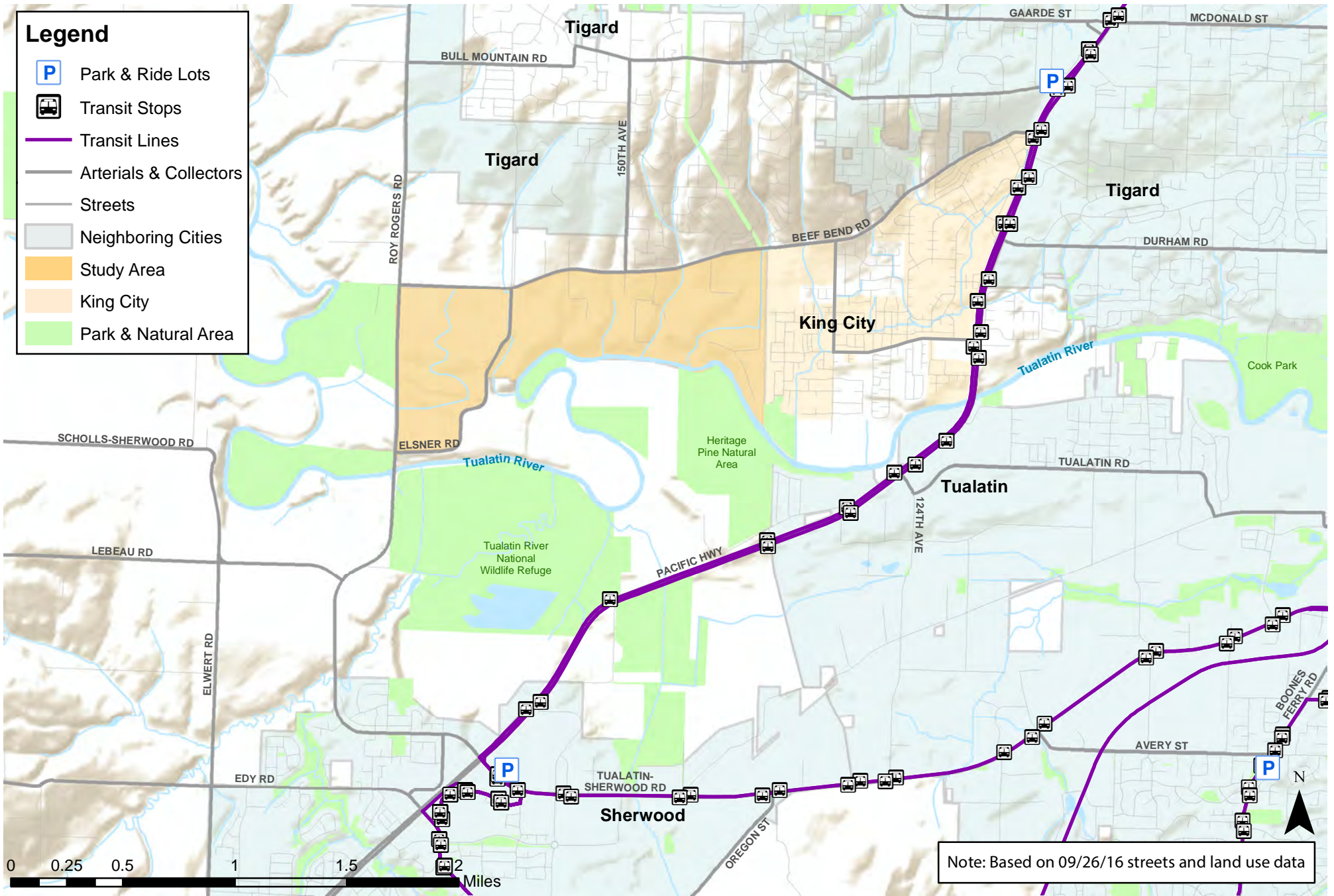
Fixed route bus service in the Highway 99W corridor is provided by TriMet via Routes #93 and #94. Route #93 connects downtown Sherwood with the Tigard Transit Center. Service is provided seven days per week as described in Table 7-1. Peak period services runs on approximately 30 minute headways, while service in the off-peak runs roughly every 45 minutes. Service on Route #94 directly connects the King City area to downtown Portland and is offered only on weekdays. Service is very frequent during peak periods ranging from 10 to 20 minute headways. Service in the off-peak hours is offered every 45 minutes.

