NOTICE OF KING CITY PLANNING COMMISSION MEETING

The Planning Commission of the City of King City will hold a Public Hearing at 9:30 a.m., Wednesday-March 28, 2018 at the King City Hall Council Chamber, 15300 SW 116th Ave, King City, Oregon 97224

AGENDA

1. **Call to Order**

2. **Roll Call**

3. **Approval of Minutes:**
   a) N/A

4. PUBLIC HEARING

To consider and make a recommendation to the City Council on the Urban Reserve Area 6D (URA 6D) Concept Plan presented by Keith Liden, City Planner.

5. **Commissioner Reports**

6. **Staff Reports**

7. **Adjourn.**

NEXT MEETING SCHEDULED FOR APRIL 11, 2018 @ 9:30 AM

The meeting location is accessible to persons with disabilities. A request for an interpreter for the hearing impaired, or for other accommodations for persons with disabilities, should be made at least 48 hours in advance of the meeting to Ronnie Smith, City Recorder, 503-639-4082 or rsmith@ci.king-city.or.us.

MEMORANDUM

TO: King City Planning Commission
FROM: Keith Liden, Planning Consultant
SUBJECT: Staff Report for: *Concept Plan – King City Urban Reserve Area 6D*
DATE: March 21, 2018

GENERAL INFORMATION

Application

Consider approval of the *Concept Plan – King City Urban Reserve Area 6D* to guide future planning activities within Urban Reserve Area (URA) 6D.

Location

The *Concept Plan – King City Urban Reserve Area 6D* applies to the properties within the area as shown in Figure 1.

Current Land Use Designations

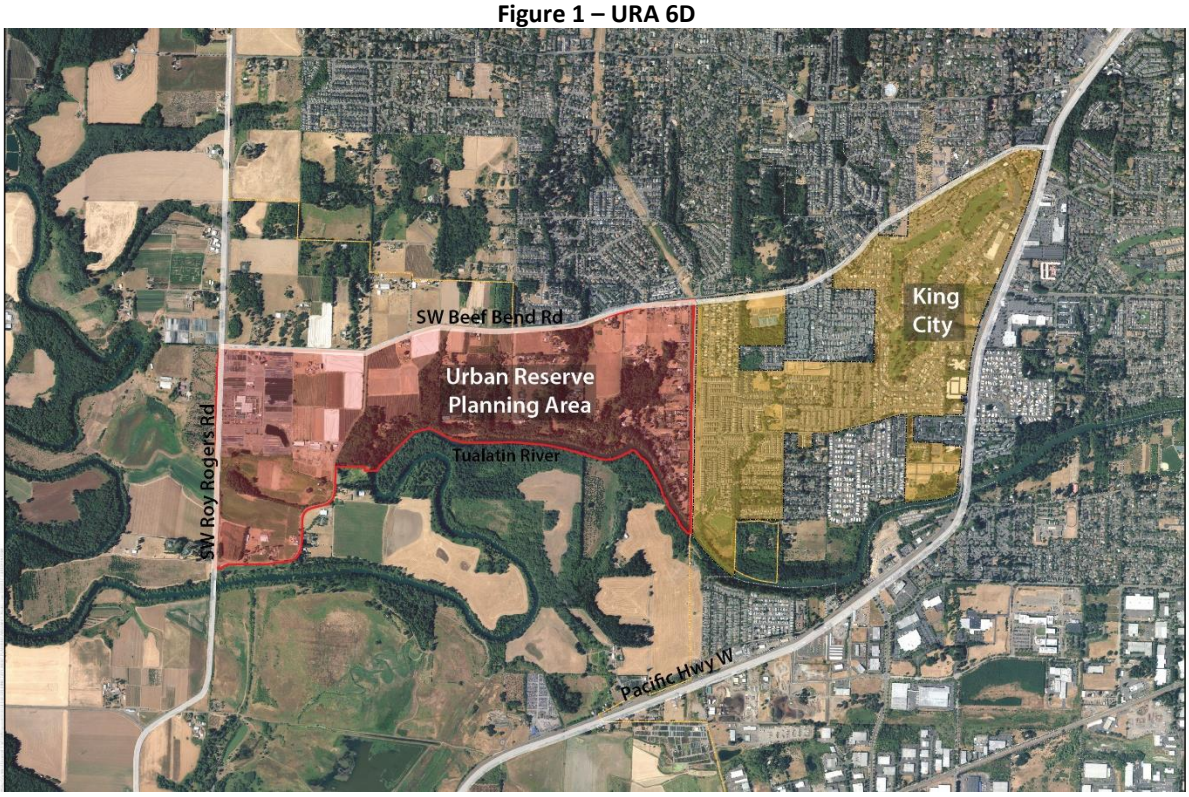
The current Washington County land use designations within URA 6D are:

- RR-5 – Rural Residential, 5 acre minimum
- AF-10 – Agriculture and Forest, 10 acre minimum
- AF-5 – Agriculture and Forest, 5 acre minimum
- EFU - Exclusive Farm Use
- Private Use Airport Overlay, Meyer Riverside Airport

RECOMMENDATION

The Planning Commission should conduct a public hearing, consider the staff report and public comments, and make a recommendation for the King City Council's consideration. The planning consultant and city staff recommends approval of the *King City Urban Reserve Area 6D* to enable King City to apply to Metro for an Urban Growth Boundary (UGB) expansion to include URA 6D in the UGB.

Figure 1 – URA 6D



INTRODUCTION

About King City

Originally conceived and developed as an age-restricted retirement community, King City was incorporated in 1966. Until the 1990s, virtually all of the residential neighborhoods in the city were within the retirement community governed by the King City Civic Association. Following a December 1998 expansion of the Urban Growth Boundary (UGB) to include Urban Reserve (UR #47), the city developed a concept plan for this 91-acre area, which is now referred to as the West King City Plan area. Its annexation in 2002 triggered significant residential development causing a rise in the city's population from approximately 2,500 to an estimated population of over 3,500 today. Because the new neighborhoods are not age-restricted, the city has transformed from a retirement community to a much more diverse population including working age adults and families.

The city's planning and development has been consistently guided by the Statewide Planning Goals and Metro planning objectives. The West King City Plan area was developed to create desirable neighborhoods, which met Metro's minimum density and multi-modal circulation requirements. The area has proven to be a popular residential area, and after 16 years, the entire city is virtually built out with approximately 1.5 residential and 2.3 commercial acres available for new residential development. The *City of King City Housing Needs Analysis* estimates that a total of 40 new units would be possible.

Related to the SW Corridor high-capacity transit planning work conducted by Metro and southwest metropolitan area jurisdictions, the city turned its attention to the commercial area along Highway 99W,

which is designated in Metro 2040 as a Town Center along with a corresponding area on the east side of the highway that is in Tigard. King City first actively participated in Tigard's *Concepts for Potential Station Communities – High Capacity Transit and Land Use Plan* in 2012. This project analyzed, and concept plan for, the 99W/Durham Town Center area, including the King City side of 99W.

With the acquisition of a Metro Community and Development Grant in 2013, King City built upon this preliminary town center work by producing and adopting the *King City Town Center Plan and Implementation Strategy* in 2015. This included a package of King City Comprehensive Plan and Community Development Code amendments to encourage higher density mixed-use development along with improvements to the pedestrian realm. Since adoption, the city has been focused on systematically implementing the plan. Because pedestrian access and safety is such a key element, the city has partnered with Washington County to build complete pedestrian and bicycle facilities along the SW Fischer Road connection to the south end of the Town Center. The city is also working with ODOT to complete missing sidewalk segments on the west side of Highway 99W.

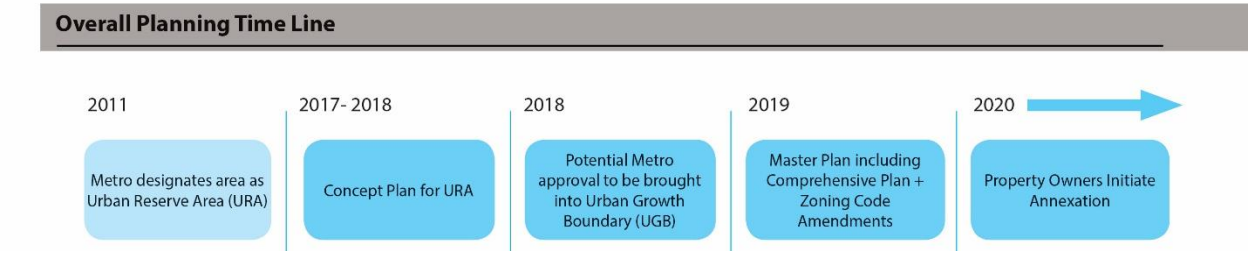
Overview of the URA 6D Planning Process

Urban Reserve Area (URA) 6D, as shown in Figure 1, was designated as such by Metro in 2011. This area of approximately 528 acres is located immediately west of King City and generally bordered by Beef Bend Road on the north, Roy Rogers Road on the west, and the Tualatin River on the south. Prompted in part by the dwindling supply of developable or redevelopable land with the current city limit and UGB, King City initiated a concept planning process for this area. The city began the planning work in fall 2016. This included public engagement opportunities, with a week-long charrette representing the key point where the general public influenced the direction of the plan. This was complemented by work with a Stakeholder Advisory Committee made up of residents and property owners and a Technical Advisory Committee consisting of agency and organization representatives.

To further support the concept planning effort, the city recently engaged ECONorthwest to create the *City of King City Housing Needs Analysis* (HNA), which is to be adopted as an element of the King City Comprehensive Plan. The HNA provides information about the current housing situation in King City, issues pertaining to providing future housing for residents in King City and immediate vicinity, and potential methods to meet current and future housing needs. Public hearings to consider the plan and its adoption began with the King City Planning Commission on March 7, 2018, and King City Council is scheduled to review the plan and consider formal adoption on March 21, 2018.

Assuming a Metro UGB expansion includes URA 6D, the city will continue on to the more detailed master planning phase for this area, making supporting amendments to the King City Comprehensive Plan and Community Development Code, and working with property owners. Close coordination with partner jurisdictions and agencies will continue throughout the planning, annexation, and development stages. Under the quickest possible schedule, urban development in URA 6D will not occur until sometime after 2020. The planning steps and timeframe are summarized in Figure 2.

Figure 2



CONCEPT PLAN OVERVIEW

The *Concept Plan – King City Urban Reserve Area (URA) 6D* is attached to this report. The plan and related appendices are available on the city's website at: http://www.ci.king-city.or.us/departments/parks_and_recreation/king_city_ura.php . The primary elements include:

- **Vision and Goals** (pp. 9 – 11). The vision and goals emphasize the importance of:
  - Sensitivity to the Tualatin River and surrounding natural areas
  - Creating a community of great neighborhoods
  - Providing universal access and fluidity of transportation
- **Evaluation of Base Conditions** (pp. 13 – 26). Existing conditions for natural resources and sensitive lands, land use, transportation, and public utilities were inventoried and evaluated in a series of reports.
- **Concept Planning Frameworks** (pp. 27 - 80). In response to the existing conditions evaluation, appropriate planning approaches were developed for natural systems, future land use, mobility, and public utilities and services.
- **Infrastructure Funding** (pp. 81 – 85). Based upon the identified transportation and utility facility needs, the associated costs were estimated along with a method for new development to finance the necessary transportation and utility infrastructure.
- **Development Phasing** (pp. 87 -89). A two-phase development approach is described in the document beginning with urban development initially occurring in the western and northern portions of the area followed by a second phase of development and some redevelopment in the central and southeastern portions of URA 6D. The level of property owner interest annexing into the city and development will largely determine the pace of development, which is envisioned to take 20 years or more.

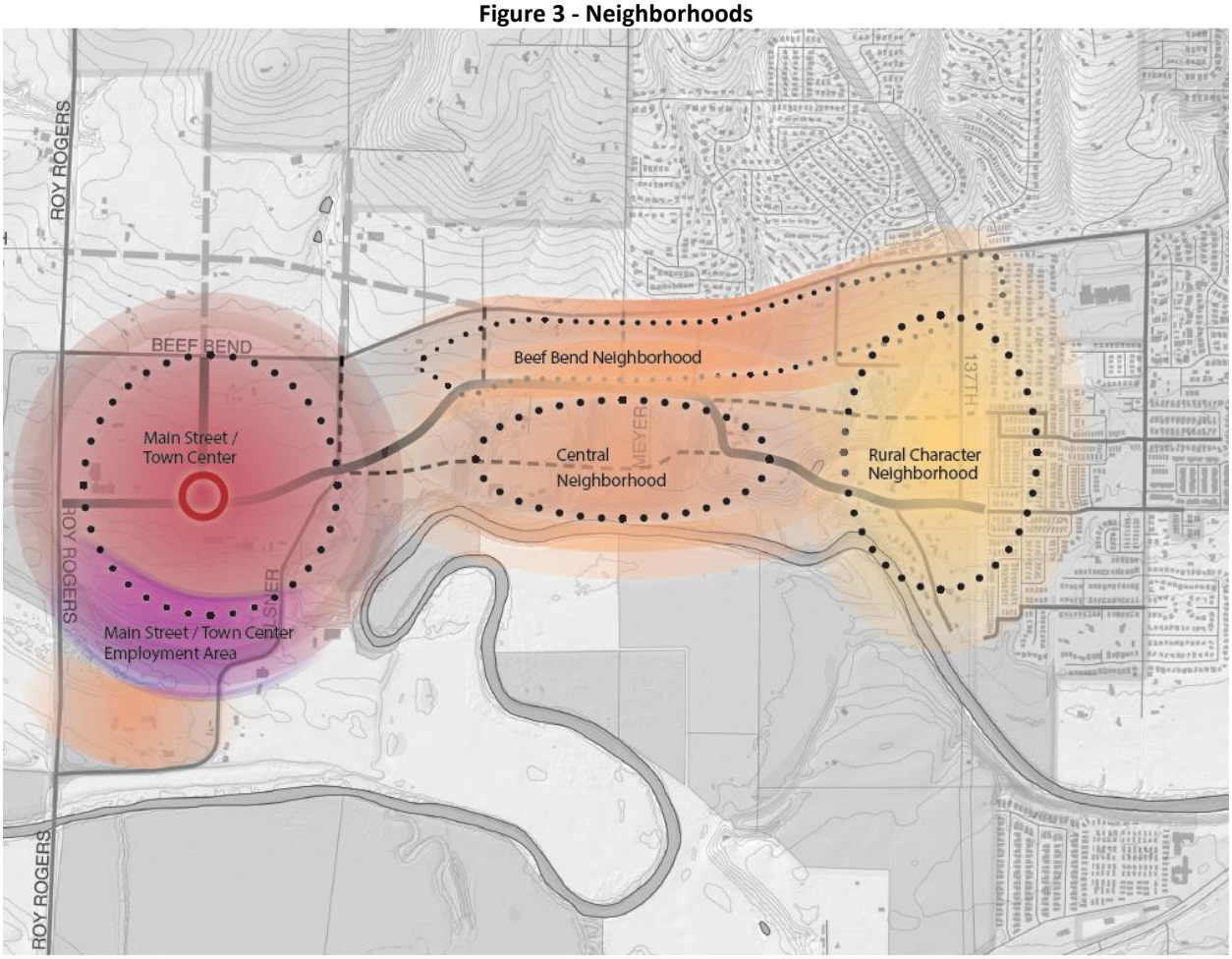
LAND USE FRAMEWORK

A key element of the Concept Planning Frameworks is the land use concept to create four primary neighborhoods types, which are shown in Figure 3 and summarized below:

- **Main Street/Town Center**. Located near the Roy Roger/Beef Bend intersection, this area is intended to include a mixed-use center consisting of retail, employment, high density residential, and public uses. It would align with the projected southerly extension of River Terrace Boulevard from the River Terrace development in Tigard.

- **Beef Bend Neighborhood**. Located along the south side of Beef Bend Road, this neighborhood is envisioned to consist primarily of residential development, which is not as dense as the Main Street to the west. A transition to lower density development to the south is proposed.
- **Central Neighborhood.** This area is planned to accommodate single family residences that are detached and attached. Overall densities would be lower than the previous two neighborhoods, and there would be a more pronounced presence of natural areas and greenspaces.
- **Rural Character Neighborhood.** This area coincides primarily with the established Rivermeade neighborhood, which currently contains rural residential homes on properties ranging from 1/3 to several acres in size. Maintenance of much of the rural character of this area is envisioned to remain by having the lowest residential densities and providing opportunities for modest redevelopment. As with the Central Neighborhood, natural areas and greenspaces will be predominant features in this neighborhood.

Figure 3 - Neighborhoods



RECOMMENDED FINDINGS AND CONCLUSIONS

The relevant criteria for evaluating the *Concept Plan – King City Urban Reserve Area 6D* are found in:

- The King City Comprehensive Plan
- The Oregon Statewide Planning Goals
- Portions of Metro Code Chapter 3.07

Because the policy direction in the King City Comprehensive Plan is based directly upon the Oregon Statewide Planning Goals, addressing the comprehensive plan will simultaneously consider the state goals. The recommended findings are followed by background and supporting information in this report and the Concept Plan. The Planning Commission should consider the findings regarding the proposed *Concept Plan – King City Urban Reserve Area 6D* when making its recommendation to the King City Council as to approve, approve with amendments, or disapprove the plan.

King City Comprehensive Plan - Goals

The King City Comprehensive Plan is organized using the Statewide Planning Goals. The plan goals are satisfied as indicated below:

Citizen Involvement - Goal 1: To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.

The plan amendment was created with citizen input. The development of the *Concept Plan – King City Urban Reserve Area 6D* was dependent from the start on input and participation by residents, property owners, partner agencies, Planning Commission, and City Council. In addition to a multi-day public planning charrette, the city conducted significant public outreach including two newsletters sent to all city residents and public notice mailings. This goal is satisfied.

Land Use Planning - Goal 2: To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions.

The city has adopted the King City Comprehensive Plan and Community Development Code in accordance this goal, and as noted above, citizens participated in that process as well as being involved in the creation of the *Concept Plan – King City Urban Reserve Area 6D*. This goal is satisfied.

Agricultural Lands – Goal 3 and Forest Lands – Goal 4

URA 6D does contain some agricultural lands, especially in the western portion. However, the decision about what agricultural resources to protect and which ones were ultimately better suited for future urban development was made on a regional scale with the designation of this area as an urban reserve rather than a rural reserve. Based on this decision, the primary responsibility is to minimize adverse impacts on nearby agricultural lands that are either designated as rural reserves or undesignated.

Land within the existing UGB or URA 6C (north of Beef Bend Road and east of Roy Rogers) abut URA 6D on the north and east. The Tualatin River and associated flood plain and sensitive lands provide a natural buffer on the south. There is one small area where the URA boundary abuts EFU land near the southern

section of Elsner Road near the Tualatin River. During the subsequent master planning and development phases, closer attention will be paid about how to provide appropriate buffers and protection for agricultural activities. Land to the west of Roy Rogers Road is separated by this substantial roadway. Due to access limitations along this road, development occurring in the URA will be internally focused, thereby virtually eliminating potential interference with resource activities on the west side of the road.

While there are forested areas in URA 6D, they are typically not suitable for forestry use because they are in sensitive areas that provide necessary habitat and water quality protection. These areas are recognized as valuable assets in the concept plan and are envisioned to be retained.

Open spaces, scenic and historic areas, and natural resources – Goal 5: To conserve open space and protect natural and scenic resources.

One historic resource, Gustave Plieth House, was identified in URA 6D. Open space and natural resources, consisting primarily of flood plain, drainageways and wetlands, are recognized in the plan and will continue to be protected in accordance with current standards and requirements. This goal is satisfied.

Air, water and land resource quality – Goal 6: To maintain and improve the quality of the air, water, and land resources of the state.

As noted under Goal 5 above, existing open space and natural resource areas will continue to be regulated and protected as they are today. Major themes of the plan are to maintain and enhance natural resources and sensitive lands and to improve the active transportation environment to promote fewer car trips leading to a modest beneficial effect on air quality. In addition, the plan will guide the master planning stage along with subsequent amendments to the King City Comprehensive Plan and Community Development Code to encourage walking and bicycling to make short local trips and ultimately transit for longer ones. This goal is satisfied.

Natural Disasters and Hazards – Goal 7

The identified hazard areas are primarily related to drainageways and the Tualatin River flood plain. The concept plan identifies these areas and proposes to direct development away from them and to use development techniques that will not exacerbate storm drainage damage or raise flood levels. This goal is satisfied.

Recreational Needs – Goal 8: To satisfy the recreation needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.

The URA 6D currently does not contain any recreational areas. The plan does advocate for the provision of a network of parks, greenspaces, and trails to link them. The plan also seeks to leverage other recreational facilities, such as the Westside Trail. This goal is satisfied.

Economy – Goal 9: To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.

An important focus of the plan is to a Main Street/Town Center area to encourage a variety of business

opportunities appropriate to the scale of the surrounding residential neighborhoods. Urban design aspects of the plan promote a pedestrian-friendly appearance and character of the center. The implementation actions in the plan are geared toward improving walkability and to create a center, which is transit-ready, to enable TriMet to provide effective future service. Once implemented, these actions are expected to improve the economic viability and success of the city and surrounding community. This goal is satisfied.

Housing – Goal 10: To provide for the housing needs of citizens of the state.

The concept plan proposes a wide range of housing types, many of which are consistent with meeting affordable housing aspirations. The recently completed *City of King City Housing Needs Analysis* confirmed that the city has already taken important steps to support affordable housing. Consistent with recent DLCD direction to encourage manufactured home parks, the city currently allows manufactured homes in all of its residential zones. The HNA provides additional actions to be considered during the master plan stage. This goal is satisfied.

Public Facilities and Services – Goal 11: To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

Urban transportation and utility infrastructure needs were identified and evaluated along with a finance plan to pay for them. The information is provided in the plan document and appendices. The results demonstrate that while the cost of new infrastructure to serve URA 6D will be significant, the costs can be borne by new development in a manner that is consistent with other new developing areas in the vicinity, such as River Terrace. The improvements, costs, and finance methods will be further refined during the subsequent master planning stage. This goal is satisfied.

Transportation – Goal 12: To provide and encourage a safe, convenient and economic transportation system.

A primary objective of the concept plan is to provide a balanced transportation system, which successfully accommodates all modes. The importance of Roy Rogers Road, Beef Bend Road, and Fischer Road as regional and local transportation facilities is recognized. In addition, the plan and many of the recommended implementation actions are intended to encourage active transportation by improving facility safety, connectivity, and environment to promote walking, bicycling, and future transit. This goal is satisfied.

Energy Conservation – Goal 13: To conserve energy.

The promotion of active transportation and allowing a greater degree of mixed-use development in the Main Street/Town Center area are expected to help replace short vehicular trips with walking, bicycling, or transit. This will help reduce energy use. This goal is satisfied.

Urbanization – Goal 14: To provide for an orderly and efficient transition from rural to urban land use.

Expanding the UGB to accommodate future development needs is a complex undertaking involving many players including Metro, DLCD, local government jurisdictions, service providers, property owners and the general public. The process for ultimately bringing URA 6D into the UGB began with Metro's 2011 designation as an Urban Reserve Area in 2011. This concept plan represents the next step to begin

identifying potential outcomes relating to land use, mobility, natural systems and open space, and transportation. As noted above, this plan will not be formally adopted, but rather, it will serve as a guide for subsequent planning work including the master plan and amendments to the King City Comprehensive Plan and Community Development Code. This goal is satisfied.

Metro Code Chapter 3.07

Chapter 3.07 of the Metro Urban Growth Management Functional Plan must be considered by local Metro requires King City to address all Metro Urban Growth Management Functional Plan provisions in Section 3.07.1425 (d) 1-5. Subsections 1 through 5 are addressed below:

1. ***Whether the area is adjacent to a city with an acknowledged housing needs analysis that is coordinated with the Metro regional growth forecast and population distribution in effect at the time the city's housing needs analysis or planning process began.***

   The city is expected to adopt the *City of King City Housing Needs Analysis* prepared by ECONorthwest in March. This housing needs analysis was based upon the current Metro regional growth forecast and population distribution estimates. The plan will subsequently be submitted to DLCD for acknowledgement later this month.