**Table 7-1. Fixed Route Bus Service in the King City URA**

Route/Service Area	Service Hours and Frequency (Average)		
	Weekday	Saturday	Sunday
Route 93 – Sherwood to Tigard Transit Center			
Times Inbound	4:30am-11:52pm	4:32am-11:52pm	4:32am-11:52pm
Times outbound	6:12am –1:09am	6:03am-1:09am	6:03am-1:09am
Peak Hours	30 minutes	30 minutes	30 minutes
Off-Peak Hours	45 minutes	45 minutes	45-60 minutes
Route 94 – Downtown Portland			
Times Inbound	5:43am-7:02pm	No Service	No Service
Times Outbound	7:32am-8:31pm		
Peak Hours	10-20 minutes		
Off-Peak Hours	45 minutes		

### 7.2 RIDE CONNECTION SERVICE

Ride Connection is a non-profit organization dedicated to providing transportation service in areas and for persons not adequately served by fixed route buses. Ride Connection service is designed primarily for people over the age of 60 and for people with disabilities, although service is available for the



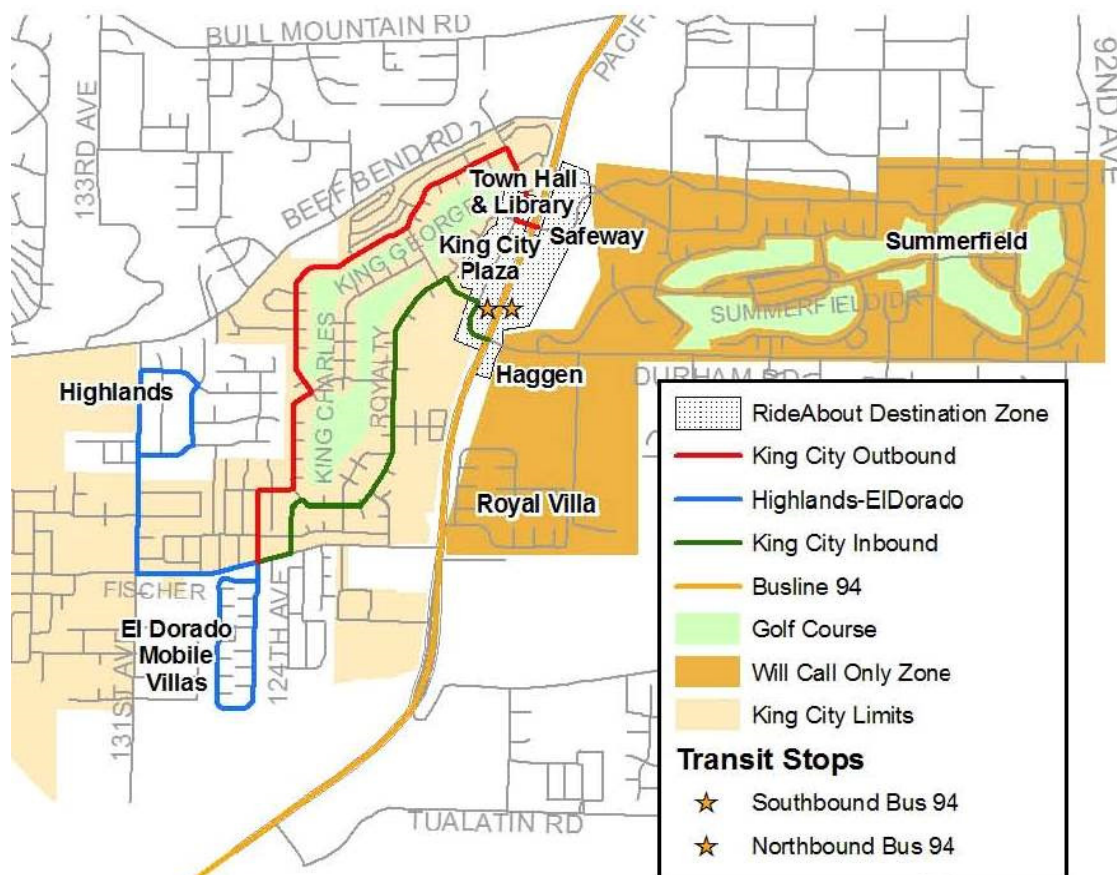
**Figure 7-1**  
 Existing Transit Service & Park-and-Ride Lots  
 King City URA Concept Plan