2. ***Whether the area has been concept planned consistent with section 3.07.1110 of this chapter.***

   The *Concept Plan - King City Urban Reserve Area 6D* includes the necessary plan elements and satisfies the provisions of Section 3.07.1110 by:

   - Developing a concept plan in coordination with Metro including the required components relating to proposed land use, public infrastructure, transportation, and parks.
   - Developing a concept plan in close coordination with partner jurisdictions and service providers, including Tigard Tualatin School District.
   - Estimating service and utility costs along with financing methods to provide them.
   - Proposing a use mix and density that will be capable of being efficiently served commensurate with comparable developing areas in the region.
   - Proposing a wide variety of housing types consistent with recommendations in the *City of King City Housing Needs Analysis.*
   - Identifying a mixed-use center intended for employment opportunities consistent with the needs of the surrounding area.
   - Placing considerable emphasis on creating a well-integrated transportation system that will promote active transportation throughout the planning area and with nearby destinations including the existing King City.
   - Featuring a network of parks, greenspaces, and trails linking all neighborhoods.
   - Maintaining existing natural areas and using them to help define the character of different neighborhoods.
   - Taking advantage of developed and natural buffers surrounding URA 6D to minimize any potential adverse impacts upon resource lands in the area.
   - Providing evidence of agreements between King City and partner jurisdictions and service providers.

3. Whether the city responsible for preparing the concept plan has demonstrated progress toward the actions described in section 3.07.620 of this chapter in its existing urban areas.

As described in the Introduction, King City has worked diligently with Metro and partner agencies to promote the transformation of the city's existing commercial district into a pedestrian-friendly and transit-oriented town center as envisioned in Metro 2040. The city adopted the *King City Town Center Plan and Implementation Strategy* to encourage this change from an auto-oriented strip commercial district to a mixed-use center more in keeping with the 2040 vision. Naturally, market conditions and availability of public and private funds will largely dictate the pace of this change. However, as noted in the Introduction, the city has taken positive steps toward implementation, including a major multi-modal improvement for Fischer Road. The city has also worked with TriMet to improve transit access to the city and town center in particular as part of TriMet's implementation of the SW Service Enhancement Plan.

Also noted in the Introduction, the city successfully oversaw the development of former Urban Reserve #47 (now West King City Plan area) in a manner consistent with Metro requirements regarding land uses, density, transportation, and pedestrian circulation. This area is virtually 100% built out with only one remaining undeveloped property and a few small properties that could potentially redevelop.

4. Whether the city responsible for preparing the concept plan has implemented best practices for preserving and increasing the supply and diversity of affordable housing in its existing urban areas.

King City satisfies this criterion for past work within its current city limits based upon the following:

- With its beginning as a retirement community, King City has always been known for providing a variety of affordable housing types including smaller single family detached and attached residences, apartments, condominiums, and manufactured homes.
- This philosophy has continued and is reflected in its comprehensive plan policies, treatment of former UR #47, and its recent *King City Town Center Plan and Implementation Strategy*.
- The King City Community Development Code (CDC) and the corresponding zoning designations allow and encourage the mix of housing types noted above.
- Treatment of existing manufactured home parks (including Mountain View on Beef Bend Road) as conforming development rather than as nonconforming.
- Amendment of the CDC to allow commercial and residential mixed-use in the town center, which is zoned LC Limited Commercial.
- Allowing flexibility through its planned development provisions in the CDC to allow flexibility in housing types that yield more affordable housing types. Attached townhomes in the southeast corner of the city (River's Edge) is a recent example.
- Minimum parking requirements that are consistent with Metro directives.

5. ***Whether the city responsible for preparing the concept plan has taken actions to advance Metro's six desired outcomes set forth in Chapter One of the Regional Framework Plan.***

The desired outcomes appear to pertain to both what the city has accomplished within it current city limit and what is proposed in the concept plan. Therefore, each outcome has two responses addressing past performance and concept plan proposals.

1. ***People live, work and play in vibrant communities where their everyday needs are easily accessible.***

King City has satisfied this outcome within its current boundary by:

- Having a compact, affordable community with easy, and generally walkable, access to retail, services, entertainment, and recreation has been a constant urban design principle for the city.
- Providing convenient multi-modal access to the town center, which provides many daily needs.
- Recreation is provided for all ages by the KCCA and the city.
- Creation of a neighborhood park to serve non-KCCA residents in the western portion of the city.

The URA 6D concept plan supports this outcome by:

- Proposing a compact, affordable community with easy access to retail, services, entertainment, and recreation also guides the URA 6D Concept Plan.
- Providing a mixed-use main street that will be practical to serve by transit in the future; diverse neighborhoods that respond to community needs, environmental conditions and community context; parks and trail system; and multi-modal circulation.

2. ***Current and future residents benefit from the region's sustained economic competitiveness and prosperity.***

King City has satisfied this outcome within its current boundary by:

- Supporting transit service provided by TriMet to take advantage of its location near regional employment.
- Actively participating with Metro and partner jurisdictions in SW Corridor.
- Maintaining an on-going commitment to retain a viable town center including recent plan/CDC amendments to encourage mixed-use and promote active transportation.
- Becoming more well-rounded and diverse as it has grown with a much greater mix of working age families and retirees.

The URA 6D concept plan supports this outcome by:

- Proposing a mixed-use center to provide access to employment opportunities in the southwest portion of the region.
- Coordinating with Tigard Tualatin School District to provide necessary school sites and to ultimately reap the benefit of a well-educated and prepared population.
- Providing a range of employment opportunities in the main street town center area.

3. People have safe and reliable transportation choices that enhance their quality of life.

King City has satisfied this outcome within its current boundary by:

- Consistently supporting walking accessibility. Virtually all city streets have sidewalks.
- Supplementing sidewalks by strategically locating pathway connections to enhance overall pedestrian system utility and convenience.
- Developing former UR #47 between 131st and 137th according to a concept plan supporting interconnected local street and pedestrian routes. There are few cul-de-sacs and pedestrian connectivity is excellent throughout King City.
- Proactively working with Washington County and ODOT to file sidewalk and bike lane gaps. Full improvement of Fischer has recently been completed with joint city county funding, and ODOT is preparing to construct missing along 99W within the town center.
- Coordinating with TriMet to provide enhanced bus service to the town center area.
- Participating in Metro's SW Corridor project.

The URA 6D concept plan supports this outcome by:

- Proposing a main street/town center in URA 6D, which will have transit-supportive land use and densities.
- Proposing safe, convenient, and pleasant walking and bicycling routes throughout URA 6D and existing King City.
- Continuing on-going coordination with transportation partners including TriMet, ODOT, Washington County, and Tigard.

4. The region is a leader in minimizing contributions to global warming.

King City has satisfied this outcome within its current boundary by:

- Having a compact, pedestrian and bike accessible city.
- Consistently supporting existing transit and future service improvements.
- Providing, and continuing to improve easy access to the town center, which provides most daily needs.
- Allowing a variety of smaller and more energy efficient housing types in its CDC.

The URA 6D concept plan supports this outcome by:

- Having a compact, affordable community with easy access to retail, services, entertainment, and recreation has been a constant principle for the city.
- Proposing a mixed-use and higher density main street to encourage more energy efficient units and more walkable and transit-supportive development character.

5. Current and future generations enjoy clean air, clean water and healthy ecosystems.

King City has satisfied this outcome within its current boundary by:

- Having a compact, pedestrian and bike accessible city.
- Supporting environmental and flooding protection as required by state and federal regulators and Clean Water Services.

The URA 6D concept plan supports this outcome by:

- Proposing a compact, pedestrian and bike accessible community.
- Supporting environmental and flooding protection as required by state and federal regulators and Clean Water Services.

6. The benefits and burdens of growth and change are distributed equitably.

King City has satisfied this outcome within its current boundary by:

- Allowing a wide range of affordable housing types including small lot residential, townhomes, multi-family, commercial-residential mixed use, and manufactured homes.
- Assessing development fees to ensure that new development pays equitably for public services and facilities.
- Developing land efficiently and consistently with Metro and state guidance.

The URA 6D concept plan supports this outcome by:

- Expanding upon the city's practice of allowing a wide range of affordable housing types including small lot residential, townhomes, multi-family, commercial-residential mixed use, and manufactured homes.
- Creating a financing plan to ensure that new development pays equitably for public services and facilities.
- Developing land efficiently and in conformity with Metro and state guidance.

CONCEPT PLAN

KING CITY URBAN RESERVE AREA 6D

PUBLIC REVIEW DRAFT FEBRUARY 2018

Acknowledgments

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Acknowledgments

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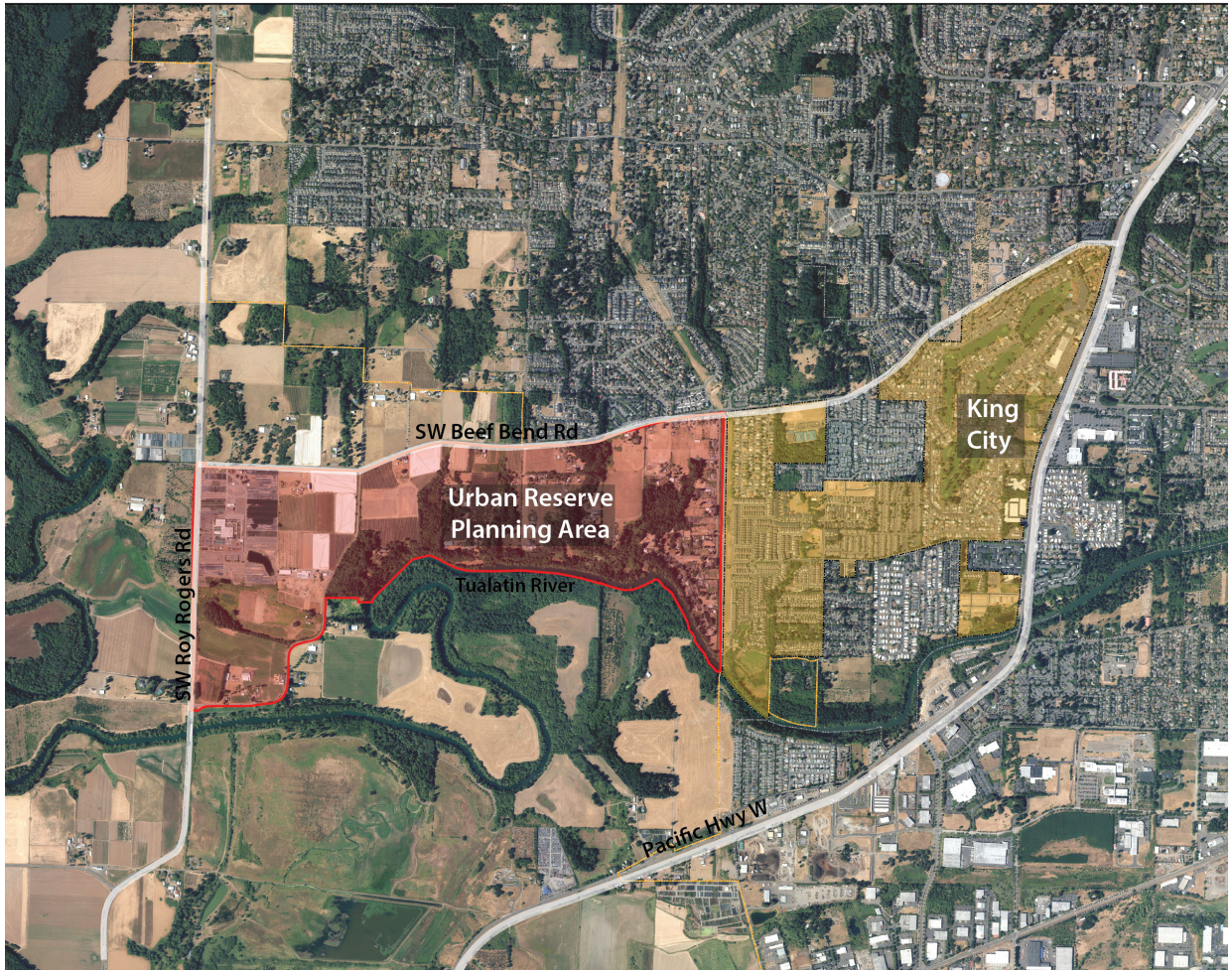
TABLE OF CONTENTS

1. INTRODUCTION

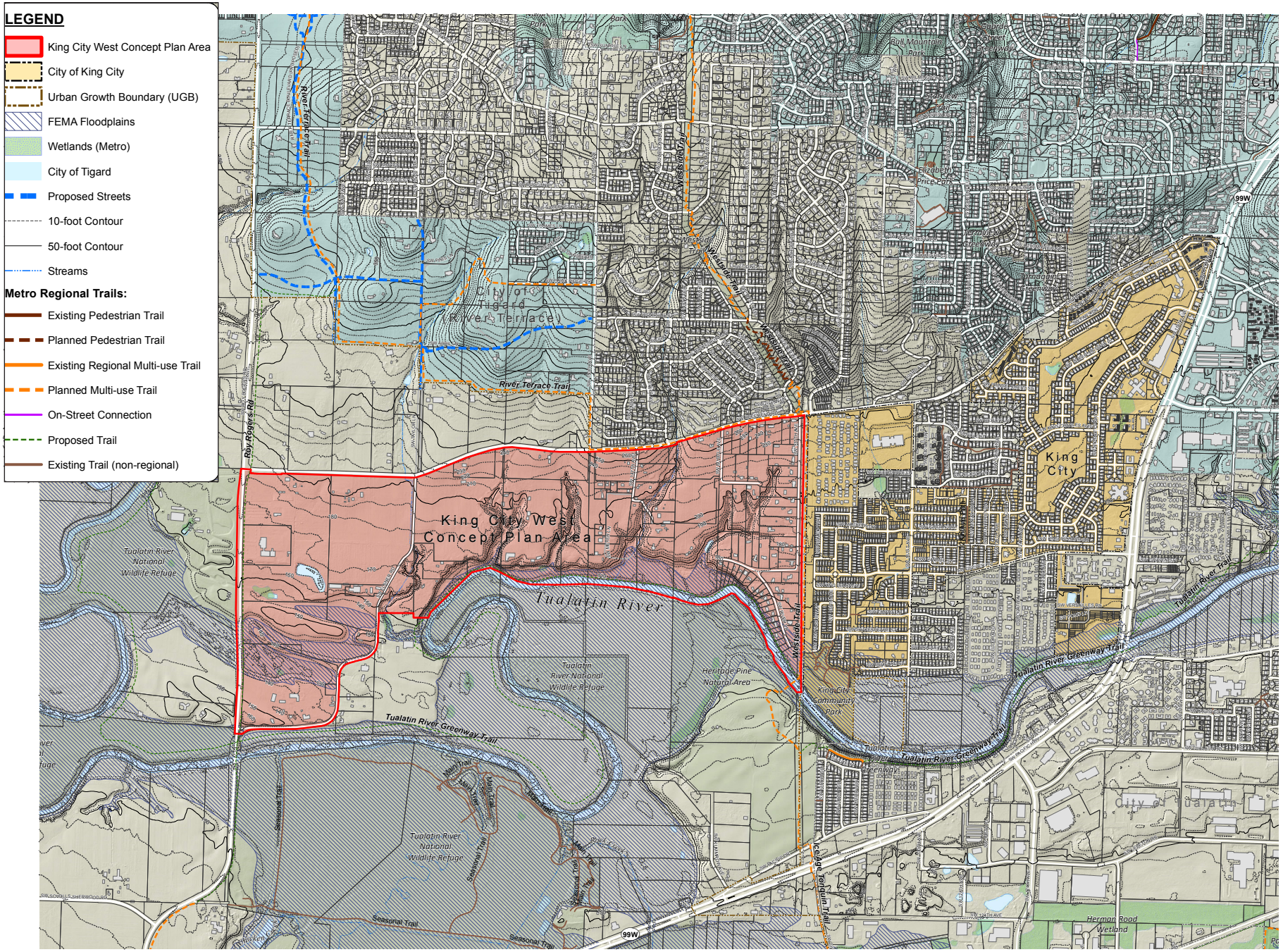
Planning Area

The URA 6D planning area is approximately 528 acres located immediately west of King City. It was designated by Metro as an Urban Reserve Area in 2011. SW Beef Bend Road and SW Roy Rogers Road border the area on the north and west, respectively. The south boundary is formed primarily by the southern segment of SW Elsner Road and the Tualatin River.

Land along the river is within the 100-year Tualatin River flood plain, and five drainages generally run south from Bull Mountain to the river. Riparian and wetland habitat is found in portions of these areas. The land outside of the flood plain and drainages is currently devoted to agriculture, rural home sites, and a retail garden and landscaping business on SW Roy Rogers Road. The eastern portion of the URA is within Rivermeade Subdivision, which has lots ranging between approximately 1/3 to 3 ½ acres. Property sizes in the URA tend to become larger from east to west.



Vicinity Map



URA 6D and surrounding area

Need for the Plan

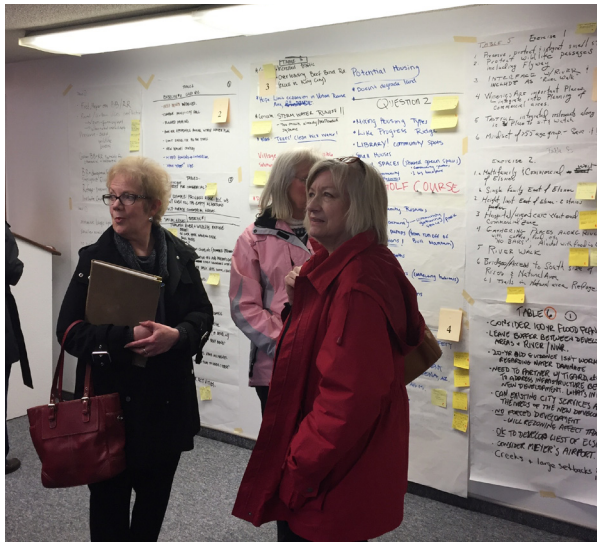
Recognizing an approaching shortage of developable urban land for future residential and employment growth in the Portland region, Metro and the region's cities and counties began to evaluate suitable urban reserve areas in 2009. In Washington County, the study area included over 170,000 acres closest to the existing Urban Growth Boundary (UGB). Land within this area was analyzed for suitability as rural reserves, land to continue in resource use, and urban reserves, land most suitable for urbanization within the next 40 to 50 years. Part of the evaluation included an assessment about how much future urban development could be accommodated within the existing UGB.

Following a planning and public involvement process involving Washington County, cities, Metro, and the Oregon Land Conservation and Development Commission, it was determined that the existing UGB could not accommodate all of the anticipated future urban development and that additional land would be necessary for homes, businesses, and public facilities. Because of its overall suitability to support urban development, URA 6D was designated as an Urban Reserve Area in 2011.

2. PLAN DEVELOPMENT

URA 6D Concept Plan Initiation

Because this area is adjacent, King City is sponsoring an Urban Reserve Area 6D Concept Plan to consider how this area might be developed when Metro determines that it is needed to accommodate future urban growth. This long-range planning project is the second of a multi-step process involving area residents and stakeholders, affected agencies and jurisdictions, and Metro. Metro will be making a decision regarding possible Urban Growth Boundary (UGB) expansion for the region at the end of 2018, and URA 6D will be a candidate for consideration. Whether Metro determines there is a need to include URA 6D in the UGB or not, Metro will continue to review urban land needs periodically in the future.

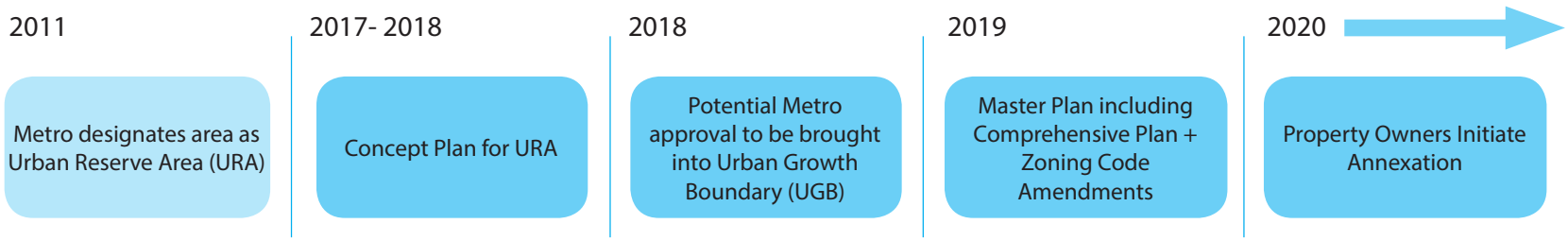


Public workshop and open house

Overall Planning Timeline

Assuming URA 6D is brought into the UGB at the end of 2018, additional planning work will be required, including more detailed master planning for the area, King City Comprehensive Plan and Community Development Code (zoning and land use regulations) amendments to reflect the master plan, and property annexation prior to any urban development. The figure below summarizes the shortest anticipated timeline, which could be extended depending upon Metro determination and the interest of property owners in annexing and developing their properties.

Overall Planning Timeline



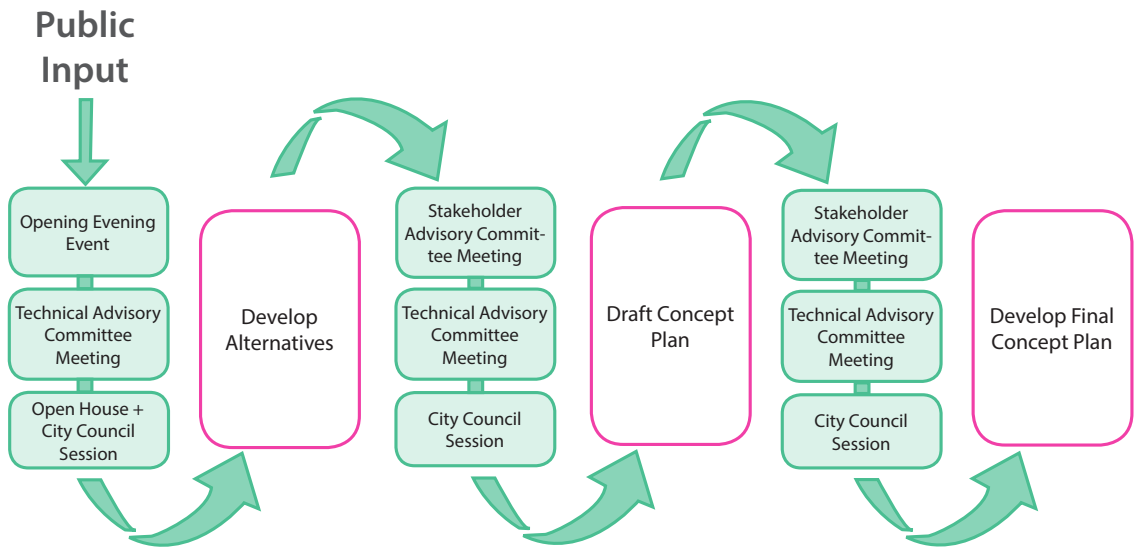
URA 6D Concept Plan Process

The Concept Plan was developed during a four-phase process beginning in September 2016 and concluding in April 2018:

- **Phase 1 – Set Vision and Goals.** Stakeholders were asked to identify important issues to be addressed during the project along with desired general outcomes they would like to see.
- **Phase 2 – Base Conditions and Key Findings.** Background reports were produced and made available regarding housing, land use, infrastructure, natural resources, and environmentally sensitive areas to help guide the planning process and outcomes.
- **Phase 3 – Concept Framework.** A draft overall plan framework was developed with the involvement of stakeholders and local governments and service providers for public review and modification in Phase 4.
- **Phase 4 – Concept Alternatives and Recommendations.** Concept planning alternatives were prepared and a preferred alternative concept plan was selected. A key involvement opportunity was a multi-day planning charrette, which involved residents, stakeholders, local governments, and service providers. In addition to the charrette, public and agency review and comment was facilitated by:

- **Stakeholder Advisory Committee** (SAC) consisting of residents and property owners within and near the planning area.
- **Technical Advisory Committee** (TAC) made up of local government and public service providers that are, or would be, responsible for providing public services and facilities to accommodate development in the planning area.
- **Public briefings** were held before the King City Council and Planning Commission to provide information about the project status and to receive input regarding direction of the Concept Plan.

The planning process was iterative giving the public, SAC, TAC, and city officials an opportunity to influence the planning process and outcome at several key stages of the Concept Plan's development as summarized in the public input diagram below. Additional information regarding the planning process and opportunities for involvement are provided in the appendix.