general public when traveling in areas not served by public transportation. Ride Connection provides a variety of program options, and most services are available Monday through Friday although hours, availability and days of service will vary. Service is client-initiated through a phone call or an online request with an advance reservation requirement of four days. Office hours are Monday through Friday between the hours of 7:30 am and 5:00 pm. Service is provided at no charge, although donations are accepted. Two of the key service options serving the King City URA are deviated route service and door-to-door service.

### 7.2.1 Deviated Route Service (RideAbout Shuttle)

Ride Connection provides deviated route service (buses that run on a route and schedule and can make small deviations to pick up or drop off passengers) in rural Washington County, Forest Grove, Tualatin, King City, and North Hillsboro. These services are free and open to the general public. Service is client-initiated with pick-ups and drop-offs scheduled within ½ mile of the fixed route system. Figure 7-2 illustrates the alignment of the RideAbout Shuttle in King City. Service on the various routes is offered generally from 9:00 am to 3:45 pm and connects with TriMet Route #94 King City Plaza (southbound trips only) Haggen (northbound trips only) and Safeway.

**Figure 7-2. King City RideAbout Shuttle Service**



## 7.2.2 Door-to-Door Service

With its partner agencies, Ride Connection offers rides for any purpose including medical, meals, shopping, recreation and volunteering or work. Customers are picked up and transported from trip origins and destination that are self-identified.

## 7.3 PLANNING CONTEXT

The Transit Element of the Washington County TSP identifies the King City URA as “appropriately served” by transit for its current rural environment. As the area urbanizes, consideration will be needed for either the reconstitution of fixed route service such as was formerly operated by Route #44 on SE Fischer Road and 131<sup>st</sup> Avenue, or extension of Ride Connection routes and door-to-door service into this area. No service improvements are currently planned.

In addition to the County’s TSP, TriMet has prepared a *Southwest Service Enhancement Plan* that lays out a long-term vision to improve transit service in the southwestern portion of the Portland Metropolitan Area. Particularly pertinent to the King City URA are plans for service to connect Lake Oswego with King City via Durham Road (Line 36), thus connecting the cities of Lake Oswego, Tualatin, Tigard and King City in an east/west direction across the southern portion of the metropolitan area.

## 8. FUTURE STREET AND ROADWAY SYSTEM

This final section moves beyond a discussion of the existing transportation system and its needs and deficiencies. This section addresses future traffic volume forecasts, as well as deficiencies and improvement requirements resulting from future community growth over the 20-year planning horizon. Forecast travel data presented in this section was obtained from the Washington County travel demand model and through review of the River Terrace Transportation Plan Addendum documentation.

### 8.1 FUTURE (2035) TRAFFIC VOLUMES

**Figure 8-1** presents future 2035 PM peak hourly traffic volumes on key roadways in the study area. These volumes were developed using the Washington County transportation model which formed the basis for the traffic analysis conducted for the River Terrace development project. For purposes of traffic modeling and future traffic operations analysis, River Terrace is assumed to add a maximum of 2,587 new households and 149 new employees by 2035 in comparison to existing activity levels. This scenario also assumes build-out of urban reserves in the region outside of the City of Tigard planning influence area (i.e., South Cooper Mountain), but no growth within the Tigard urban reserves

The volumes were abstracted from the River Terrace TSP Addendum and are intended to represent expected future background conditions for key roadway segments in the King City URA study area. These volumes can be compared with the existing traffic data presented for the same or similar roadway segments in Figure 4-8.