Public involvement diagram

3. CONCEPT PLAN VISION AND GOALS

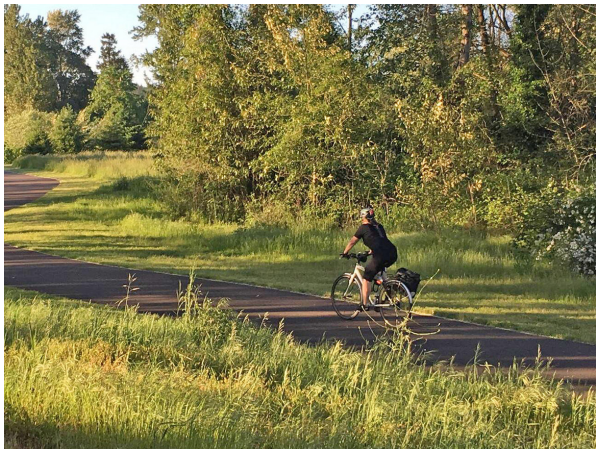
Vision and Goals

During the URA 6D concept planning process, the community helped identify and refine the vision and goals for development of this area. The vision and goals were vetted and refined by stakeholders. The resulting community vision is an area of great neighborhoods that is a blend of housing, neighborhood-serving commercial, light industrial and civic uses with consideration for schools, parks and recreational spaces.

SENSITIVITY TO TUALATIN RIVER AND SURROUNDING NATURAL AREAS

» **Tualatin River as reason for being:** The river is a defining feature of this area and a major contributor to what makes it special. New development should connect, in physical and other ways (like wayfinding and other public art) to the Tualatin River and Wildlife Refuge. Provide access to the Tualatin River through a Riverwalk trail and a trail across the river. Maintain a sensitivity to the health and vitality of the river.

Charrette opening evening event



- **Graceful transitions:** Make sure that development transitions down in scale and intensity where it meets natural areas, particularly on the southern edge where future development might be located near the Tualatin River. Transition density from center to edge. Leave a buffer between developed and undeveloped areas, the river and the Tualatin Wildlife Refuge.
- **Integrated stormwater management throughout:** Use new development to treat stormwater from the new development and also from existing development uphill. Aim to reduce runoff and heal existing erosion damage. Use best practices for stormwater management and mitigation; build upon what Tigard has done for River Terrace and areas north of the URA.
- **Integrate nature into developed areas:** Integrate green spaces and wetlands into each neighborhood. Provide different choices for recreation and parks, including pocket parks, recreation and playfields, and a connected trail system.

COMMUNITY OF GREAT NEIGHBORHOODS

- **Character of development:** Develop neighborhoods that are a blend of residential and, in some locations, neighborhood-serving commercial. Denser development is desirable provided there is easy access to green spaces.

  A new mixed use area should have local-serving uses and neighborhood scale character, with places such as a library, school, new city hall, police station and recreation facilities. In addition, consider commercial uses that cater to the wine country tourism such as a boutique hotel, winery or brewery. Consider also campus-style employment or institutional uses. New development should strive to serve existing neighborhoods and new residential uses that will be developed in the URA and surrounding area.
- **Range of housing types and inclusive development**: Provide a mix of housing to accommodate a wide range of household types, incomes, and needs. Affordability is key; provide affordable housing that matches the identity of King City and includes single story living options. Housing should appeal to a full spectrum of people, taking into account diverse incomes, ages, and needs.
- **Historical context:** New development should respect the history of the area.
  - Drawing on the tradition of agriculture in the area, make it easy to access farm-fresh foods; consider incorporating urban farming and/or provide easy access to urban farming, including community gardens.
  - Consider Meyer's airstrip and related airspace when planning for future development.

- Respect the senior community that is a part of King City's history by creating inclusive developments for all ages.
- Include history of the area in plans, and the heritage of agriculture and earlier cultures.

» **Connected communities:** Build connections between new developments and existing King City. Consider ways to complement existing civic and commercial activities and other amenities in the town center area. Strive to bring communities together with shared community character. Consider ways to connect to other destinations, such as regional parks, trails and mixed use developments in neighboring River Terrace.

UNIVERSAL ACCESS AND FLUIDITY OF TRANSPORTATION

» **Support all modes of transportation:** Prioritize walking and bicycling over driving for local trips within the URA and nearby areas, including downtown King City. In addition to walking and bicycling, include routes for other modes of transportation, such as golf carts and horses. Consider extending golf cart use by providing parking, service hubs, golf cart park and ride connections to transit. Refer to King City Town Center Plan and Implementation Strategy for additional ideas.

» **Complete network of street and path types:** Complement the conventional street and trail system of local streets and paths with types of streets and trails that are unique to King City, and that share park-like or rural characteristics: curbless green streets, alley-trails, and "country roads."

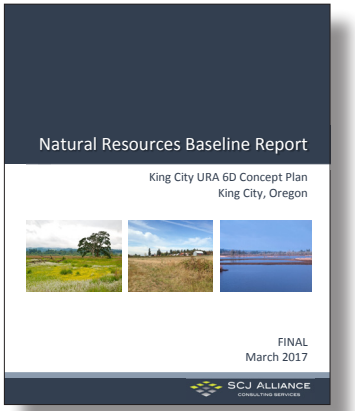
» **Connected transportation network:** Create an internal system of streets and paths that offer internal neighborhood mobility, so that SW Beef Bend Road is not necessary for every trip. Provide convenient connections to transit. Provide streets that seamlessly connect to trails and vice versa. Connect to existing and planned trails in the region.

4. BASE CONDITIONS AND KEY FINDINGS

SUMMARY OF METHODOLOGY

The methodology applied to the Concept Plan began with expert-led analyses of the Base Conditions for each discipline (natural resources, land use, mobility and infrastructure). This phase culminated in a synthesis, or layering, process of mapping the physical and regulatory opportunities and constraints. The layering process established the Design Frameworks, which guided the creation of alternatives, development scenarios, and the proposed Concept Plan.

Summary of Methodology	
Issues addressed	» *Natural Resources* » *Land Use and Ownership Patterns* » *Mobility* » *Infrastructure*
Purpose of Base Conditions Reports	*Inventory existing physical conditions, policies and plans that apply to the area*
Purpose of the Design Frameworks	*Respond to Base Conditions (physical conditions, policies and plans that affect development in the area):* » *Identify opportunities and constraints* » *Respond to Community Vision* » *Inform design philosophy* » *Set priorities and direction*
Alternatives and development scenarios	*Represent phasing and development scenarios*
	Describe potential development in the URA: » *Where it will occur, as defined by vision and goals, physical conditions and existing policies* » *How it will occur, according to property ownership patterns and willingness to develop or redevelop* » *Define development alternatives* » *Potential timing of development*



Contents of Natural Resources Baseline Report

The Natural Resources Baseline Report (SCJ Alliance, March 2017, Appendix B) inventories existing physical conditions, policies and plans that apply to the area.

Riparian Corridors

Wetlands

Wildlife Habitat

Groundwater Resources

Natural Areas

Oregon Recreational Trails

Mineral and Aggregate Resources

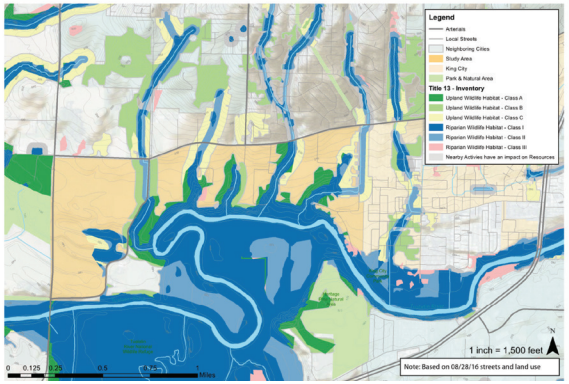
Cultural Areas

OVERVIEW OF NATURAL RESOURCES BASELINE REPORT

Introduction

The 528-acre planning area includes flood plains, riparian areas, and other sensitive lands. Potential developable areas are often separated into subareas by ravines, riparian areas, and similar natural features. The area is a mix of flat farmlands and deep ravines, sloping down to the river. The Tualatin River, which runs along the southern border of the URA, is the single most defining feature of the area; giving this place its unique character and highlighting the need for careful development. Just beyond the river to the south is the expansive Tualatin River National Wildlife Refuge. These natural areas in and adjacent to the planning area are sensitive natural resources that are essential to the greater ecosystem of the region and define, to a large extent, the other aspects of this plan such as land uses, the transportation network and public facilities.

King City is situated in the greater Tualatin River Drainage Basin, which forms the foundation for surface and subsurface hydrologic systems in and around the King City URA. The basin headwaters emanate from the Coast Range foothills, dominated by a basalt bedrock foundation. Lower elevation portions of the basin east of the foothills flow through Willamette Valley floodplains, eventually flowing into the Willamette River. King City is situated at the transition between the Middle Tualatin Sub-watershed Basin and the Lower Tualatin Sub-watershed Basin.



Riparian corridors, floodplains and upland habitat

The Tualatin River, Wetlands and Streams

The Tualatin River meanders around the southern edge of the URA. The standard buffer ranges from 125 to 200 feet dependent on the slope of uplands adjacent to the river. The river surface is at about 110 feet in elevation in summer months; the adjacent floodplain in the southern portion of the study area is about 10 feet higher. Total width of the vegetated (trees and shrubs) riparian corridor ranges about 300 feet, with the main flow channel being about 120 feet wide. Wetlands in this area are mostly farmed, ditched, and drained to varying degrees, although there are some protected areas that remain in natural vegetation, mostly on the southern side of the river.

The area contains five north-to-south draining stream ravines, which become increasingly deep, cutting down through the upper terrace as they drain toward the Tualatin River. The streams in the area are generally intermittent, but some do flow

year round. Recent reports describing surface storm-water hydrology in the surrounding area indicate that some of these drainages (particularly the first, second and fourth drainages, counting from the east) may be downcutting and eroding significantly due to several factors including impacts of storm-water runoff from developing areas to the north, soil type, climate change, agricultural practices, and property owner land-use practices.

Tree Groves

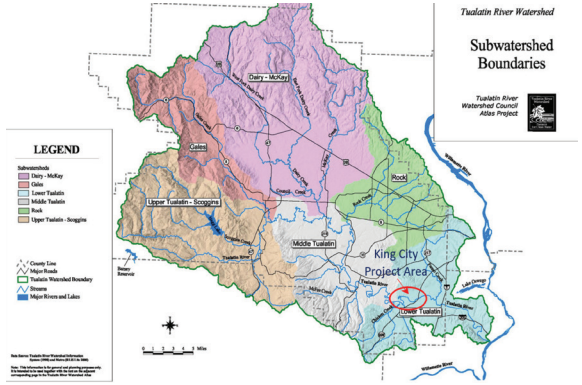
The URA supports a number of forested areas, particularly along the draining stream ravines and along the Tualatin River. Naturally vegetated areas and tree grove locations can be found in the Baseline report.

Cultural Area Resources

The Gustave Plieth House is listed on the National Register of Historic Places. The house along with several outbuildings were built beginning in 1890. "The farm complex is significant as an example of historical settlement in the country during the post frontier era. The number of outbuildings that remain intact adds support to the architectural merit of this resource." It is located south of SW Beef Bend Road, in the northern part of the plan area.

Existing Plans and Policies

Metro Title 13 of Metro's Urban Growth Management Functional Plan regulation requires that all cities and counties in the Metro area develop land use codes and policies that protect water quality and related fish and wildlife habitat. An inventory process which combines Regionally Significant

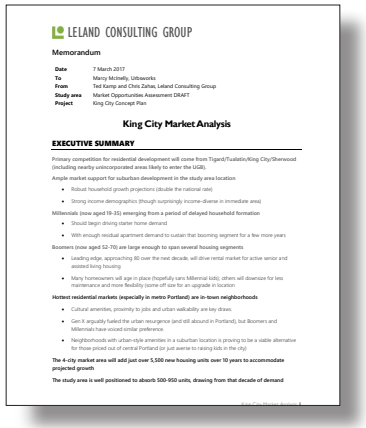


Sub-watershed boundaries map

Riparian & Upland Wildlife habitat, Habitats of Concern, and impact areas into one integrated layer provides a robust map of local intact habitat and hydrography systems – rivers, streams and floodplains – which are expected to encompass most natural wetlands in the area. It is possible, however, that not all jurisdictional wetlands are known in the URA because no detailed wetland inventory has yet been carried out.

Clean Water Services (CWS) provides stormwater services in Washington County and King Ci. It provides review and environmental service provider letters (SPL) for the City. This includes the review of vegetated corridors on streams and wetlands through a Pre-screening Site Assessment process to assess whether there are sensitive areas (wetlands, lakes, ponds, springs, streams, or rivers) within 100 to 200 feet of a proposed development activity. This buffer zone serves to protect water quality and other natural resources.

Gustave Plieth farm complex



LELAND CONSULTING GROUP

Memorandum

Date 7 March 2017
To Marcy McInelly, Urbsworks
From Ted Kamp and Chris Zahas, Leland Consulting Group
Study area Market Opportunities Assessment DRAFT
Project King City Concept Plan

King City Market Analysis

EXECUTIVE SUMMARY

Primary competition for residential development will come from Tigard/Tualatin/King City/Sherwood (including nearby unincorporated areas likely to enter the UGB).

Ample market support for suburban development in the study area location

- Robust household growth projections (double the national rate)
- Strong income demographics (though surprisingly income-diverse in immediate area)

Millennials (now aged 19-35) emerging from a period of delayed household formation

- Should begin driving starter home demand
- With enough residual apartment demand to sustain that booming segment for a few more years

Boomers (now aged 52-70) are large enough to span several housing segments

- Leading edge, approaching 80 over the next decade, will drive rental market for active senior and assisted living housing
- Many homeowners will age in place (hopefully cars Millennial kids); others will downsize for less maintenance and more flexibility (some off-size for an upgrade in location

Hottest residential markets (especially in metro Portland) are in-town neighborhoods

- Cultural amenities, proximity to jobs and urban walkability are key draws.
- Gen X arguably fueled the urban resurgence (and still abound in Portland), but Boomers and Millennials have voiced similar preference.
- Neighborhoods with urban-style amenities in a suburban location is proving to be a viable alternative for those priced out of central Portland (or just averse to raising kids in the city)

The 4-city market area will add just over 5,500 new housing units over 10 years to accommodate projected growth

The study area is well positioned to absorb 500-950 units, drawing from that decade of demand

Market Analysis Report, Leland Consulting Group, March 2017 (Appendix D)

Land Use Base Conditions

Existing Land Uses and Zoning Designations

King City Land Supply and Housing Types

Likelihood of Development

Constraints on Development Potential

Infrastructure Financing

OVERVIEW OF LAND USE BASE CONDITIONS

Introduction

The planning area is totally within Washington County. The county has land use and development authority over this area along with jurisdiction of the major roads serving the area. The land uses and development allowed in the study area is guided by the Washington County Comprehensive Plan. It is not within a special or community plan area.

Existing Land Use

The current land use in the planning area generally ranges from home sites of ½ to 4 acres on the east, larger rural residential and small agricultural properties in the central portion (1.2 to 10+ acres), and larger agricultural properties (up to 40+ acres) on the west. Non-residential and non-farm uses include a small airstrip (Meyer's Riverside Airport) and a commercial garden and landscaping supply business (Al's Garden and Home) on SW Roy Rogers Road.

Washington County Comprehensive Plan

The Washington County Comprehensive Plan, along with special area and community plans, sets goals and policies for land use and development within the county. In coordination with Metro, the county's plan recognizes URA 6D for future urban development.

Washington County Land Use Districts

There are four land use designations and one overlay zone within the planning area:

- RR-5 Rural Residential, 5-acre minimum (eastern portion)
- AF-10 Agriculture and Forest District, 10-acre minimum (central portion)
- AF-5 Agriculture and Forest District, 5-acre minimum (central portion)
- EFU Exclusive Farm Use (western half)
- Private Use Airport Overlay, Meyer Riverside Airport (central portion/AF-5 District)

The land use designations reflect the general land use pattern noted above, providing a gradual transition from low density residential development to agricultural parcels.

Surrounding Land Use and Zoning

The land uses and zoning in surrounding areas are governed by three jurisdictions: Washington County, city of Tigard, and city of King City. The existing zoning and land uses include a wide spectrum from developed urban areas to agricultural use as summarized in the Surrounding Land Use and Zoning Table.

Surrounding Land Use and Zoning Table

PARCELS	ZONE DESIGNATION	PRIMARY PERMITTED LAND USES AND DENSITY	LAND USE	METRO DESIGNATION
North	» *Washington Co. EFU*	*Agriculture, resource uses, farm-related residences and businesses, 80-acre min. parcel size (generally)*	» *Agriculture & rural homes*	» *Urban Reserve*
	» *Washington Co. R-6*	*Single & multi-family residential 5-6 units/acre, 4,500 sf min. lot size*	» *Urban residential*	» *Within UGB*
	» *Washington Co. R-15*	*Single & multi-family residential 12-15 units/acre, min. 2,100 sf lot size for detached units*	» *Urban residential*	» *Within UGB*
	» *Tigard R-4.5*	*Single family detached, 7,500 sf min. lot size*	» *Urban residential*	» *Within UGB*
	» *Tigard R-7*	*Single family attached & detached, 5,000 sf min. lot size*	» *Urban residential*	» *Within UGB*
	» *Tigard R-12*	*Full range of residential types, 3,050 sf min. lot size*	» *Urban residential*	» *Within UGB*
East	» *King City R-6*	*Same as Wash. Co. R-6 above*	» *Manufactured home park & single family residential subdivision*	» *Within UGB*
	» *King City R-9*	*Single & multi-family residential 7.2 - 9 units/acre, 2,400 min. lot size*	» *Single family residential subdivision*	» *Within UGB*
	» *King City R-12*	*Single & multi-family residential 9.6 - 12 units/acre, 2,000 sf min. lot size*	» *Single family residential subdivisions & apartments*	» *Within UGB*
	» *King City ROS*	*Recreation and open space uses*	» *King City Community Park*	» *Within UGB*
South	» *Washington Co. EFU*	*Above*	» *Agriculture & natural areas*	» *Rural Reserve & Undesignated*
West	» *Washington Co. EFU*	» *Above*	» *Agriculture & natural areas*	» *Rural Reserve*

King City Housing Supply

The most recent Census Bureau information for 2011-2015 indicates there were 1,836 dwelling units in the city comprised of about 1,314 single family detached, 235 single family attached, and 287 multi-family. King City has very little buildable land within its current city limits. The City of King City Housing Needs Analysis, February 2018 shows there are approximately 3.8 acres of unconstrained buildable acres in the city in the LC – Limited Commercial, R-9 – Small Lot and Attached Residential (9 du/ac), and R-12 – Attached Residential zones (12 du/ac).

Constraints on development potential

Natural areas and topography

Of the 528-acre area, between 70-200 acres are made up of flood plains, riparian areas and other sensitive lands. The developable lands are often divided by deep ravines and the land closest to the Tualatin River contains the most sensitive lands. Detailed analysis will need to be conducted during the master planning process to determine precise locations of sensitive areas off-limits to development.

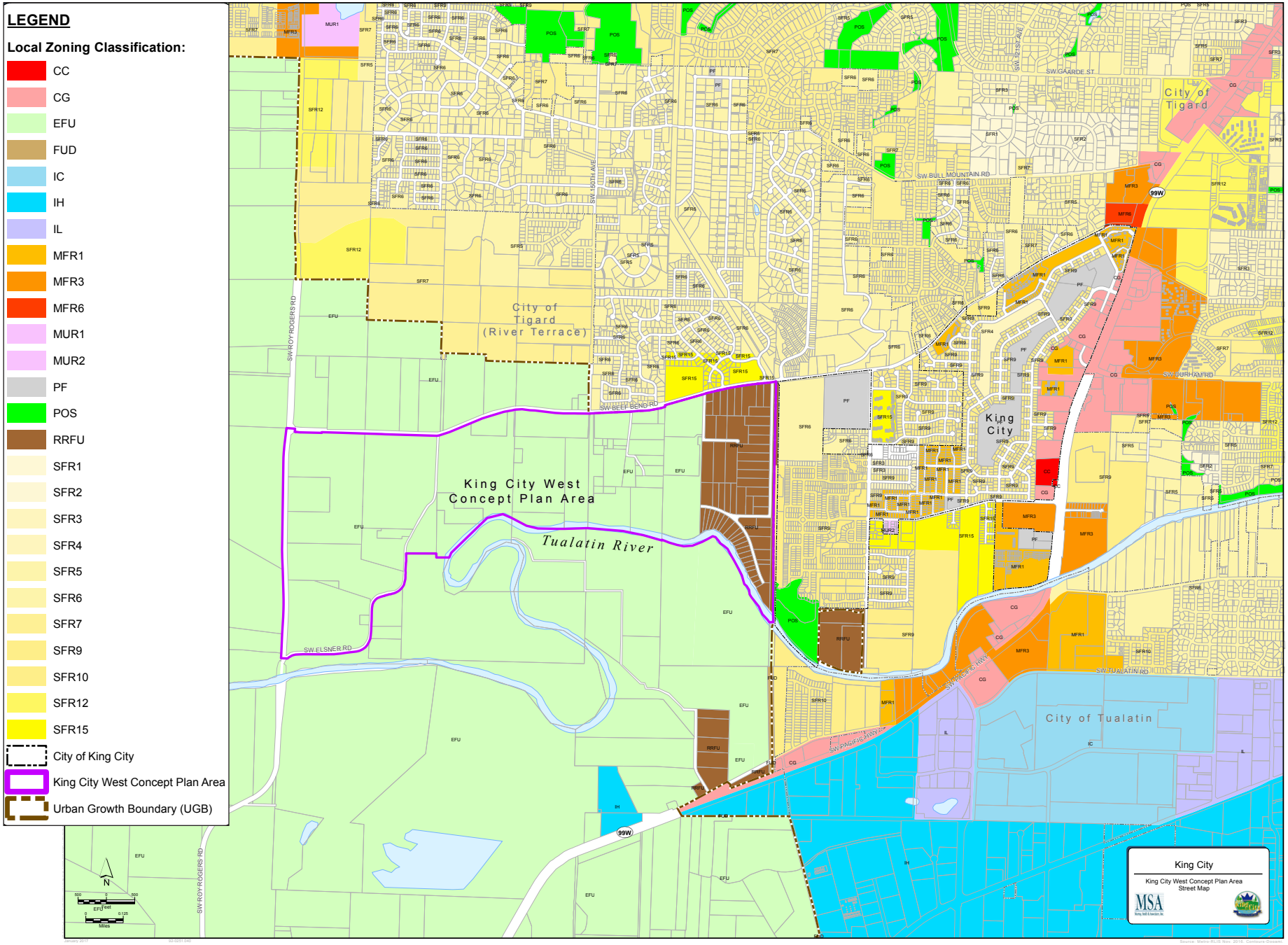
Property ownership patterns

Property ownership is fragmented, and includes both experienced developers who control large properties, and others who control smaller properties that may be difficult to develop due to access, slope, or environmental challenges. The western portion of the Plan Area has larger parcels and less ownership fragmentation. As a result, the western section is likely to see substantial coordinated development earlier than eastern or central portions.

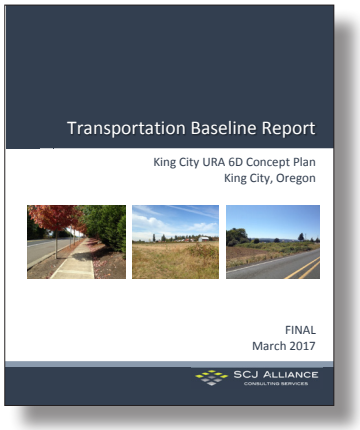
Infrastructure financing

Topography in the area south of SW Beef Bend Road presents specific challenges to infrastructure development – most notably by raising likely costs of any new east-west collector roads and sanitary sewer lines because of the increased need for culvert or bridge facilities.

The timing and availability of water service will be challenging for new development. Water system transmission piping will need to be extended on Roy Rogers Road and the city of Tigard will need to implement the water system storage improvements.



Zoning map of URA and surrounding areas (MSA)



Contents of Transportation Baseline Report

The Transportation Baseline Report (SCJ Alliance, March 2017, Appendix C) inventories existing physical conditions, policies and plans that apply to the area.

Existing Goals and Policies

Streets and Roads

Pedestrian Transportation System

Bicycle Transportation System

Transit System

Future Street and Roadway System

OVERVIEW OF TRANSPORTATION BASELINE REPORT

Introduction

The transportation system within the study area is minimal, however the area is bordered by two major streets: SW Roy Rogers Road on the west and SW Beef Bend Road on the north. SW Elsner Road runs through the western portion of URA 6D. Other existing streets in the study area are few and disconnected. A Transportation Baseline Report, authored by SCJ Alliance, summarizes existing and projected future transportation and traffic conditions in the vicinity of URA 6D. The report looks at the multimodal transportation system including street and system characteristics, pedestrian facilities, bicycle facilities and transit service.

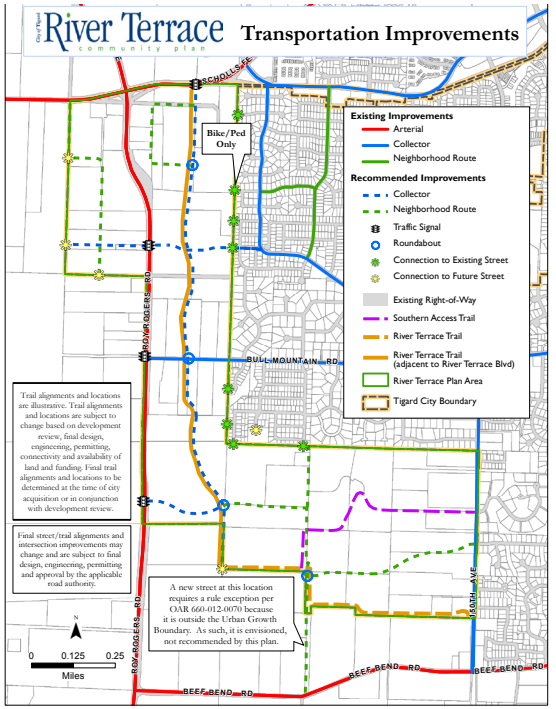
Connectivity

SW Beef Bend Road and SW Roy Rogers Road, both County arterial streets, run along the northern and western portions of the study area. 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. 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 131st Avenue. This street offers a potentially good future connection into the King City URA along with several other streets to the north.

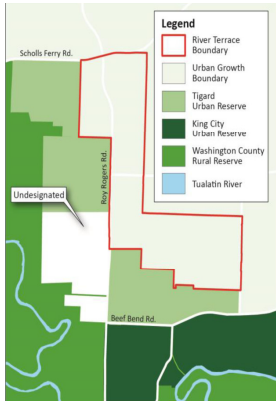
There are few other east/west connections that unite existing King City neighborhoods. Due to lack of connections, traffic relies primarily on SW Beef Bend Road and SW Fischer Road and SW Roy Rogers Road. This type of street network can result in out-of-direction travel for motorists and create an imbalance in traffic volumes. In addition to motor vehicles, direct connections contribute greatly to accessibility for pedestrians and bicyclists. Developing a local street network for the URA with good connections into the existing city will be important.

Tigard River Terrace

The transportation system proposed for Tigard's River Terrace development to the north provides structure and guidance to the system proposed for King City's URA. North/south internal roads and access locations onto SW Beef Bend Road proposed in the River Terrace Plan will need to be coordinated with the planning of this area.



Proposed transportation improvements from the River Terrace Community Plan.



Tigard's River Terrace area north of URA 6D

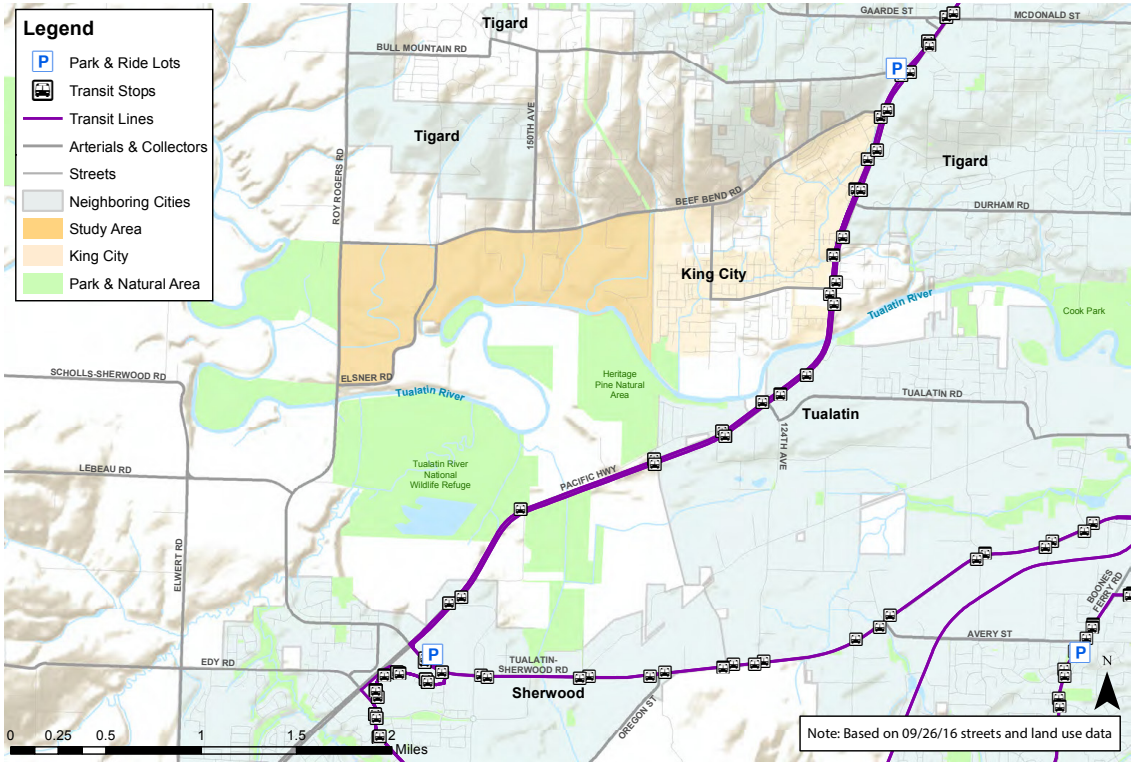
Spacing Standards

Washington County permits only arterial or collector streets to intersect with arterial streets. These intersections are allowed every 600 feet. King City has a 530-foot maximum spacing standard for local and collector streets.

Traffic Volumes and Performance

Existing

Daily traffic volumes along SW Roy Rogers Road are slightly less than 21,000 vehicles south of SW Beef Bend Road. Traffic levels rise further north on SW Roy Rogers Road to approximately 25,000 daily vehicles just south of Scholls Ferry Road. Daily traffic volumes on SW Beef Bend Road were about 5,300 vehicles east of SW Elsner Road. PM peak hour volumes range from approximately 9 to 10 percent of daily volumes, depending on location.



Existing transit service and park-and-ride lots near the study area (SCJ Alliance Baseline Report).

Projected

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

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

Pedestrian and Bicycle Facilities

There are virtually no pedestrian or bike facilities in the study area. The rural character of existing streets means that walking and biking is mostly accommodated on existing roadway shoulders. Sidewalks have recently been constructed along the north side of SW Beef Bend Road for most of the area between 137th Avenue and 150th Avenue with a few short gaps. There are no protected pedestrian crossing locations along SW Beef Bend Road, which has a speed limit of 45 mph. Washington County is currently improving SW Fischer Road to add bike lanes and sidewalks from 131st Avenue to Pacific Highway.

There are no existing trails in the vicinity of the URA, however, there are trails just south of the study area in the Wildlife Refuge. Both the planned

Westside Trail to the east and the River Terrace Trail to the north of the study area provides opportunities for a larger connected trail system.

Metro Westside Trail The master plan lays out a detailed concept for establishing a 25-mile regional trail between the Willamette and Tualatin Rivers. When complete, a segment of the trail will run along the eastern edge of the study area and will provide a high quality connection between King City, Tigard and Portland for recreational and commuter bicyclists, pedestrians and, in some cases, equestrians.

Metro Tualatin River Greenway This trail, as proposed by Metro, would follow 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.

Transit Service

Transit service is not currently provided within the King City URA, but two fixed bus routes are provided along the Highway 99W corridor and from this corridor to other destinations in nearby Tigard and Tualatin.

TriMet Southwest Service Enhancement Plan outlines 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.

Existing Policies and Plans

Transportation System Plan

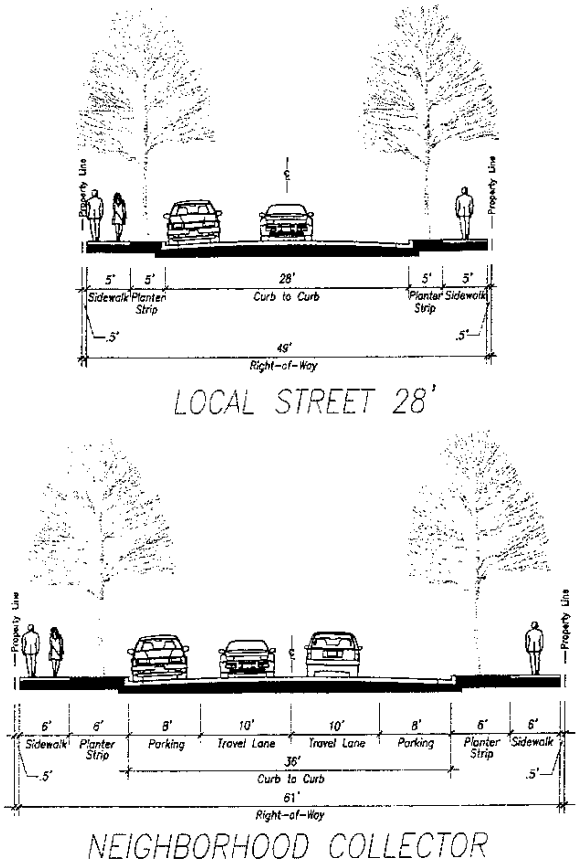
King City does not currently have an adopted Transportation System Plan (TSP) as most of the major roads within the City are owned and operated either by the County or the Oregon Department of Transportation (ODOT). The City's transportation responsibilities are largely limited to local streets. For the major streets, the City relies on the policy direction and recommendations of the Washington County TSP to guide development and management of its transportation system. The planning and development of the URA transportation system will have the direct involvement of King City, and therefore a TSP should be created for the City and the URA. The City has applied for a grant to produce a King City TSP and anticipates its creation within the next few years.

Street Classifications and Jurisdiction

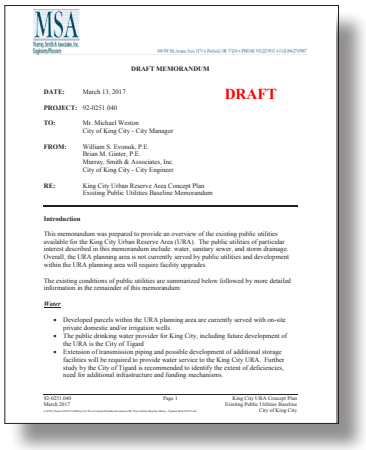
The study area has historically been a rural area governed by Washington County. The major roads adjacent to and serving the URA are under County jurisdiction including both arterials (SW Roy Rogers and SW Beef Bend Roads), and collectors (SW Elsner Road, SW Fischer Road and SW 131st Avenue).

The City is working in partnership with Washington County and anticipates a possible future jurisdictional transfer of collectors including SW Elsner Road and SW Fischer Road. This transfer would give the City more flexibility in the design of these streets, helping to transition it from rural to more urban.

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 they were developed for the West King City Planning Area. These street types are more urban in character.



Existing King City neighborhood street designs



DRAFT MEMORANDUM

DATE: March 13, 2017 DRAFT

PROJECT: 92-0251.040

TO: Mr. Michael Weston
City of King City - City Manager

FROM: William S. Evonuk, P.E.
Brian M. Ginter, P.E.
Murray, Smith & Associates, Inc.
City of King City - City Engineer

RE: King City Urban Reserve Area Concept Plan
Existing Public Utilities Baseline Memorandum

Introduction

This memorandum was prepared to provide an overview of the existing public utilities available for the King City Urban Reserve Area (URA). The public utilities of particular interest described in this memorandum include: water, sanitary sewer, and storm drainage. Overall, the URA planning area is not currently served by public utilities and development within the URA planning area will require facility upgrades.

The existing conditions of public utilities are summarized below followed by more detailed information in the remainder of this memorandum.

Water

- Developed parcels within the URA planning area are currently served with on-site private domestic and/or irrigation wells.
- The public drinking water provider for King City, including future development of the URA is the City of Tigard
- Extension of transmission piping and possible development of additional storage facilities will be required to provide water service to the King City URA. Further study by the City of Tigard is recommended to identify the extent of deficiencies, need for additional infrastructure and funding mechanisms.

92-0251.040 March 2017 Page 1 King City URA Concept Plan Existing Public Utilities Baseline City of King City

Contents of Public Utilities Baseline Report

The Public Utilities Baseline Report (Murraysmith, March 2017, Appendix E) inventories existing physical conditions, policies and plans that apply to the area.

Water: Existing System and Future Demands

Sanitary Sewer: Existing System, Planned Improvements and System Constraints

Storm Drainage: Existing System, Planned Improvements and System Constraints

OVERVIEW OF PUBLIC UTILITIES BASELINE REPORT

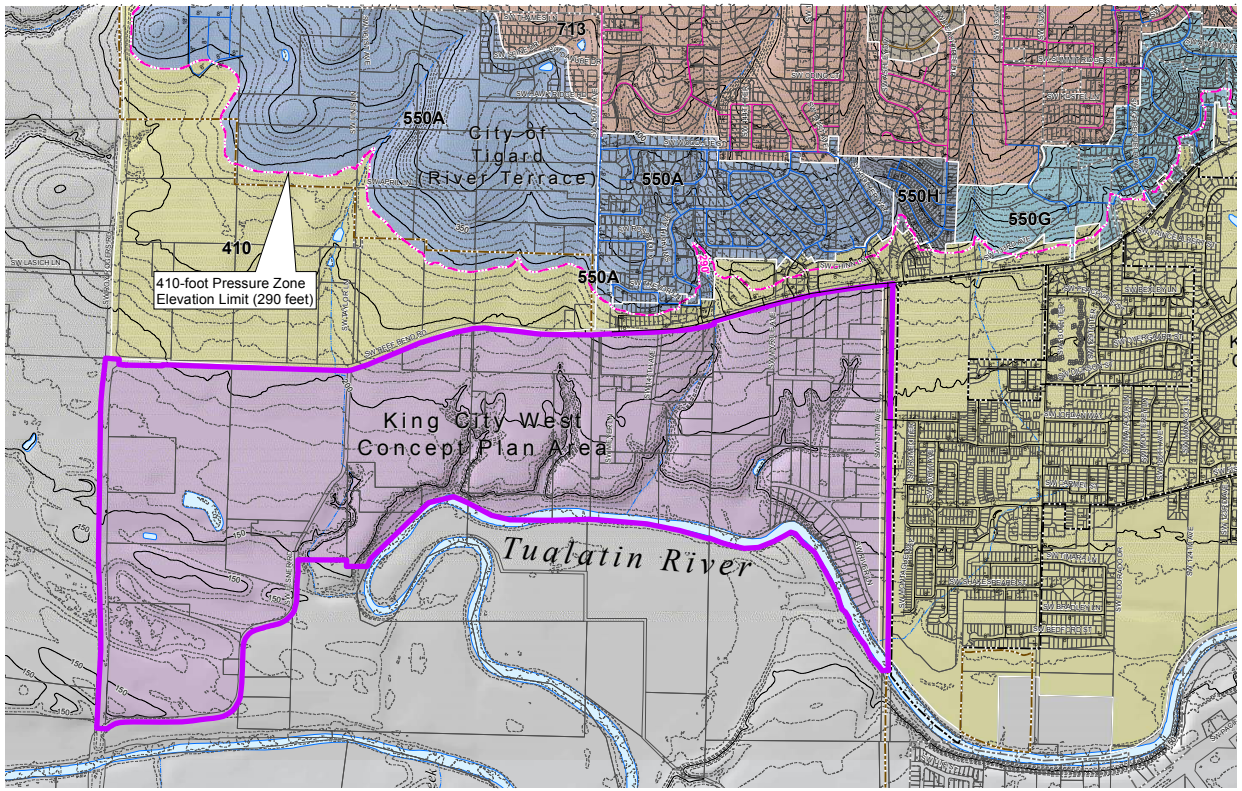
Introduction

Murraysmith and Associates (MSA) prepared an Existing Public Utilities Baseline Memorandum which details existing services in the urban reserve area. Due to the historically rural character of URA 6D, water is currently served by on-site private domestic and/or irrigation wells. Sanitary/sewer is served with on-site private septic systems and no formal stormwater management system is in place. These utilities are described in more detail below.

Water

Existing System

The City of King City receives potable water supply from the Intergovernmental Water Board, which serves Tigard, King City, Durham, Lake Oswego and the unincorporated Bull Mountain area. Under the terms of the Intergovernmental Agreement Regarding Water Service ownership and Water Service between the City of Tigard and the City of King City, dated December 9, 2014, the City of Tigard is responsible for planning, designing, building, financing, operating, maintaining, repair-



Water System map showing pressure zones (MSA)

ing and replacing components of the water system within King City's boundaries. Tigard will also serve areas annexed to King City, areas added to the urban Growth Boundary and any designated urban reserve where King City will ultimately be required to provide water service.

The city of Tigard is responsible for setting rates and System Development Charges (SDCs) for the entire water service area for recovery of costs associated with system management and capital improvements.

King City is located in the 410-foot pressure zone of Tigard's distribution system. There are seven existing reservoirs that provide gravity water supply to this zone. There are currently no 410-foot pressure zone reservoirs in the southwest portion of the Tigard water system service area.

Planned System Improvements

Tigard's 2010 Water System Master Plan did not address required system improvements to serve URA 6D. Tigard is currently in the process of updating the Water System Master Plan. Based on preliminary analysis and discussion with the City, improvements will likely consist of construction of new 410-foot pressure zone storage on the southwest side of Bull Mountain and extension of 24-inch diameter transmission piping west on SW Beef Bend Road and south through the River Terrace area on SW Roy Rogers Road.

Sanitary Sewer

Existing System

Clean Water Services (CWS) provides wastewater collection, treatment and disposal service for King City. Wastewater from King City is generally collected via 6-inch to 8-inch diameter sewer mains and then routed south across the Tualatin River and then east to the CWS Durham Wastewater Treatment Plant. Developed parcels within the URA planning area are currently served by private on-site septic systems.

Planned System Improvements

CWS is currently planning a new waste water pump station to be located in the west of the URA adjacent to Roy Rogers Road. The pump station will serve River Terrace South and other development to the north. The pump station is being planned with the capacity to serve development in the study area.

Sanitary Sewer Constraints

Because of the natural topography and existing drainage ways withing the King City URA, low-lying areas may require pumping to reach gravity trunk lines and will require significant planning efforts in conjunction with transportation planning.

Storm Drainage

Existing System

CWS is the primary agency responsible for surface water management in King City through an intergovernmental agreement. The storm drainage system in and around King City is comprised of both underground piping, open channel drainage ditches, and natural drainage ways. Generally, storm water flows down gradient from north to south through the city, with ultimate discharge to the Tualatin River through numerous outfalls. The King City URA is mostly undeveloped and generally lacks improved stormwater conveyance and detention facilities. The existing natural drainage ways are susceptible to erosion and degradation during high flow runoff events.

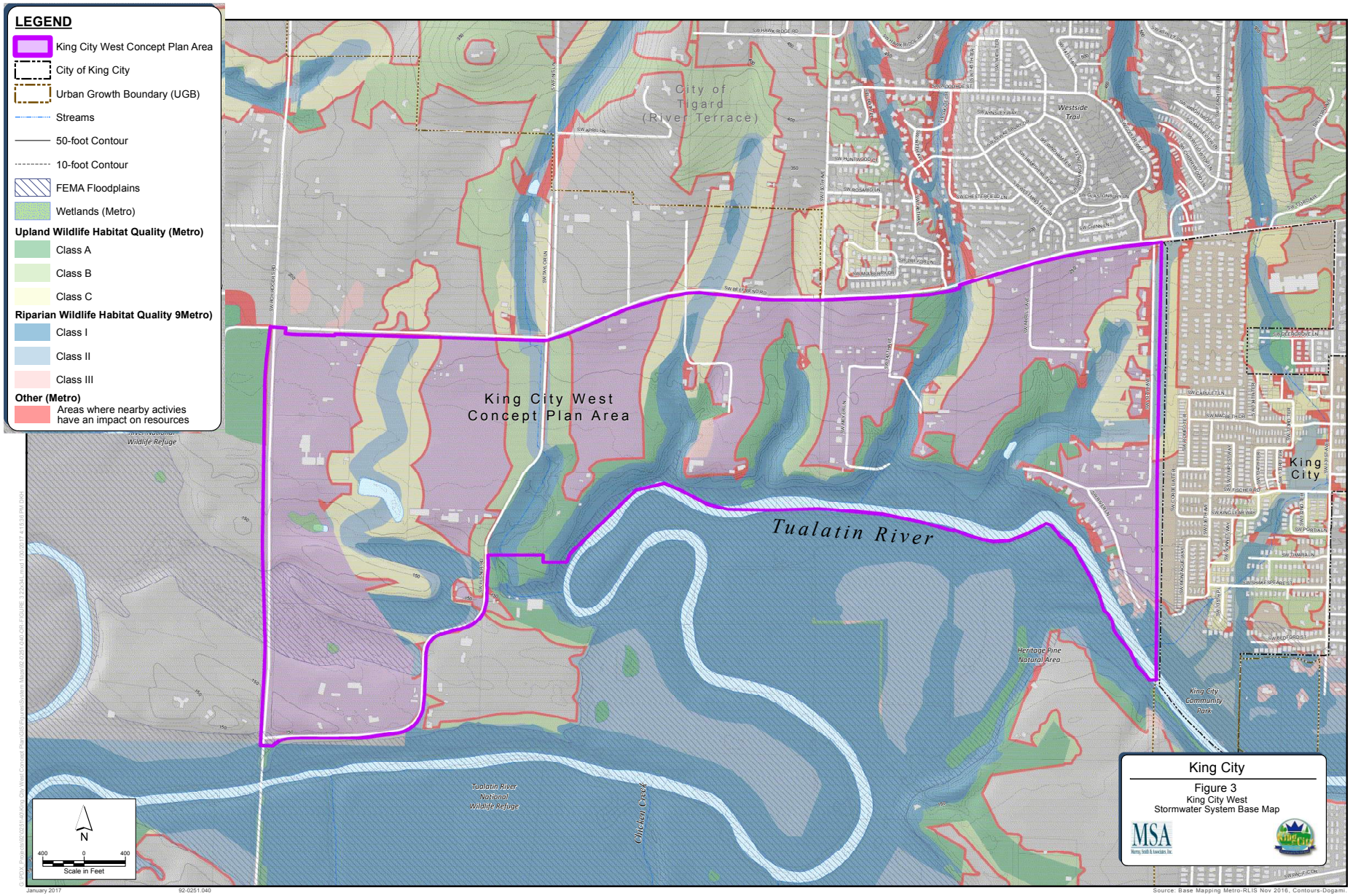
Planned Improvements

Future development within the planning area should be coordinated with current upstream planning efforts to mitigate high flow events and prevent further degradation of the existing drainage ways.