### 8.2 FUTURE TRAFFIC PERFORMANCE

Table 8-1 presents a summary of existing intersection traffic operations in the study area. This analysis is based on the PM peak hour forecasts described above which are illustrated as turning movement projections in the River Terrace TSP Addendum. As indicated in the table, all intersections are currently operating within their identified mobility target. This target was established by Metro for the intersection of Highway 99W with Beef Bend and Durham Roads (Table 3.08-2 in the Regional Transportation Functional Plan), and by Washington County in its TSP for the other intersections.

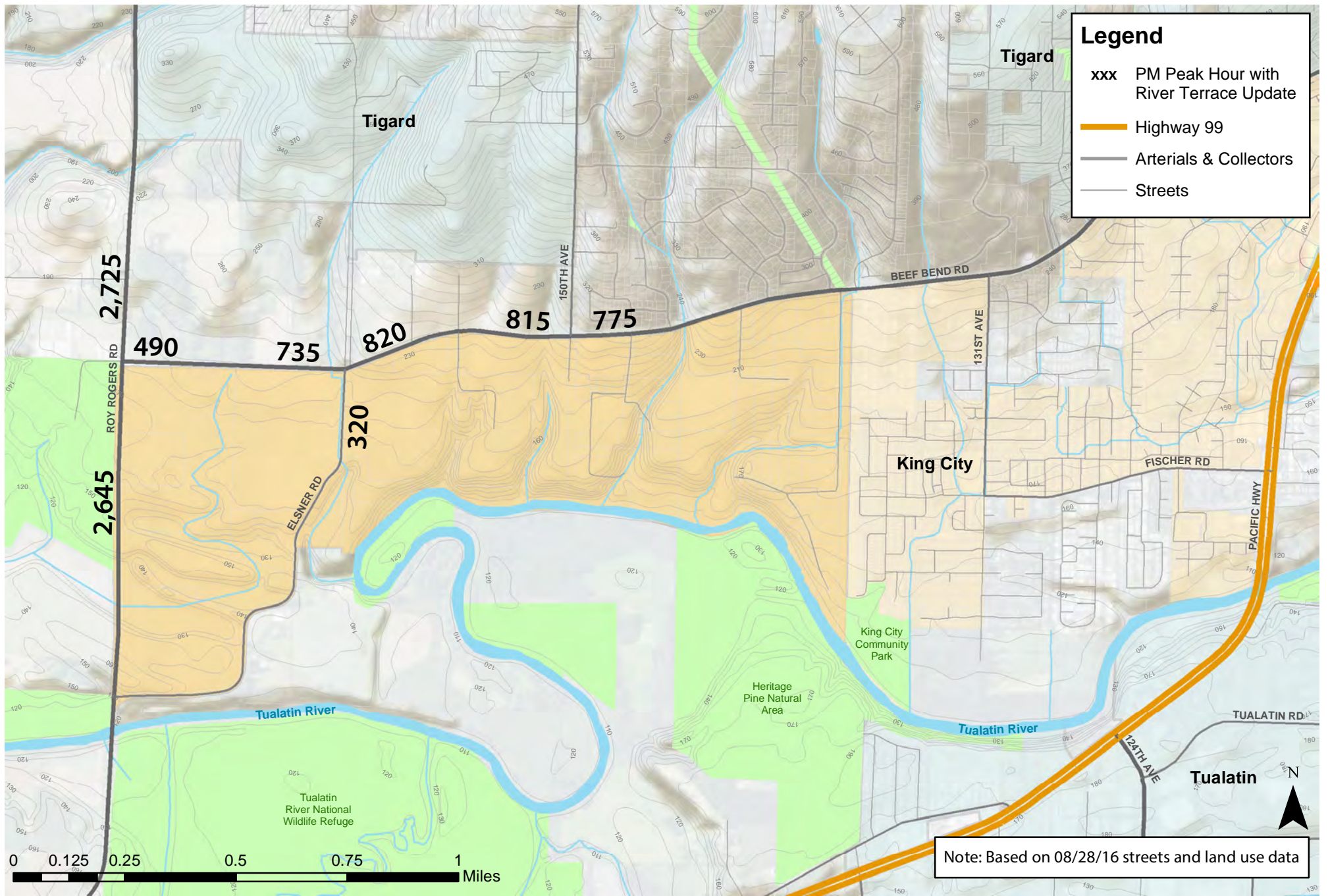
**Table 8-1. Summary of 2035 PM Peak Hour Intersection Traffic Operations**