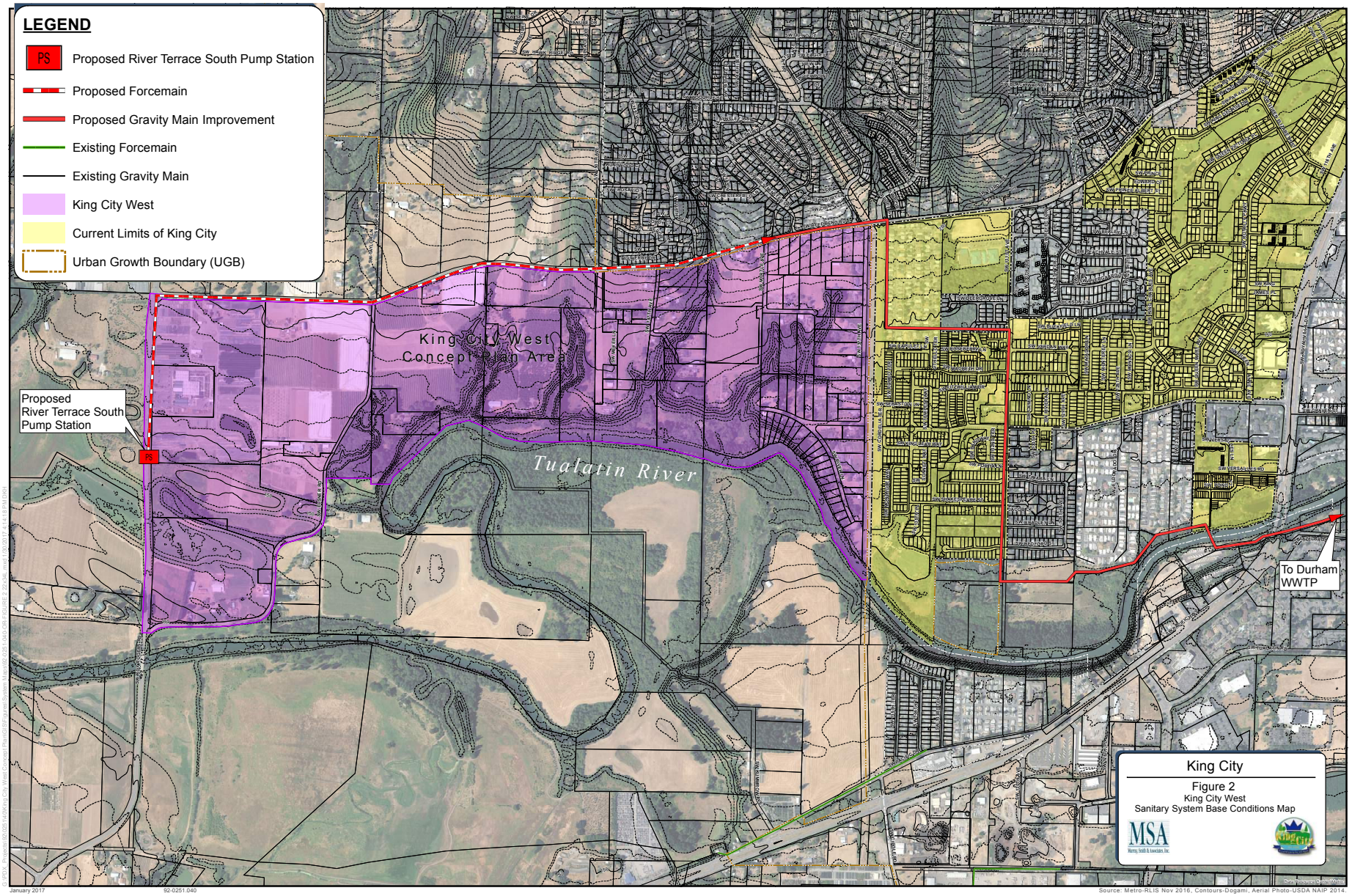
Storm conveyance needs to be developed in coordination with future transportation projects.

Storm Drainage Constraints

New development in the URA must meet CWS requirements and it should not create adverse impact to the existing drainage systems. CWS should be consulted on stormwater management issues for any new development. New development must conform to current CWS standards including drainage channel setbacks, hydrologic and hydraulic analysis, off-site improvements, stormwater detention, and water quality. In addition, impacts to existing wetlands and waterways will need to be in compliance with current Department of State Lands (DSL) and Army Corps of Engineers (ACE) standards.

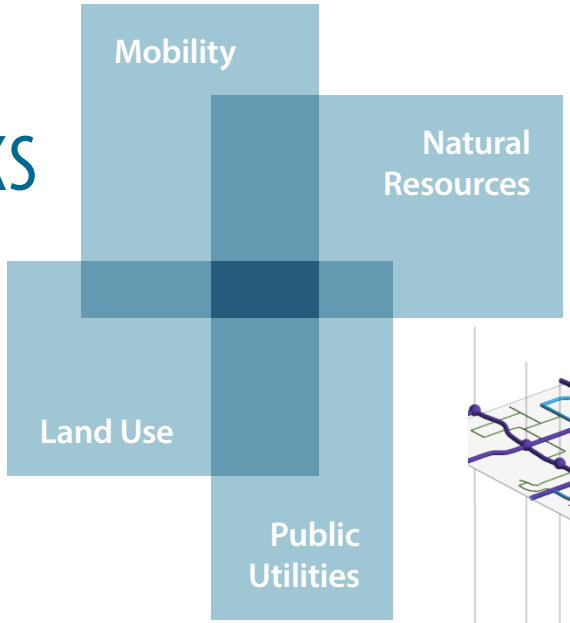


Stormwater system map (MSA). The red line represents areas where nearby activities have an impact on resources.



Sanitary system map showing major existing and planned sewer lines. (MSA)

5. CONCEPT PLANNING FRAMEWORKS



INTRODUCTION

This Base Conditions phase culminated in a synthesis, or layering, process of mapping the physical and regulatory opportunities and constraints. The layering process established the Design Frameworks which informed the Vision and Goals and guided the Concept Plan proposal.

What we learned from the process over the last year is that a balance can be achieved between goals for Natural Resources, Mobility, Land Use and Public Utilities.

Natural Resources: It is possible to set aside a large amount of the area, in order to protect and preserve sensitive natural areas.

Land Use: Even with a large amount of the URA 6D set aside for natural areas, enough land is developable to provide a range of housing types at different densities while maintaining graceful transitions between natural and developed areas. How and where development occurs will be driven by individual property owners. Development can be phased so that property owners who want to develop early can do so without compromising the quality of life for those who do not.

Mobility: Early-phase connections can be made, toward the north of the URA 6D (connecting with Tigard's River Terrace Boulevard) and interim connections can be made to the east. Ultimately, one or more parallel east-west connecting streets will be made to connect the area to existing King City, but the nature and design of these streets can be responsive to neighborhood concerns.

Infrastructure: Because of the topography and natural features, serving the area with infrastructure can be expensive, however, there is sufficient development potential to support infrastructure costs. Infrastructure costs are competitive with infrastructure costs for nearby development. Infrastructure can be provided in accordance with different property owners wishes: Those who want to move quickly can, without forcing those who want to move slowly. Even if some property owners choose not to redevelop, the infrastructure plans can still go forward to serve early-phase development.

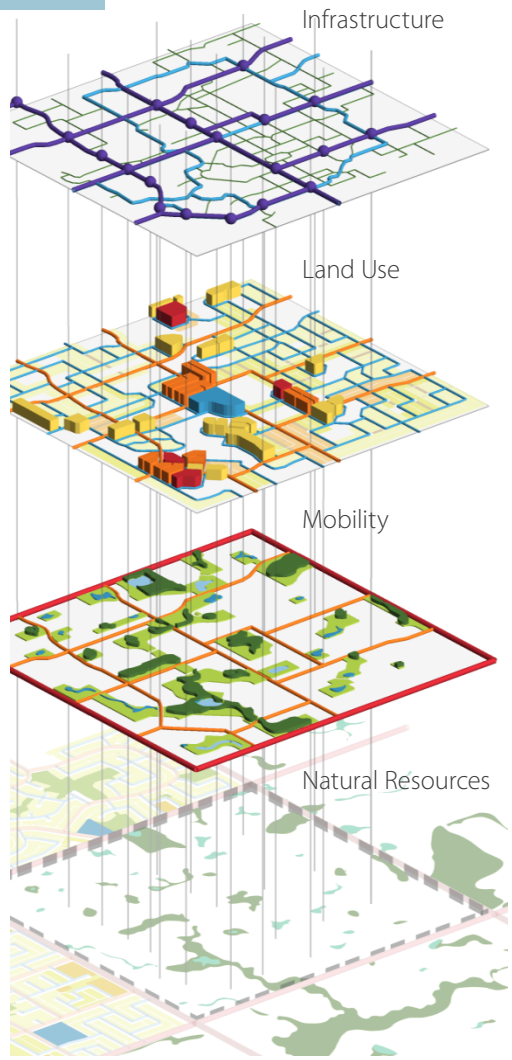


Diagram of base conditions layers

Natural Systems Framework

Natural Resources

Base Conditions Key Findings

- Past development (primarily north of Beef Bend Road) has caused significant environmental degradation in URA 6D.
- Mitigation of development impact to natural resource areas will be required in the URA.
- Future land development and the local street and trail/walkway network will need to address natural resource impacts and mitigation.

Framework Design Philosophy

- Development in the URA 6D provides an opportunity to improve water quality and wildlife habitat and ultimately improve the health of the Tualatin River.
- The naturally forested areas and ravines provide natural boundaries and definition of the developable areas.
- Adopt a conservative approach to protecting natural areas.
- Assume clustered development.

The natural systems framework is a set of values that dictate how development in the URA 6D will take shape. It starts with nature.

The Vision and Goals articulate each of the values. For the purpose of this section the values have been interpreted into design and planning framework accordingly: As the last developable piece of land between upland neighborhoods and the Tualatin River, the URA 6D Concept Plan recognizes the importance of careful planning and design, to ensure that there is a progression of physical transitions from north to south, between the river and developed areas. First, the most sensitive areas are protected from development; next, development in less sensitive areas will be specially designed to prevent damage to the environment, and then, in developed areas, active environmental repair will be built into the urban fabric.

New development will play an important role in repairing the damage caused by earlier development. Through highly engineered stormwater facilities or through small interventions such as stormwater gardens built into backyards, there are a variety of treatments that are appropriate for each zone of the transition, from the most wild edge areas to the most urbanized central areas.

Moving east-west, the natural areas and ravines create boundaries between and give identity to individual neighborhood units. Finally, the Tualatin River is celebrated and recognized in every aspect of new development. Both by proximity and through intentional design, people will be drawn to the area because of the river and the wildlife refuge.

"Bull Mountain stormwater runoff is a huge problem. The current plan area is acting like a giant bioswale and cleaning the water before it gets to the river. That would change if this area is developed."

--SAC Member, SAC Meeting #1

"Better protection for the Tualatin River can be provided through development, through a combination of solutions for stormwater, such as green streets, local and regional stormwater solutions."

--TAC Member, TAC Meeting #2

APPROACH TO SENSITIVE AREAS

Past development (north of Beef Bend Road) has caused significant environmental degradation in the planning area. In conjunction with future development of the area, partnerships should be formed to address the existing problem and to adequately mitigate potential negative impacts from additional development. Maintaining the health of the Tualatin River and wildlife habitats is critical to the protection of natural systems and the preservation of the essential character of the URA. While the Natural Systems Baseline report assumed a more generous amount of developable area, an even more conservative approach was used to determine developable land for the Concept Plan. The following categories are assumed to be protected for the purpose of this Concept Plan. More detailed assessments of these designations will be conducted during the Master Plan phase:

- FEMA floodplains
- Metro Wetlands
- Class A, B, and C Upland Wildlife Habitat
- Class I and II Riparian Wildlife Habitat Quality
- Local Wetland Inventory (LWI)
- Significant Natural Resources Inventory (SNR)

The City may also want to consider a tree protection plan and a Department of Geology and Mineral Industries (DOGAMI) hazard map study of the area during the master planning phase.

Developable Acreage Table

Total land	528 acres
Developable land identified by the Natural Resources Baseline Report	460 acres
Consistent with the Natural Systems framework design philosophy for URA 6D, the Concept Plan goes beyond Base Conditions developable land assumptions.	318 acres

ALIGNING WITH THE VISION

- *Protect the Tualatin River, sensitive wildlife habitat and other natural systems*
- *Reduce runoff and heal erosion*
- *Integrate green spaces and wetlands into developed areas*

Protected natural area with no development and little or no human activity

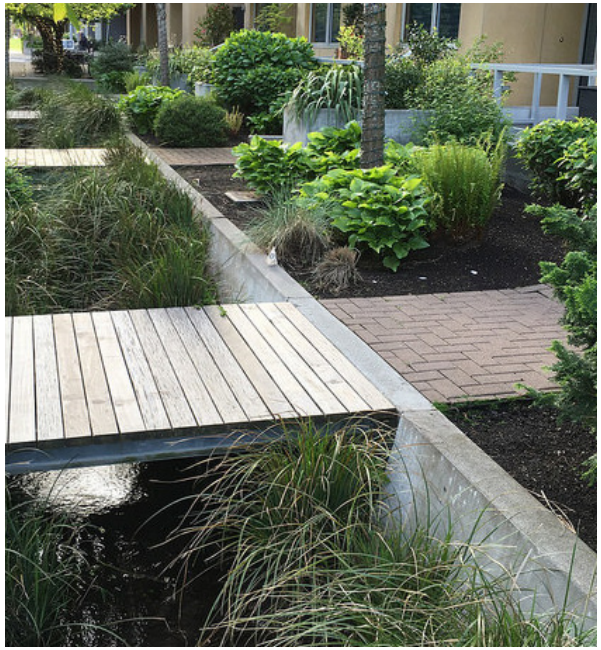
Active stormwater management pond surrounded by park and walking trails

Stormwater facility adjacent to a protected wetland

Wild

Examples of nature protected from development and incorporated into development

Street-side Low Impact Development (LIDA) swales



Vegetated swales in more urban setting of sidewalks and residential entrances

Creative ways to manage stormwater and integrate natural systems into highly developed areas

Examples of the Natural Systems Framework design approach, from wild to urban

Urban

Land Use Framework

Land Use

Base Conditions Key Findings

- The area is surrounded on two sides by existing or imminent urban development.
- The market supports a wide range of housing types to meet current and future demographics.
- The location is well positioned in the region to capture housing growth, and there is significant development demand within the first ten years.
- There is modest commercial, hospitality and mixed-use development potential on the west side, adjacent to Roy Rogers and Beef Bend streets.
- From the development marketing perspective, the area's unique physical characteristics provide "strategic differentiators," that can create value for the area and the city.
- Creating a unique sense of place will be key to attracting high quality development.
- Property owners have different attitudes regarding redevelopment and some are not interested in being part of an urbanizing area.
- Serving the area with infrastructure (utilities and streets) will be expensive.

Framework Design Philosophy

- Assume there are a range of opportunities for development: one that permits property owners who want to develop, and one that permits others to develop slowly and incrementally, or not at all.
- Assume the more immediate development will occur on the west side of the URA 6D within first ten years and slow incremental development will occur over a longer period on the east side.
- Concentrate the intensive mixed land uses and development types to the west.
- Identify the minimum development yield or number of dwelling units that will be needed to pay for infrastructure, including utilities, streets and parks.
- Identify the maximum development yield or number of dwelling units that could be achieved while meeting the community vision and goals.

OVERVIEW AND CONSISTENCY WITH THE VISION

The URA is envisioned as a diverse mix of development contexts, with a careful sensitivity to the transition between rural and urban areas. Because the development concept features the higher density uses in the western and northern portions of the area, it is critical to create gentle transitions between developed and natural areas. A gradient of density is desired, where the most dense development is on the west and closest to SW Beef Bend Road on the north. Moving east, neighborhoods become more residential and are defined by the natural edges of the ravines. The least dense areas would be furthest to the east and along the Tualatin River. A series of neighborhood types and general locations (character areas) have been identified, each with their own mix of uses and specific contexts. They are described in more detail on the following pages.

As Tigard's River Terrace neighborhood to the north is built out, there will be numerous opportunities to for King City and Tigard to connect to and share neighborhood amenities. Concept planning for URA 6D has attempted to recognize these opportunities and build on them. Tigard River Terrace Boulevard, for example, which runs north-south through Tigard, is planned to connect to the URA 6D north-south collector street through King City's Main Street/Town Center neighborhood. Similarly, the layout of parks, trails, streets and land uses in the URA 6D have been located and conceptually designed to function for and appeal to Tigard and Washington County residents, as well as for future King City residents. It's not likely that residents in the area will recognize which municipality provides a particular amenity—but they will recognize that it makes their neighbohood great.

In addition to maintaining compatible relationships between different development types within URA 6D, and connecting to neighborhoods to the north, attention must also be given to protecting existing development and resource uses which are to the south and west. The most important of these are areas which are not within the UGB and are not designated as urban reserve areas. The Tualatin River and associated floodplain provides a natural buffer between future development in URA 6D and the National Wildlife Refuge and agricultural uses to the south. The Main Street / Town Center area will be separated from designated rural areas to the southeast of SW Elsner Road and on the west side of SW Roy Rogers Road. During the master planning phase, land use and design techniques should be identified to minimize adverse impacts to rural uses and agricultural activities in these areas.

ALIGNING WITH THE VISION

- » *Mix of housing to accommodate a wide range of household types, incomes and needs*
- » *New mixed use area with neighborhood scale and character*
- » *Gentle transitions between rural and urban development*

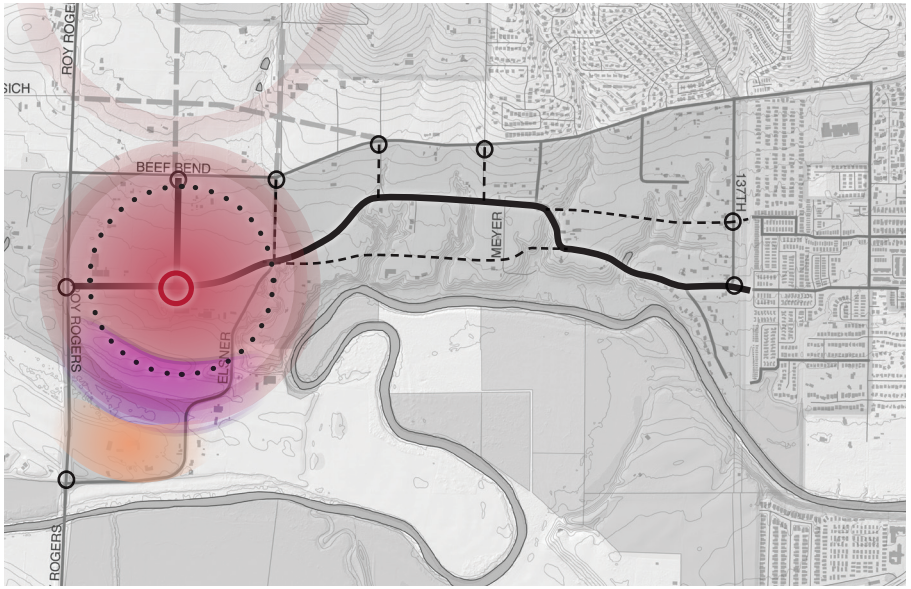
NEIGHBORHOODS

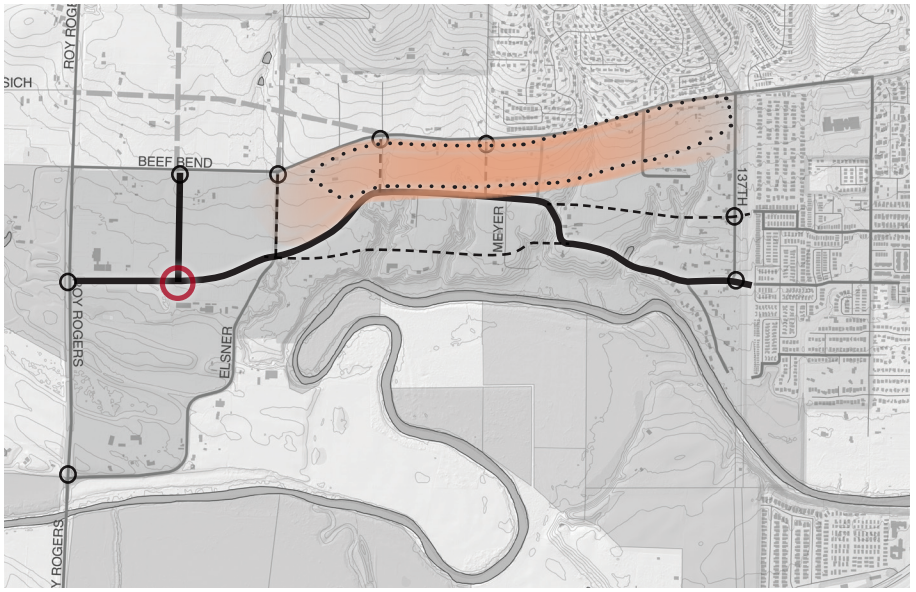
Main Street/Town Center

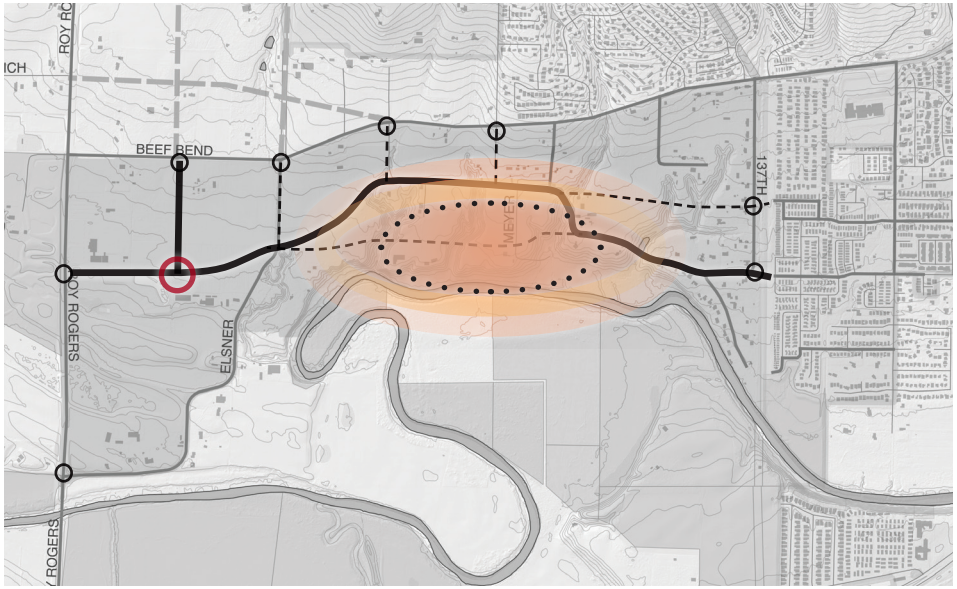
The main street/town center character area is in the north-western area of the URA. It would include majority of town center commercial and mixed use residential uses, with major activity around the intersection of collector streets visible and accessible from SW Roy Rogers Road and SW Beef Bend Road. This neighborhood will represent the most dense development in the URA and would include possible civic uses such as a new city hall, school and library, to be further defined in the Master Plan process. Neighborhood-scale commercial activity is desirable, as are public plazas, parks and other places for gathering. The southern portion of the Main Street area is envisioned to accommodate a school and campus-style mixed employment and, possibly, institutional uses. As urban development occurs, care will be taken to separate the Main Street/Town Center area from designated rural areas to the southeast of SW Elsner Road and west of SW Roy Rogers Road.

Beef Bend Neighborhood

The Beef Bend character area is directly adjacent to SW Beef Bend Road to the south, between 137th and SW Elsner Road, north of a potential east/west street. This area is defined by improvements to SW Beef Bend Road and has the second highest density, with both attached and detached residential development. There is potential for this area to support a small amount of neighbor-hood-scale commercial uses in conjunction with housing. Commercial uses would take the form of home-based businesses, and, if there is market demand, office or retail uses on the ground floor of residential buildings. The Beef Bend Neighborhood is connected east-west, and not constricted by the deep wooded ravines farther to the south in the URA.







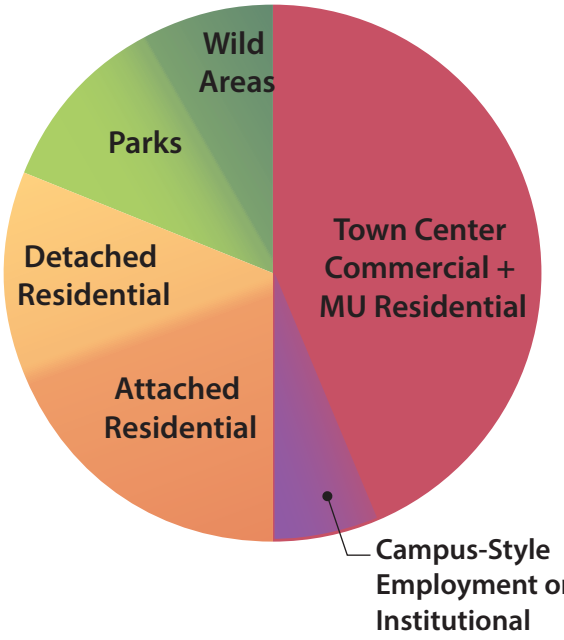
Central Neighborhood

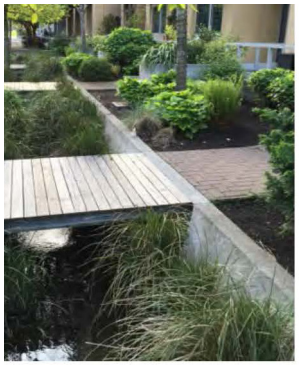
The central neighborhood character area is in the center of the URA. Two smaller neighborhoods are defined by the drainage ravines running north-south towards the Tualatin River. The ravines create separate areas that are well-sized for individual developments, but are connected by a small number of east-west streets and a trail system. This character area is defined as residential, with both attached and detached dwellings, ample neighborhood parks and plenty of wild natural areas along the ravine and river edges.

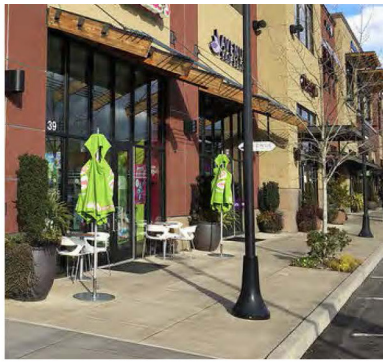
Rural Character Neighborhood

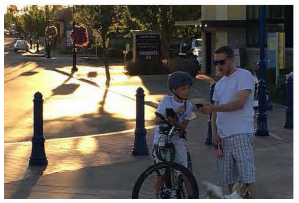
The rural character neighborhood is the eastern-most section of the planning area. It connects to SW 137th Avenue and includes the established Rivermeade neighborhood. This area has a rural character, with low density residential uses and opportunities for modest redevelopment. Generally, streets have a residential character and carry low-volume local traffic shared by all modes. Natural areas are prominent both on the edges of development and within neighborhoods.

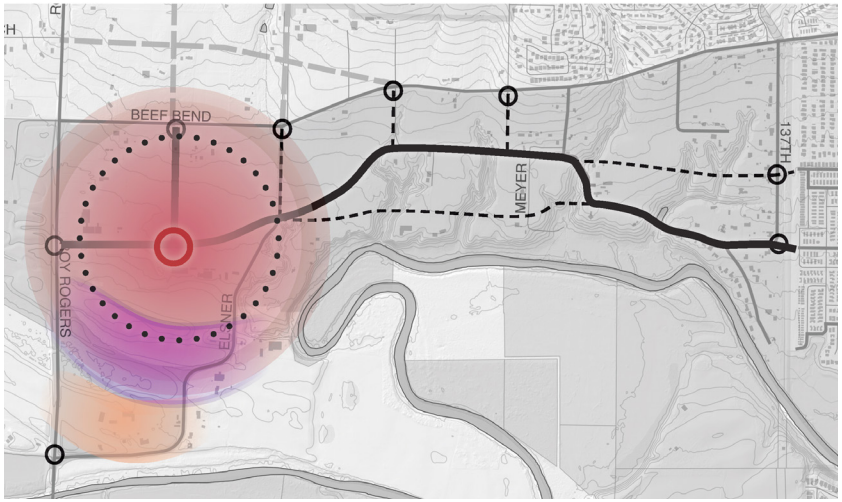
MAIN STREET/TOWN CENTER





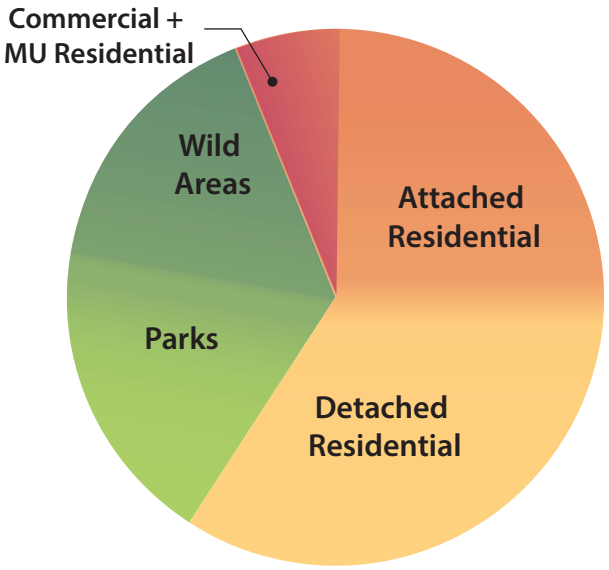


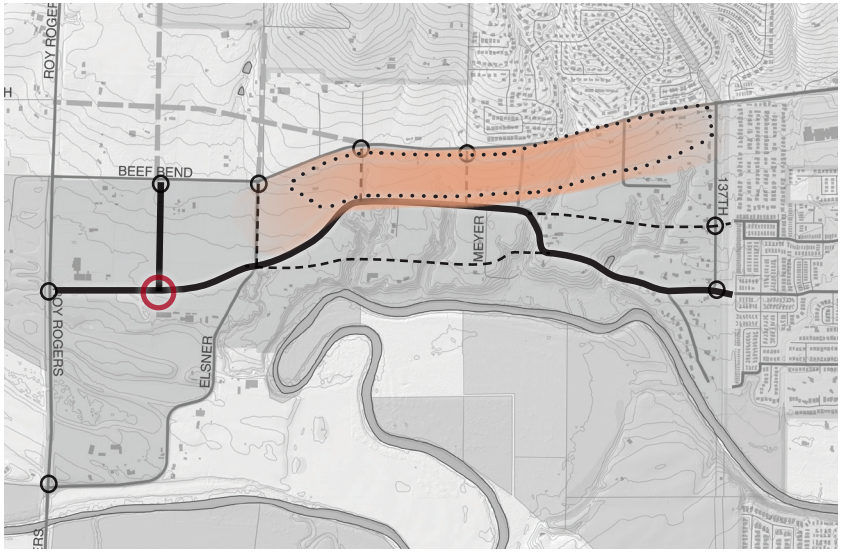




- » *Major activity at intersection*
- » *Taller buildings, residential over retail*
- » *3-5 story buildings*
- » *Single-story retail and restaurant*
- » *Civic uses, such as library, city hall, school*
- » *Places for gathering*
- » *Campus-style employment or institutional uses*

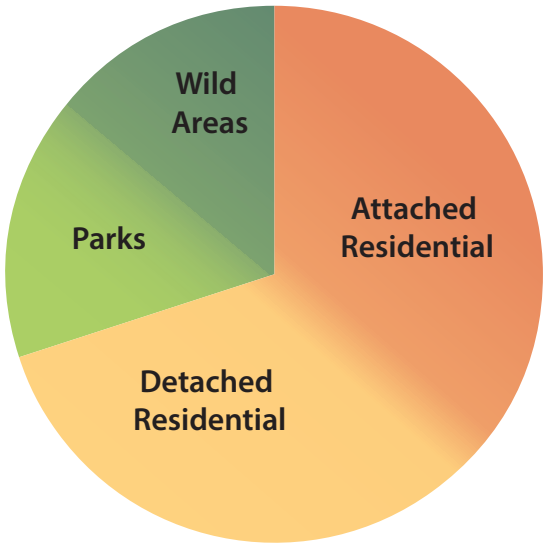
BEEF BEND NEIGHBORHOOD

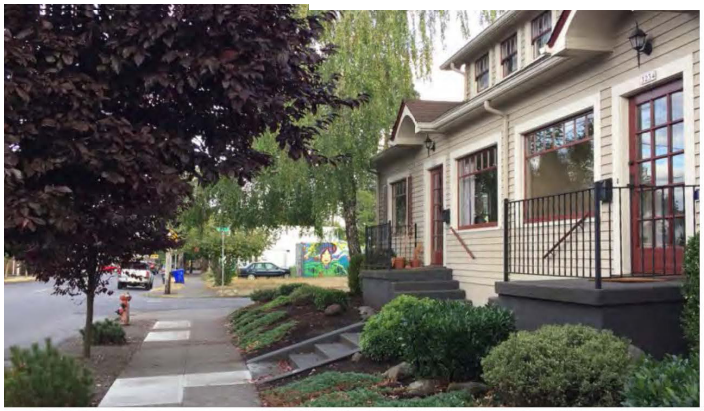


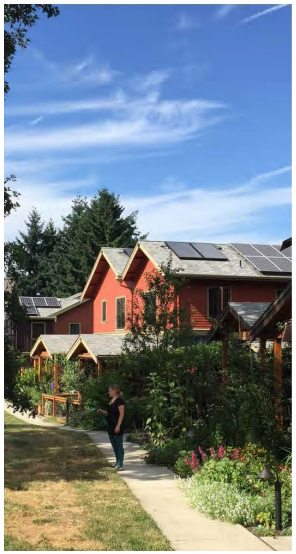


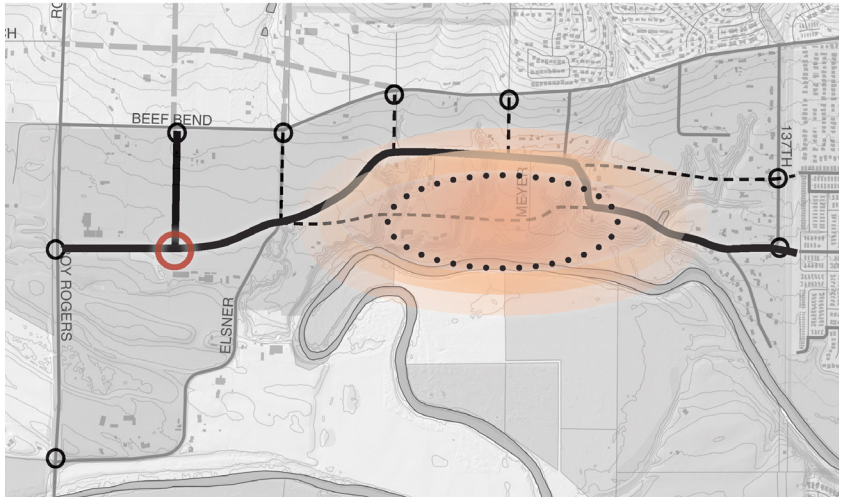
- » *Green boulevard (Beef Bend) with separated multi-use path*
- » *Attached and detached residential development*
- » *Connected neighborhoods*
- » *Parks and some wild areas*
- » *Potential neighborhood commercial activity*

CENTRAL NEIGHBORHOOD



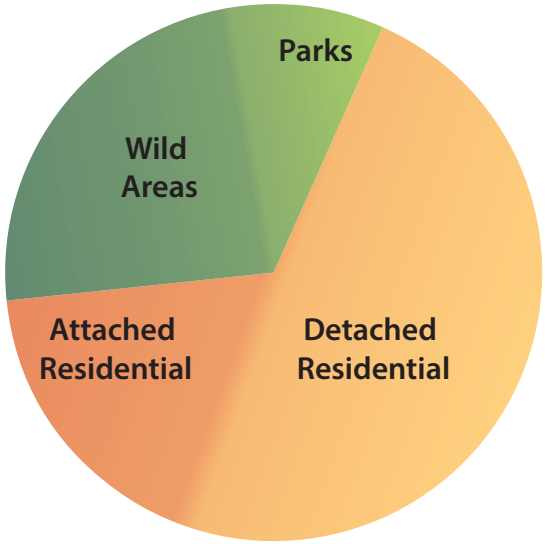




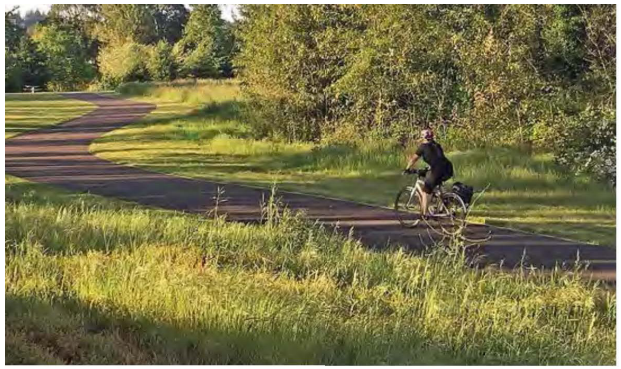


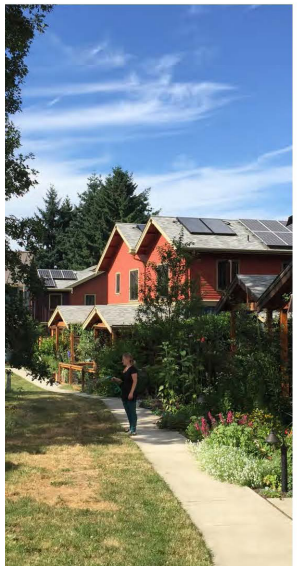
- *Residential character*
- *Connected neighborhoods*
- *Primarily attached and detached single family homes*
- *Parks and open spaces*
- *Natural areas on the edge*

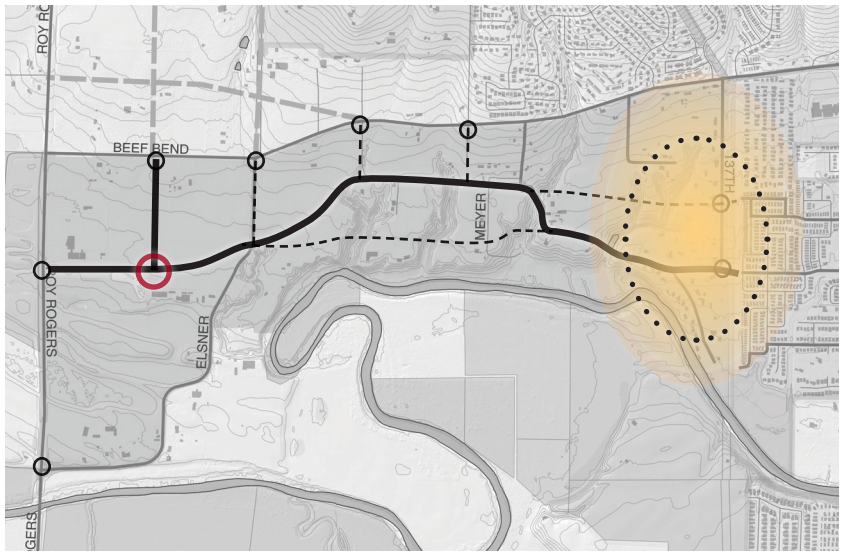
RURAL CHARACTER NEIGHBORHOOD



- *Rural and low density residential character*
- *Streets shared by all modes*
- *Modest redevelopment*
- *Minimize paved areas*
- *Low volume traffic*
- *Natural areas on the edge and within neighborhoods*



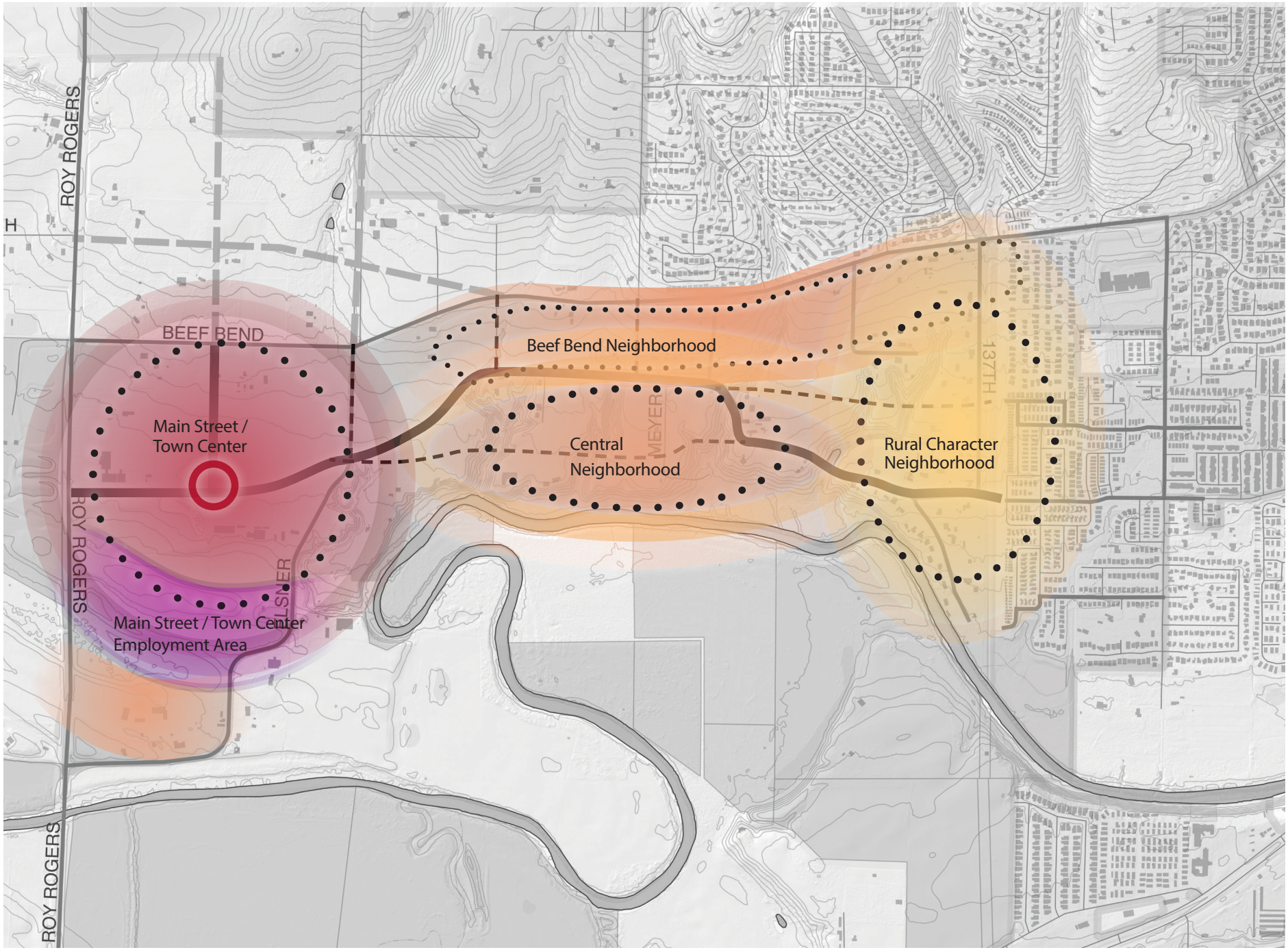




Summary of Dwelling Unit Type and Density by Neighborhood

Dwelling Type Category	Dwelling Type	Main Street /Town Center		Beef Bend		Central Neighborhood		Rural Character		Totals	
		Subtotal by dwelling type	Subtotal by dwelling category	Subtotal by dwelling type	Subtotal by dwelling category	Subtotal by dwelling type	Subtotal by dwelling category	Subtotal by dwelling type	Subtotal by dwelling category	Subtotal by dwelling type	Subtotal by dwelling category
Multidwelling	Flats over retail	400	1,000	0	222	0	0	0	0	400	1,222
	Flats in standalone building (Main Street)	500		0		0		0		500	
	Flats in standalone building (Boulevard)	100		222		0		0		322	
Single dwelling, attached	Live-work or rowhouse	300	500	0	0	30	60	0	0	330	560
	Duplex	200		0		30		0		230	
Single dwelling, detached	Cottage cluster	66	620	50	444	24	498	50	232	190	1,794
	Narrow lot	199		250		30		0		479	
	Mid lot with ADU	249		144		144		82		619	
	Mid lot, no ADU	106		0		300		100		506	
Totals			**2,120**		**666**		**558**		**232**		**3,576**

The amount of housing in the plan area at full build out has been estimated by Urbsworks to be approximately 3,500 units. During the Concept Plan phase, Urbsworks calculated 3,816 units were achievable. As Main Street/Town Center planning progressed, 20 acres of employment were added to the development program. This caused a reduction of housing numbers, to 3,576 total units. Traffic analysis (in a separate report) is based on a lower residential build out.


ROY ROGERS
BEEF BEND
Beef Bend Neighborhood
137TH
MEYER
Main Street /
Town Center
Central
Neighborhood
Rural Character
Neighborhood
ROY ROGERS
ELSNER
Main Street / Town Center
Employment Area
ROY ROGERS

DEVELOPMENT POTENTIAL

Residential Development

King City's primary market competition for residential development comes from Tigard, Tualatin and Sherwood, including nearby unincorporated areas likely to enter the UGB. The 4-city market area will add just over 5,500 new housing units over 10 years to accommodate projected growth. The URA 6D Concept Plan area is well positioned to absorb 500-950 of those units within the first ten years (per Leland Consulting Group Market Analysis Report).

The amount of housing in the plan area at full build out has been estimated by Urbsworks to be approximately 3,500 units. During the Concept Plan phase, Urbsworks calculated 3,816 units were achievable. As Main Street/Town Center planning progressed, 20 acres of employment were added to the development program. This caused a reduction of housing numbers, to 3,576 total units. Traffic analysis (in a separate report) is based on a lower residential build out.

According to Urbsworks, additional residential development could amount to more units over time, developed in a manner that is consistent with the community's vision to preserve natural areas, provide great neighborhoods with an integrated mix of housing types, and ensure graceful transitions between development of varying densities and natural areas. Of course, development above 3,300 units would rely on market demand, and the ability for infrastructure and the street network to handle the additional households.

Commercial Development

Between five and ten years of residential development, the URA 6D Concept Plan area and surrounding urbanizing areas should have enough households and traffic to support a 60,000 square foot neighborhood retail center. It may be large enough for a smaller-format grocery store surrounded by restaurants and shops and would likely be located at the point where the future extension of Tigard's River Terrace Boulevard intersects with a future east-west connector street, taking advantage of visibility and access from SW Roy Rogers and SW Beef Bend Roads. Leland Consulting Group (LCG) market analysis estimates the range of commercial space to be between 80,000 and 120,000 square feet at full build out.

An additional non-residential component, based on a "gateway to wine country" positioning could add another 40-60,000 square feet of campus-style employment or institutional uses. According to LCG, there may be enough demand for a 70-room lodge, including wedding or event space and a signature restaurant. Such a facility could leverage difficult-to-develop riverfront land with outdoor amenities such as educational vineyard, organic culinary garden, or other agricultural and wine-industry related amenities. LCG acknowledges that the "gateway to wine country" concept is compelling but speculative.

For infrastructure financing purposes, the land use program assumed for the funding plan is intentionally conservative regarding the ultimate amount of housing and commercial space; it assumes about 3,500 units as well as a 20% housing "underbuild" precaution, and 50,000 square feet of commercial space. The underbuild precaution has been built into calculations in case the amount of development—and infrastructure-financing fees generated—is less than anticipated. Infrastructure financing is detailed in "Infrastructure Funding."

THE VISION FOR MIX OF HOUSING

Range of Housing Types and Inclusive Development "Provide a mix of housing to accommodate a wide range of household types, incomes, and needs. Affordability is key; provide affordable housing that matches the identity of King City and includes single story living options. Housing should appeal to a full spectrum of people, taking into account diverse incomes, ages and needs." --Concept Plan Vision and Goals

Importance of mixed-income, mixed-use neighborhoods

King City's evolution from retirement village into a diverse community of nearly 5,000 proves the point that cities are socially stronger, more resilient and more equitable when people who represent a wide variety of household sizes and incomes make up a neighborhood.

It is the goal of this plan to articulate a vision for URA 6D in which a wide variety of housing types are intermixed together into the same neighborhood, even on the same block, providing housing choices to people of all ages and income levels. The goal specifically excludes monocultures of single

housing types segregated into enclaves or separate subdivisions. Besides benefiting this area, mixed-income neighborhoods in King City will address the Metro region's housing affordability issues.

In addition, there are national, regional and local trends that support mixed-income housing:

Shifting trends in homeownership and household sizes

The last three censuses have shown that the American household is changing, dramatically diverging from the "typical" household defined as two-parents with 2.5 children. Key trends have emerged: the aging of baby boomers, millennials growing up and forming households, shrinking household sizes, geographic redistribution of populations between the suburbs and cities, and growth of minority populations. The recession forced a shift away from homeownership, and younger generations entering the housing market are likely to rent longer. These trends, individually and combined, point to a demand for urban housing, in the form of compact infill housing, for rent and for sale, close to affordable transportation, including transit.