Intersection	Mobility Target	Existing <sup>1</sup>		2035 River Terrace <sup>2</sup>	
		V/ C	LOS	V/ C	LOS
Beef Bend Road @ Roy Rogers Road (signalized)	v/c 0.90	0.78	B	<b>0.93</b>	D
Beef Bend Road @ Elsner Road (unsignalized)	v/c 0.99	0.03	B	0.65	E
Beef Bend Road @ 150 <sup>th</sup> Avenue (unsignalized)	v/c 0.99	0.10	B	0.09	C
Highway 99W @ Beef Bend Road (signalized)	v/c 0.99	0.85	C	0.99	D
Highway 99W @ Durham Road (signalized)	v/c 0.99	0.90	E	<b>1.15</b>	F

Note: Performance results for the unsignalized intersections represent the worst movement.

1 Existing represents 2013 for all locations except for Roy Rogers at Beef Bend Road which represents 2016 conditions.

2 Source: *River Terrace TSP Addendum*, DKS Associates, December 2014. Analysis assumes existing lane configurations except for Roy Rogers Road that is assumed to be widened to five lanes by 2035.





By 2035 with development of River Terrace and anticipated regional growth, two study area intersections are expected to exceed their adopted mobility standards – Roy Rogers Road at Beef Bend Road and Highway 99W at Durham Road.

Metro’s Regional Transportation Plan (RTP) also notes that travel time along Beef Bend Road between Highway 99 and Roy Rogers Road is expected to increase significantly over the planning period.

## 8.3 STREET AND ROADWAY PLAN

### 8.3.1 Planned Projects

Planned roadway improvement projects that will influence traffic performance in the study area are identified in the Regional Transportation Plan and supported by the Washington County TSP. They include:

- Project #10708: **Roy Rogers Road** (Langer Farms Parkway to Borchers Drive) – Construct 5-lane cross-section (through intersection with OR Highway 99W)
- Project #11467: **Fischer Road** (131<sup>st</sup> Avenue to OR Highway 99W – Add sidewalks, bike lanes, lighting, turn lanes at major intersections (currently under construction).
- Project #11484: **Westside Trail** Segment 2 – Build multi-use trail following BPA powerline corridor.
- Project #11486: **Roy Rogers Road** (Scholls Ferry Road to UGB) – Widen to five lanes with bike lanes and sidewalks.
- Project #11577: **Beef Bend Road** (150<sup>th</sup> to OR Highway 99W) – Widen to three lanes with bike lanes and sidewalks.

In addition, the River Terrace development includes a variety of internal and local street improvement projects which are illustrated in Figure 8-2. Of particular note, are the two north/south connections that link the development with Beef Bend Road. One is the existing 150<sup>th</sup> Avenue which is designated as a collector street. The other is a future neighborhood route that aligns with 161<sup>st</sup> Avenue and could intersect Beef Bend Road at Elsner Road.

### 8.3.2 Roadway Plan Project List

Table 8-3 identifies currently programmed roadway improvement projects in the vicinity of the King City URA. Specifically, relevant is the project in the Washington County Capital Improvements Program to improve Roy Rogers Road to a full five-lane urban section between Scholls Ferry Road and Bull Mountain Road. This project is scheduled for construction in 2018.

**Table 8-2. Roadway System Projects and Programs**

Project	Segment	Description	Implementing Agency	Timing
Roy Rogers Road	Scholls Ferry Road to Bull Mountain	Widen road to full five-lane cross-section (two travel lanes in each direction with a center turn lane) plus bicycle and	Washington County	2018

Figure 8-2. Proposed River Terrace Street System