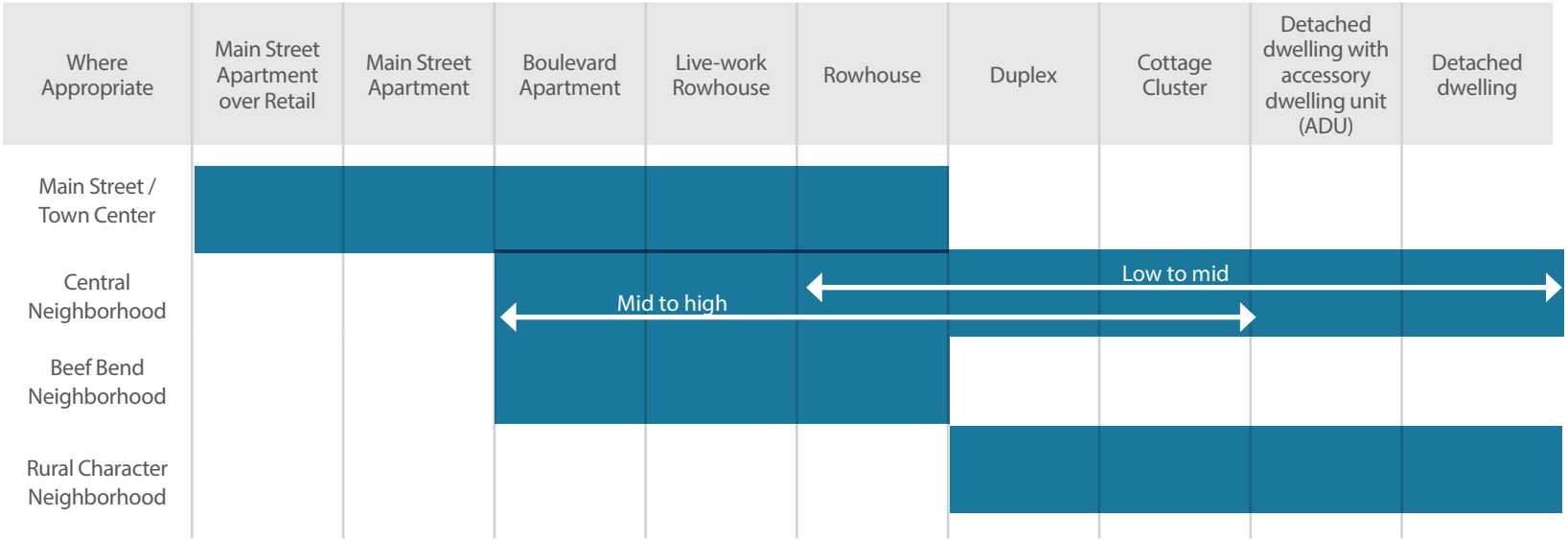
Compact housing built for small households is part of King City's legacy.

Much of King City's 1960's-era development consisted of compact housing built for smaller-than-average households. As the small-household population has grown (partly due to retiring baby boomers), these homes continue to hold their real estate market value.

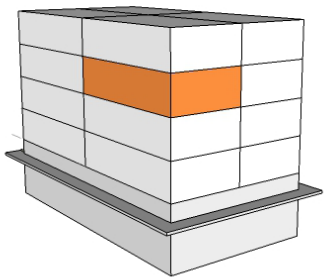
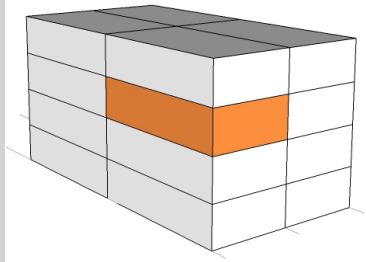
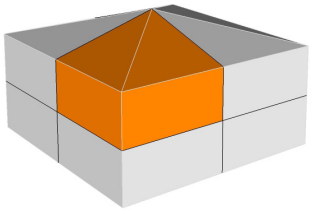
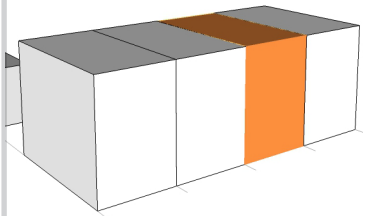
Supported by the market analysis

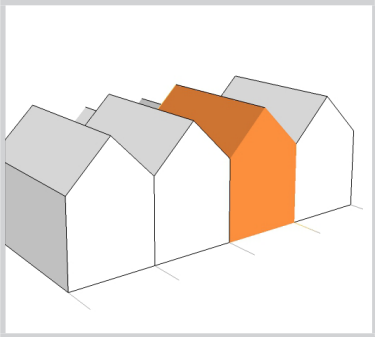
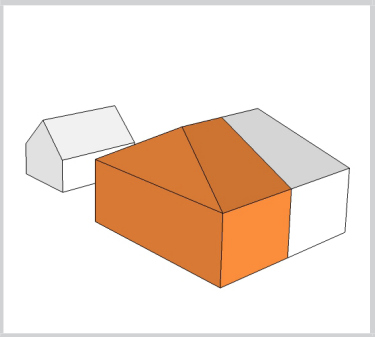
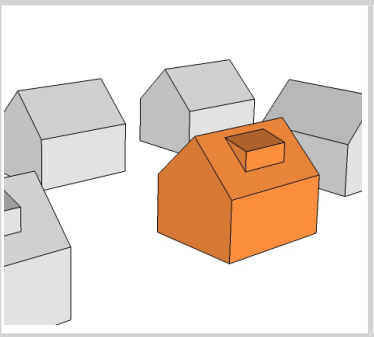
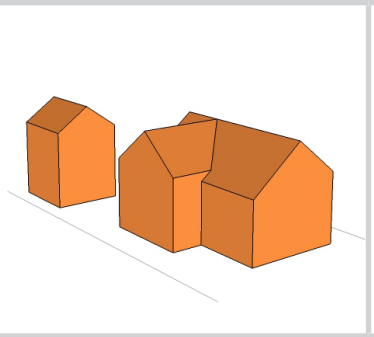
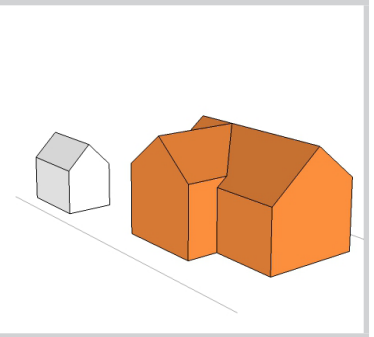
The demographic shift to wider range of housing types is supported by the Market Analysis prepared for the URA 6D Concept Plan by Leland Consulting Group.

Housing Mix by Neighborhood Type



HOUSING TYPE

				
	Main Street Apt. Over Retail	**Apartment**	**Boulevard Apartment**	**Live/Work Unit**
Net density (dwelling units per net acre)	*24-40*	*24-40*	*8-10*	*12-18*
Typical lot widths (in feet)	*varies*	*varies*	*varies*	*25-35*
Typical lot depths (in feet)				*90-110*
Typical lot area (in square feet)				*2,250-3,850*
Description	*Commercial uses on the ground floor with residential units above. Units are sold as condominiums or rented as apartments.*	*Multiple dwelling units in the form of stacked flats in a single building with one or more shared entrances. Units are sold as condominiums or rented as apartments.*	*Most commonly triplexes through sixplexes. Units can be stacked or side-by-side, like townhouses. These are often designed to look like a large house.*	*A rowhouse with space for an office on the ground floor.*
Variations				

				
Rowhouse	**Duplex**	**Cottage Cluster**	**Detached with ADU**	**Detached Dwelling**
12-18	*8-10*	*12-14*	*12-22*	*8-18*
25-35	*50-80*	*varies*	*25-50*	*25-50*
90-110	*90-110*	*90-110*	*90-110*	*90-110*
2,250-3,850	*36000-*	*varies*	*2,250-5,500*	*2,250-5,500*
Attached units, each on a separate lot, and each with its own entry from a public street. Usually owned.	*Two units on a shared lot. The umber of allowed units is determined by the zoning. Can be side-by-side, like town-houses, or stacked. Often designed to look like single dwellings, and to blend in with surrounding traditional neighborhood. Rented or owned.*	*Cottage clusters are detached units grouped around a common open space, each on its own lot, with the common areas under shared own-ership. Parking is in a shared surface lot. Cottages are smaller than 1,000 sq. ft. Cottage clusters are an affordable alternative to apartments and are designed to fit into single dwelling neighborhoods.*	*An ADU (Accessory Dwelling Unit) is a small living space located on the same lot as a single-family house. ADUs can create affordable rental opportunities without changing the character or quality of life of existing single dwelling neighborhoods. It is often rented, and sometimes occupied by a family member.*	*Detached house*
» *Rowhouses above a single level flat. The ground floor unit is designed to be accessible.* » *Rowhouses on top of a base (or "podium") of commercial uses. The podium usually accommodates parking.*			» *Attached ADU - Added to or within the existing structure* » *Detached ADU - Detached and physically separate from existing structure*	» *Detached dwelling, narrow lot Like rowhouses, but detached. Each on its own lot, these are usually owned.*

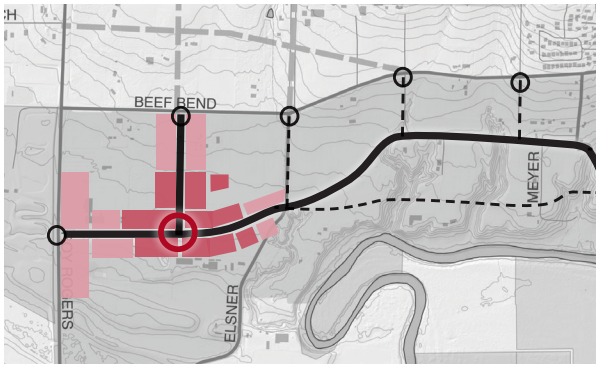
MAIN STREET/TOWN CENTER

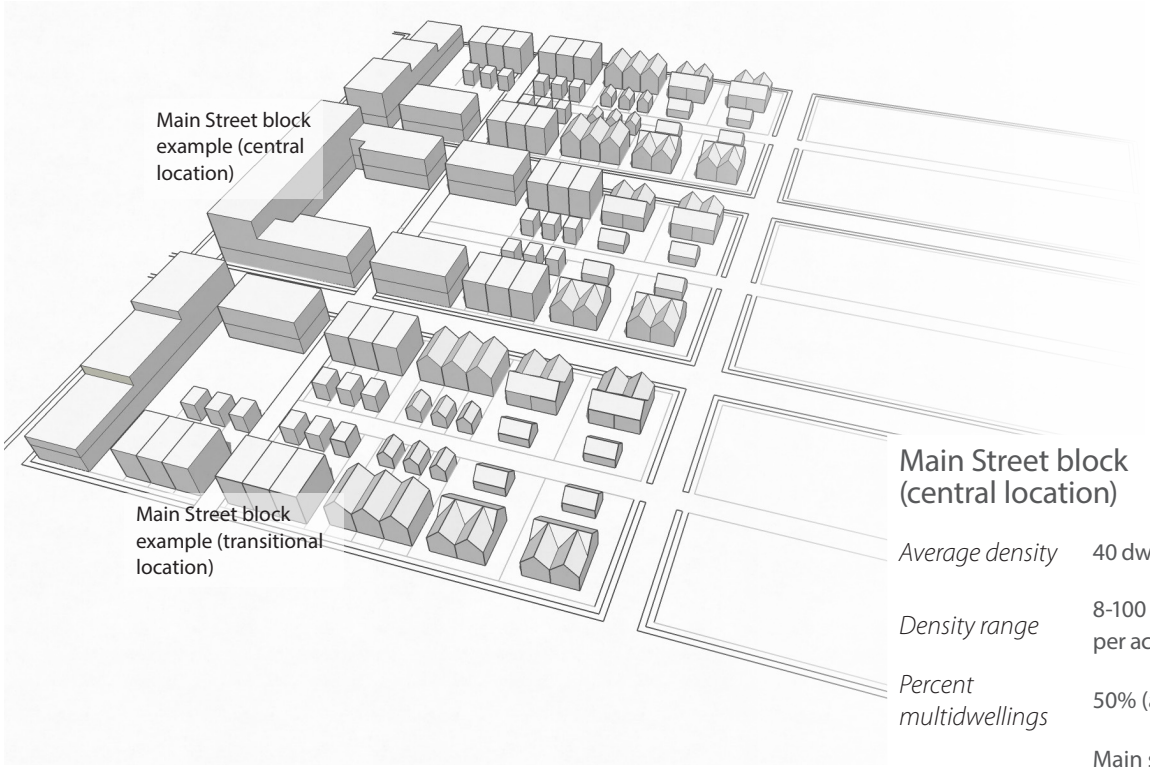
According to the Market Analysis by Leland Consulting Group, after about five years of residential development, the URA 6D Concept Plan area should have enough households in the vicinity to support a 60,000 square foot neighborhood retail center. This is planned for the western side of the URA, taking advantage of visibility and access from Roy Rogers and Beef Bend. It would be centered at the point where the future extension of Tigard's River Terrace Boulevard intersects with a future east-west connector street.

The vision for street and paths in the area draw from the Mobility Framework and include:

- Main Street
- Green Boulevard
- Shared Street

Within the Main Street / Town Center area, the Green Boulevard may not include the center planted median. Streets would be designed to accommodate transit and transit stops would be integrated into public spaces.





Main Street block (central location)

Average density	40 dwelling units per acre
Density range	8-100 dwelling units per acre
Percent multidwellings	50% (apartments)
Housing types	Main street apartment over retail, apartments (standalone), live-work, rowhouse, duplex

Main Street block (transitional location)

Average density	25 dwelling units per acre
Density range	8-100 dwelling units per acre
Percent multidwellings	50% (apartments)
Housing types	Main street apartment over retail, apartments (standalone), live-work, rowhouse, duplex

The vision for parks and open space in the area draw from other sections of the Land Use Framework and include:

- An Urban Park
- The following park types, with an urban activities focus:
  - Pocket Park
  - Linear Park

South of the Main Street / Town Center would be a region-serving community park, possibly co-located with a school and /or civic center.

Land Use Program

The 60,000 square-foot neighborhood retail center would be large enough for a small-format grocery store surrounded by restaurants and shops. According to the market analysis, as additional neighborhoods are built out in King City, Tigard and surrounding areas, an additional 20-60,000 square feet of commercial space is possible. This could take the form of additional retail or hospitality.

The market analysis indicated that the hospitality component could take the form of a 70-room lodge, including wedding or event space and a signature restaurant, but additional analysis would be necessary. King City could market the location as a "gateway to the wine country," and build on the availability of nearby riverfront land which would be difficult to develop, but could be used for wine related tourism amenities (such as educational vineyard or organic culinary garden).

The southern portion of the Main Street area is envisioned to accommodate campus-style mixed employment and / or institutional uses with the following uses and characteristics:

- Educational facilities, community education, workforce training
- Primary school, possibly co-located with park
- Office and business incubator space
- Health and wellness center; clustered and co-located medical offices
- Functionally coordinated building programming
- Aesthetically pleasing and cohesive site planning and design
- Within walking distance of main street restaurants and businesses and future transit service
- Within walking distance of residential neighborhoods

Building form

Main Street buildings could take the following forms:

- 4-5-story mixed use buildings, with retail on the ground floor and residential units above
- Further from the main street center, standalone residential buildings, 4-5 stories tall
- Standalone or above retail, residential densities would typically be between 24-40 dwelling units per acre
- Standalone, single story retail buildings (such as a small-format grocery store)

The maximum number of dwelling units and retail square footage would mostly be limited by the amount of parking that could be provided. Since structured parking is very expensive, initial phases would likely rely on surface parking.

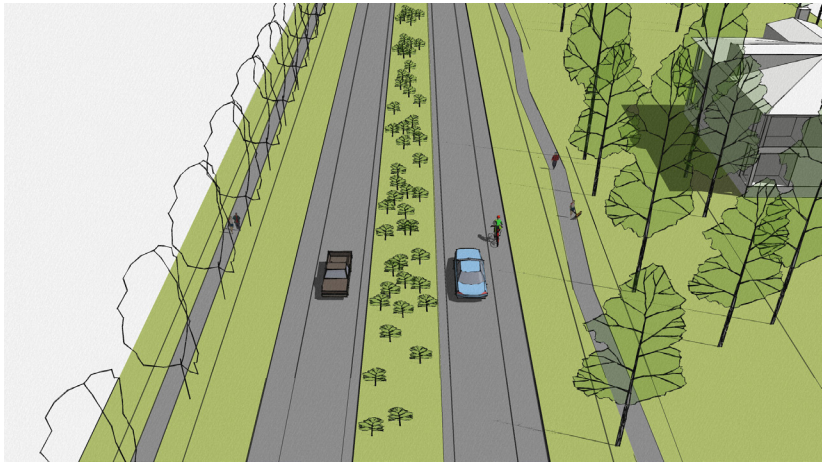
Surface parking would be attractive and easy to access from the center of activity, but located where it does not dominate the main street character. Streets should accommodate on-street parking, diagonal or parallel, depending on the main street character that is desired.

All space devoted to parking—surface, structure, on-street—should be designed to be adapted to other uses in the future. For example, a first phase surface parking lot could become the site of a future-phase mixed-use building.

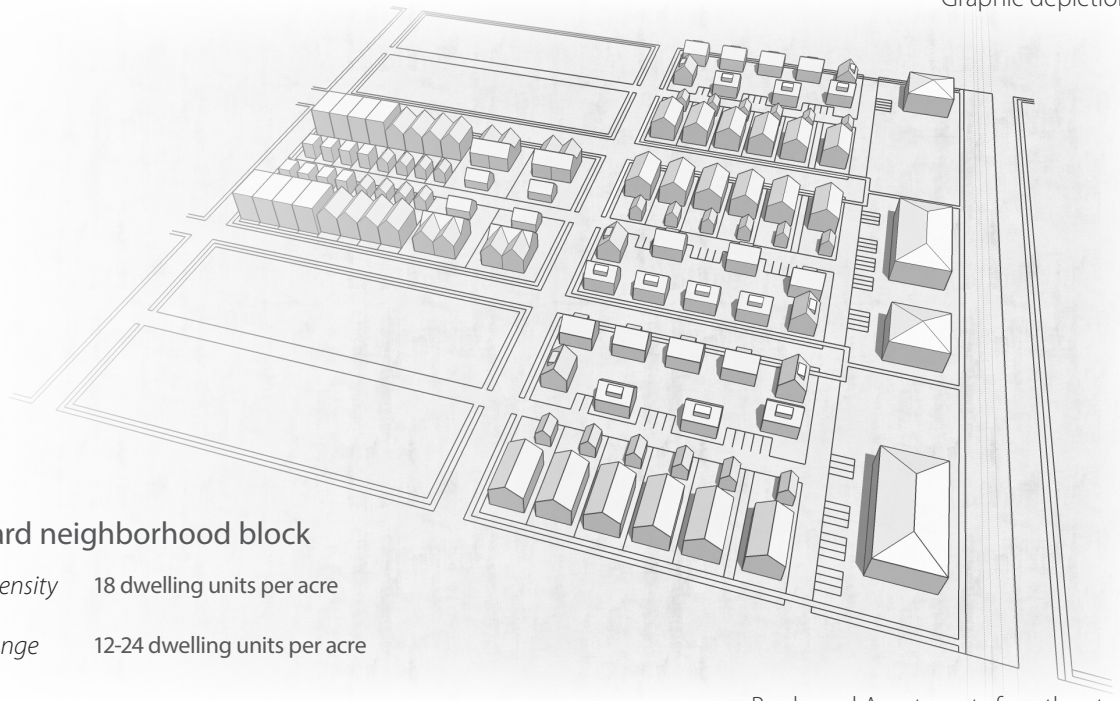
Example from Orenco Station of 4-5-story mixed use building with retail on the ground floor and residential units above.

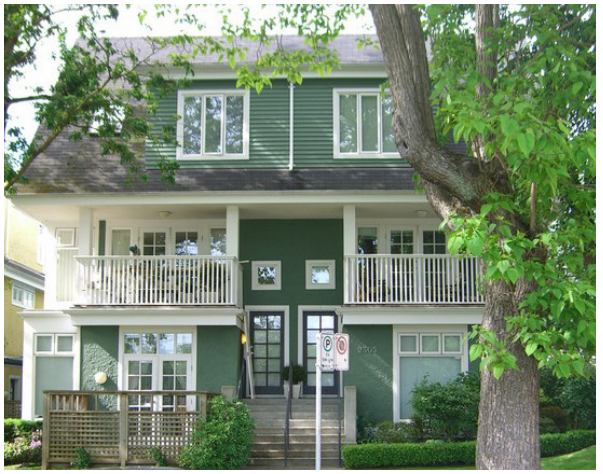
Housing types for Beef Bend Neighborhood

Beef Bend is a major street through the area. As described more fully in the Mobility Framework, King City URA 6D goal for SW Beef Bend Road is to tame the traffic, while not impinging on auto mobility through the region. Specifically, the vision for Beef Bend is slower traffic, a park-like setting, a planted median, inviting and safe opportunities for pedestrians and bicyclist to move along and across. The URA 6D vision for development along the new Beef Bend is multidwelling residential where homes face the street and have alley access, and are separated from traffic by a wide greenspace which may provide for preservation of existing trees in the area.



Graphic depiction of Beef Bend with a multi-use path separated from traffic.





Boulevard neighborhood block

Average density	18 dwelling units per acre
Density range	12-24 dwelling units per acre
Percent multidwellings	30% (apartments)
Housing types	Boulevard apartment, cottage cluster, detached narrow lot single dwelling

Boulevard Apartments face the street and have alley access. Deep front and side setbacks, combined with a linear park and multi-use path, provide for the preservation of trees in the area and treatment of stormwater. Some of the green space may be maintained by Clean Water Services, since the agency maintains stormwater facilities that are designed to its standards. Additional green space may be provided by right of way reserved for a five-lane Beef Bend Road. See page 64 for additional description of Beef Bend Road.

Universal block configurations

An intermix of housing types is made possible with blocks that contain alleys and are set up to accommodate a range of lot widths.

Flexible lot widths

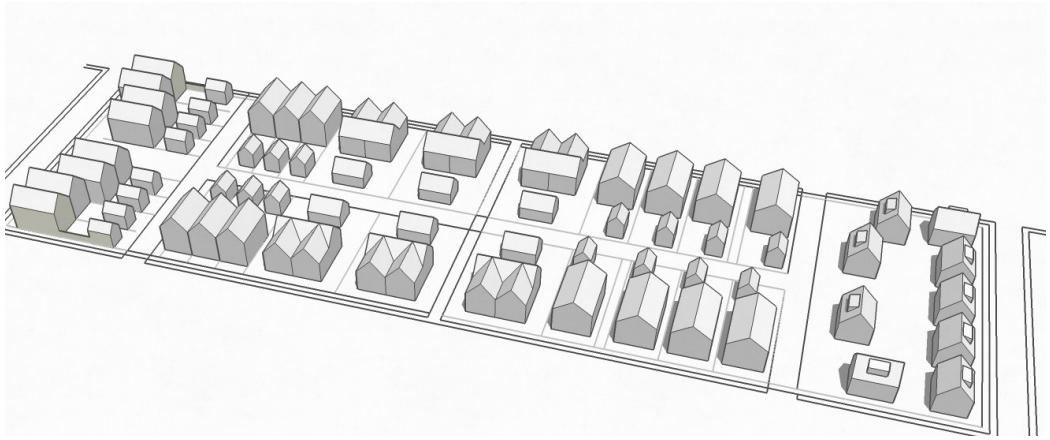
Ideal blocks are typically 200 to 220 feet deep and 200 to 350 feet wide. Lots are increments of 25 to 30 feet, permitting the intermixing of narrow lot dwellings alongside more convention suburban residential lots (which are typically 30 to 60 feet). The intermixing of lot widths ensures that affordable compact housing types can sit side-by-side along with more conventional larger-lot detached homes. Exceptions are cottage clusters and smaller-scale apartments (garden apartments, boulevard apartments), which need aggregated lots. Such apartments buildings need to be sized and designed to fit into the neighborhood context.

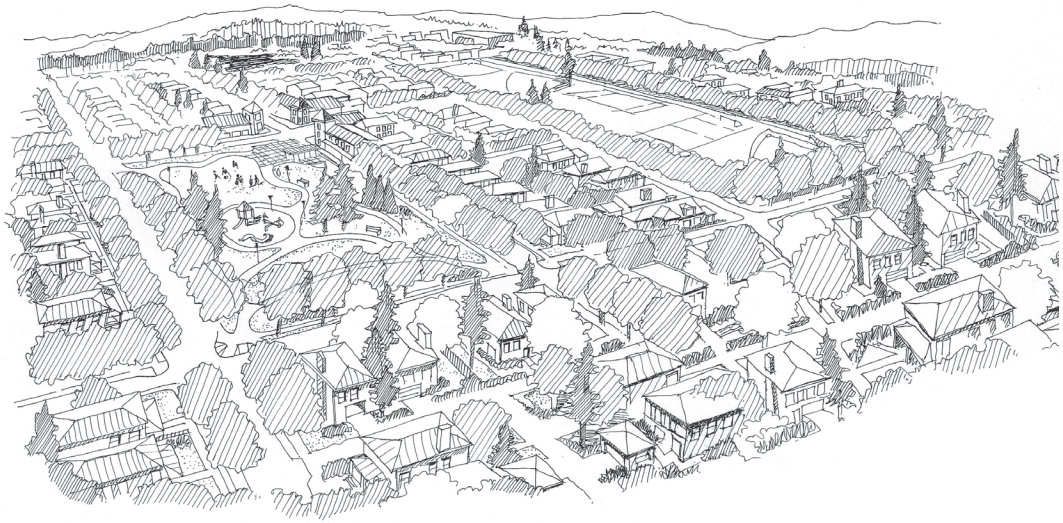
High to mid density neighborhood block

Average density	18 dwelling units per acre
Density range	8-20 dwelling units per acre
Percent multidwellings	25% (apartments)
Housing types	Live-work, rowhouse, duplex, cottage cluster, detached single dwelling with accessory dwelling unit (ADU)

Alleys

Alleys are critical in allowing narrow lots alongside more conventional suburban lot widths, and in limiting the number of driveways access lots from the street edge. Certain features of the street design—such as a continuous plant strip separating the sidewalk from the street, and large-canopied street trees—rely on limited driveways. Alleys are typically 20 to 30 feet wide and can be public right of way or private easement. The design, paving, maintenance and lighting of alleys is important to ensure they function properly and are safe and attractive. Visually narrowing the perceived width of alleys (through landscaping, paving, and placement of garages or ADUs) ensures that they are not used for traffic. If well designed they can be part of a total pedestrian pathway system through the neighborhood.





Mid density neighborhood block

Average density	15 dwelling units per acre
Density Range	8-18 dwelling units per acre
Percent multidwellings	0% (apartments)
Housing types	Rowhouse, duplex, cottage cluster, detached narrow lot single dwelling

TRANSITIONS TO LOWER DENSITY

Development phasing of Rural Character Neighborhood

Most first phase development will take place on the west side, closer to Roy Rogers and Beef Bend intersection, or on lots at the north, along Beef Bend Road. However, it is possible that individual property owners near or even in Rivermeade neighborhood may take advantage of the ability to redevelop their properties, starting after 2020 (the earliest opportunity, if URA 6D is brought into the UGB).

Retaining Rural Character Neighborhood

Retaining a rural character, particularly on the east side of the URA 6D, was a high priority for some residents in the area. The Rural Character Street (see Street Types) is one important key to maintaining the character of these areas. Also critical is the size, scale and siting of new development that takes place in or near the area. The following principles would guide zoning code requirements for future development:

Appropriate housing types are:

- Duplexes
- Cottage Clusters
- Detached dwellings with or without accessory dwelling units
- Mid-sized lot detached dwellings

Transitions

- Avoid abrupt changes in scale and density between residential and non-residential areas and between residential areas of different densities.

- Consider placing zoning district boundaries at the back of lots, instead of along the centerline of streets. This will result in buildings that are similar in scale and appearance on the street.
- Ensure that a gradual transition of scale and density (along with architectural design for privacy) ensures compatibility at the back of the lot.

Scale of new development

- Maintain the scale and character of existing neighborhoods. Avoid land uses that are overwhelming and unacceptable due to their size and scale.
- Require robust setbacks and visual separation that ensure compatibility with adjacent lower-intensity uses. Use natural features, such as woodlands and drainage ways, to provide transitions between new development and low density residential neighborhoods.
- Use a combination of yards, setbacks, stepbacks (when upper floors "step back" from the edge of the floor below), and facade design, to ensure that the transition between different uses and building types is gradual. If this is done well, different uses and building types

can be compatible neighbors without adopting identical building forms.

Building design and orientation

- Consider regulations that require new buildings to have patterns of entries, windows, and porches that are consistent with neighboring buildings.
- Ensure that privacy is maintained and created both for the residents of existing uses as well as the occupants of new development. Windows and balconies should be carefully placed to avoid or minimize impacting the privacy of existing buildings. Landscaping can be designed to add additional privacy over both the short and long-term.

Buffers and landscaping

- Consider requiring buffers between new and existing development. Effective buffers are a combination of horizontal and vertical separation:
  - Horizontal buffers can be achieved through extra wide setbacks, streets and alleys, and / or open space, and could accommodate community gardens or preserved trees and tree groves.
  - Vertical separation can be achieved through architectural treatment, such as fences, or vertical planting, such as hedges or hedgerows.

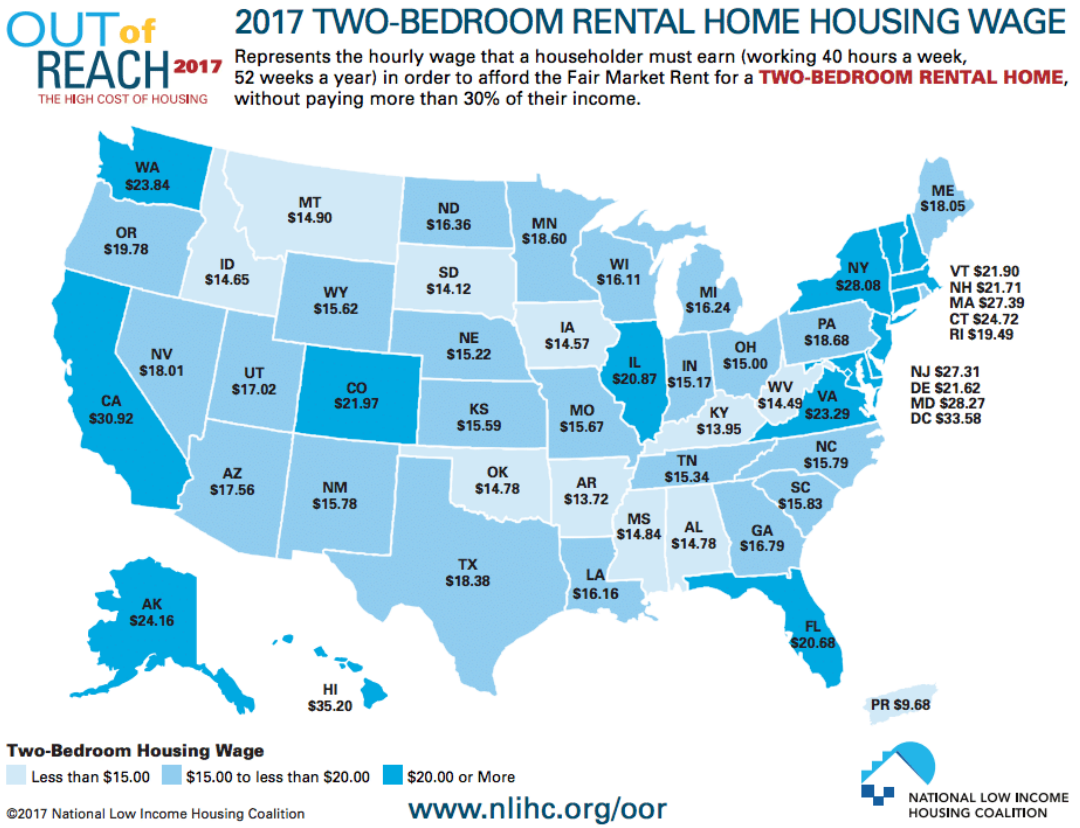
HOUSING AFFORDABILITY

Measuring housing affordability can seem abstract, however, using an hourly wage puts affordability in practical terms. The National Low Income Housing Coalition maps the minimum hourly wage required to afford a 2-bedroom rental based on federal Fair Market Rent (FMR) estimates. The federal government defines "affordable" as a housing cost (utilities included) that is no more than 30% of a person's annual income. In 2017, the Fair Market Rent for a 2-bedroom apartment in Washington County was $1,242. This means that a household must earn at least $23.88 per hour to afford a two-bedroom unit in Washington County (King City Housing Needs Analysis Draft Report, January 2018). That's more than double Portland Metro's minimum wage of $11.25/hour.

Common misconceptions persist about people earning at or near the minimum wage. They are often categorized as part-time workers and teenagers when in reality, 37% of minimum wage workers are over 40 years old. The majority are women and almost 60% are working full time (American Federation of Labor and Congress of Industrial Organizations).

King City Housing Needs Analysis Draft Report

- 2017 Fair Market Rent for a 2-bedroom apartment in Washington County was $1,242
- A household must earn at least $23.88 per hour to afford a two-bedroom unit in Washington County
- Approximately 57% of households in King City have an income below the affordable housing wage for Washington County



How many hourly wages workers make enough to afford modest rents? (NLIHC)

Two-bedroom housing wage, National Low Income Housing Coalition.

Affordability strategies for URA 6D

Strategies to support development of affordable housing in Oregon generally focus on two broad issues: regulatory strategies that broaden the types of housing allowed and land use efficiency; and strategies that encourage development of housing affordable to low- and middle-income households.

Affordable housing can be categorized as: (1) housing for a low-income household, where the household qualifies for government subsidies to afford housing; (2) housing for a moderate-income household, where the household may struggle to afford market-rate rents or homeownership opportunities for newly built housing.

King City has historically encouraged a wide range of housing types and densities, which have helped reduce housing cost. The Metro 2016 Compliance Report concluded that King City was in compliance with Metro Functional Plan and Title 7 (Housing Choice) requirements. Between 2000 and 2015, the percentage of multi-family units of all housing declined from 35% to 16%. Although in many instances city zoning allowed higher densities and multi-family units, developers opted to build lower density single family detached and attached homes in compliance with the city's minimum density requirement of 80% of the maximum. Between August 2016 and July 2017, Metro RLIS data showed median home prices in King City of $352,000 compared to over $400,000 for surrounding cities and Washington County.

The following are policies that King City may consider to further increase opportunities for development of housing affordable to low-income and moderate-income households.

Regulatory Strategies

King City has current regulatory practices, and plans to build on them. They include:

- Allow a wider range of housing types in single and multidwelling categories. Allowing these housing types can increase overall density of residential development and may encourage a higher percentage of multidwelling housing types.
- Allow small residential lots, generally less than 5,000 sq. ft. This policy is intended to increase density and lower housing costs.
- Allow clustered residential development to increase density on portions of a site, while preserving other areas of the site. Clustering is a tool most commonly used to preserve natural areas or avoid natural hazards during development.
- Reduced parking requirements. Parking is one of the more expensive parts of project development. Consistent with Metro requirements, King City has a minimum parking requirement of one space per dwelling unit. Further reductions in parking requirements will be considered by King City, specifically for affordable housing projects. Parking reductions may not be successfully applied without access to viable transportation options to automobile use, including transit service, walking, and bicycling.

Many of these regulatory approaches are anticipated in the proposed Housing Types and Neighborhood Block designs detailed elsewhere in this section.

Affordable Housing Strategies

Strategies that encourage development of government-subsidized housing and which may be used for development of moderate-income market-rate housing with public support include:

- Financing building permit and planning fees or SDCs. These programs reduce the impact of development fees and systems development charges (SDCs) on the development cost of the project by allowing the developer to avoid the upfront cost and finance the fees over time. A financing program can be used as an incentive to induce qualifying types of development or building features (in this case, affordable housing). The city still receives fees and SDCs, but at a later date.
- Tax exemption program. There are multiple tax exemption programs that cities can implement. The Multiple-Unit Limited Tax Exemption Program allows a jurisdiction can incent diverse housing options in urban centers lacking in housing choices or workforce housing units. The Vertical Housing Tax Credit subsidizes "mixed-use" projects to encourage dense development or redevelopment by providing a partial property tax exemption on increased property value for qualified developments. The Washington County Tax Exemption is for non-profit owned affordable housing, allowing a property tax exemption for low-income housing.
- Land Banking. Land banks support affordable housing development by reducing or eliminating land cost from development. Many are administered by a non-profit or non-governmental entity with a mission of managing a portfolio of properties to support affordable housing development over many years or decades. Cities can partner with non-profits or sometimes manage their own land banks. Cities may also donate, sell, or lease publicly-owned land for the development of affordable housing even without a formal 'land bank' organization.
- General Fund Grants or Loans. A city can use general fund or tax increment dollars to directly invest in a specific affordable housing project. These grants or loans can serve as gap funding to improve development feasibility. There are several options for using general fund grants or loans, including the potential for bonds to generate upfront revenue that is repaid over time, as recently approved in the City of Portland.
- Inclusionary zoning (IZ). IZ requires or incents developers to set aside a certain share of new housing at a price affordable to people of low or middle income. In 2016, the Oregon Legislature passed Senate Bill 1533 which allows for a jurisdiction to implement an inclusionary zoning policy if it meets certain requirements. These requirements relate to the income at which the units are affordable (80% MFI or 60% MFI), the percent of the project set aside as affordable, the size of the projects and the requirement for both an in-lieu fee option and incentive package.
- Construction Excise Tax (CET). In 2016 the Oregon Legislature passed Senate Bill 1533

which, in addition to allowing inclusionary zoning, permits cities to adopt a CET of 1% of the permit value on residential construction and at an uncapped rate on commercial and industrial construction, for use on affordable housing projects.

» Urban Renewal / Tax Increment Finance (TIF). Tax increment finance revenues are generated by the increase in total assessed value in an urban renewal district from the time the district is first established. As property values increase in the district, the increase in total property taxes is used to pay off the bonds. When the bonds are paid off, the entire valuation is returned to the general property tax rolls. Urban renewal funds can be invested in the form of low interest loans and/or grants for a variety of capital investments, including affordable housing development.

UNIVERSAL DESIGN

A core tenet of the vision for URA 6D is universal design at the community scale. Environments that meet the principles of universal design are barrier-free, ergonomic, and accessible by all people.

When applied to the physical environment at the community scale, universal design takes mobility into account in every layout concept and every detail. It is universal design applied to streets and trails, homes, businesses and civic facilities. It's an ethic as well as an aesthetic: When a community or a facility is designed to function for universal access, it communicates a welcoming and friendly spirit. An intentionally designed universal access community works for and welcomes people of all ages:

> "…a 'livable community' is place that allows individuals to age-in-place. A comprehensive definition of a livable community is one that is 'safe and secure, has affordable and appropriate housing and transportation options, and offers supportive community features and services. Once in place, those resources enhance personal independence; allow residents to age in place; and foster residents' engagement in the community's civic, economic and social life."
>
> --2016 AARP Age-Friendly Community Survey of Washington County, OR

Universal design can apply to construction of new homes, in the form of single level or stacked designs, such as rowhouses above single-level flats, as well as to the interior design of homes to incorporate features such as no-step entries, wider hallways, and bathroom fixtures that accommodate people with limited mobility.

Universal design can apply to the design of public facilities, in the form of features such as a building entrance that is accessible from a generous ramp and integrated into warm and inviting architecture, not stuck on as an afterthought.

As a community ethic, universal design can guide and energize social interaction, taking the form of service programs that support senior living, such as the "village" movement. These are coordinated, comprehensive health and housing services provided by neighbors:

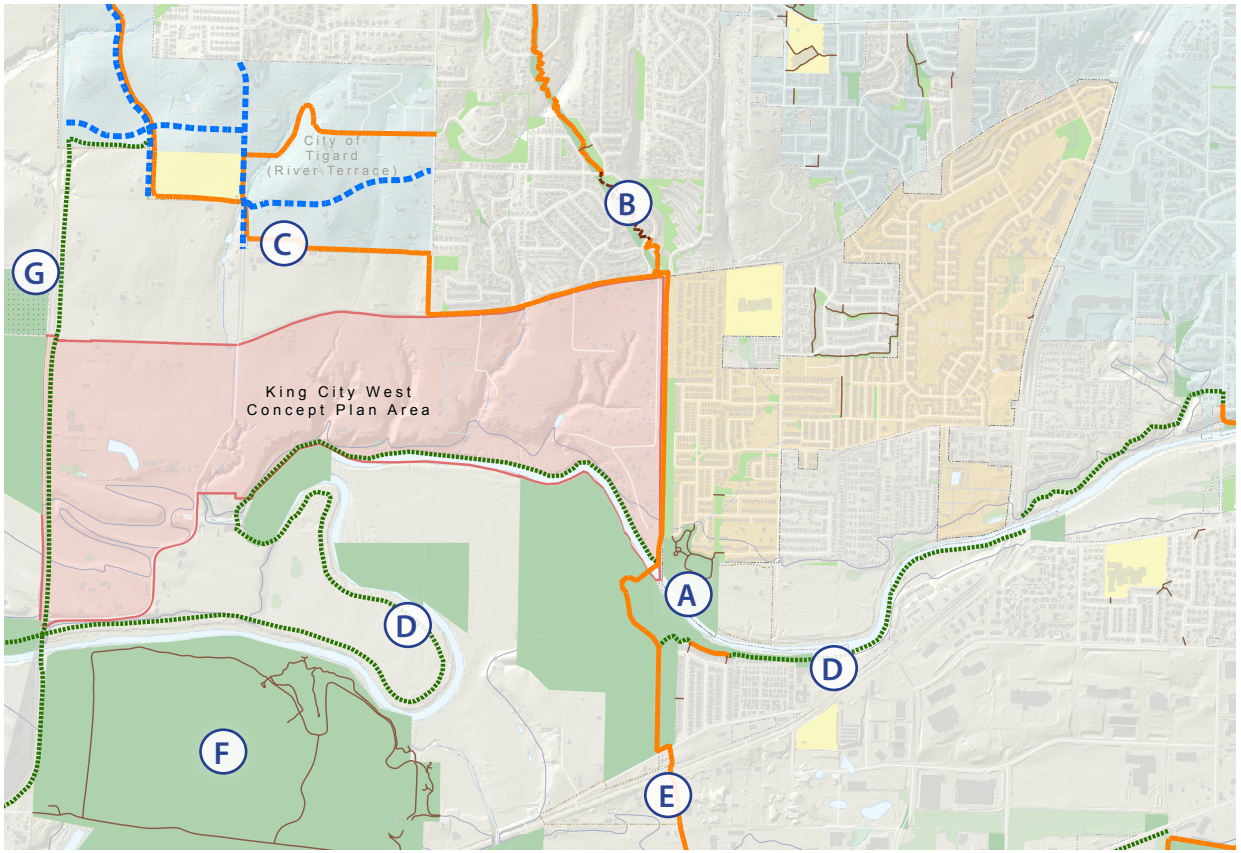
> An Aging-in-Place Village is "a group of like-minded people in a geographic area who come together to figure out and develop the resources they will need to age comfortably in their own homes. Like Naturally Occurring Retirement Communities (NORCs), villages embrace the strategy of bringing services to people rather than moving people to services."
>
> --http://villagesnw.org/whats-an-aging-in-place-village/

PARKS AND OPEN SPACES

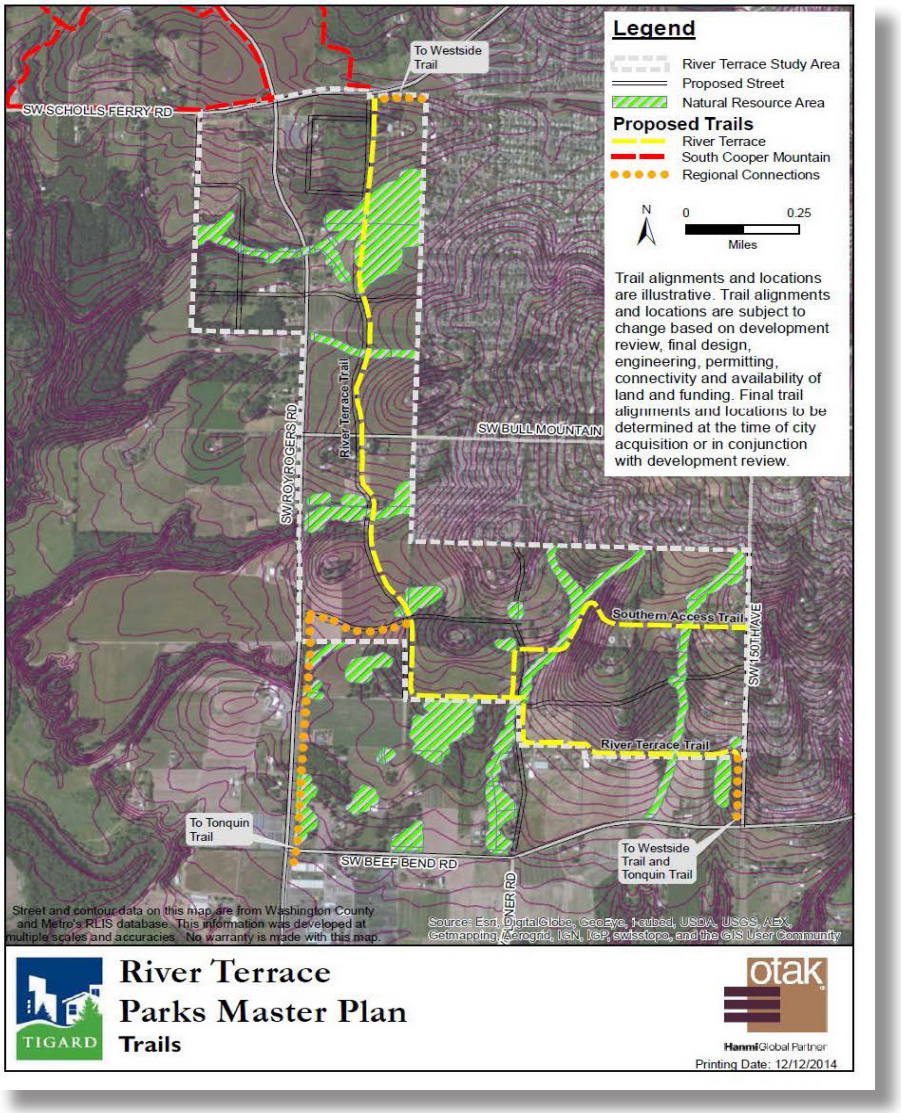
Existing and Planned Parks and Trails

URA 6D is an important link in the larger regional network of connected trails and green spaces. There are a number of existing and planned trails and parks within close proximity to the study area, including:

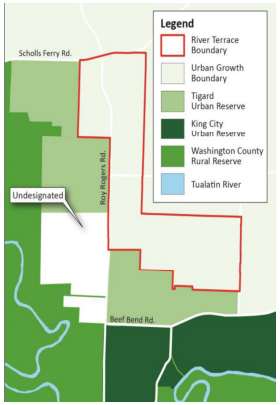
- (A) *King City Community Park*
- (B) *Westside Trail*
- (C) *River Terrace Trail*
- (D) *Tualatin River Greenway*
- (E) *Tonquin Trail*
- (F) *Tualatin National Wildlife Refuge*
- (G) *Lasich Park (planned Tigard park)*



Existing and proposed parks, open spaces and trails



Conceptual parks and trails maps in River Terrace, River Terrace Parks Master Plan Addendum.



River Terrace area (red outline) to the north of URA 6D (shown in dark green).

River Terrace Parks Network

The River Terrace Parks Master Plan Addendum identifies conceptual park locations for community parks, neighborhood parks and trails. While final park locations are determined at the time of city acquisition or private development, the addendum shows a robust network of green spaces that the URA 6D should connect to. River Terrace Trail is planned to link into the Westside Trail, which will run north and south immediately east of the URA. In addition, there are a number of community parks and open spaces directly north of the URA that provide an opportunity to connect to the larger network of diverse parks, wild open spaces and recreational trails.

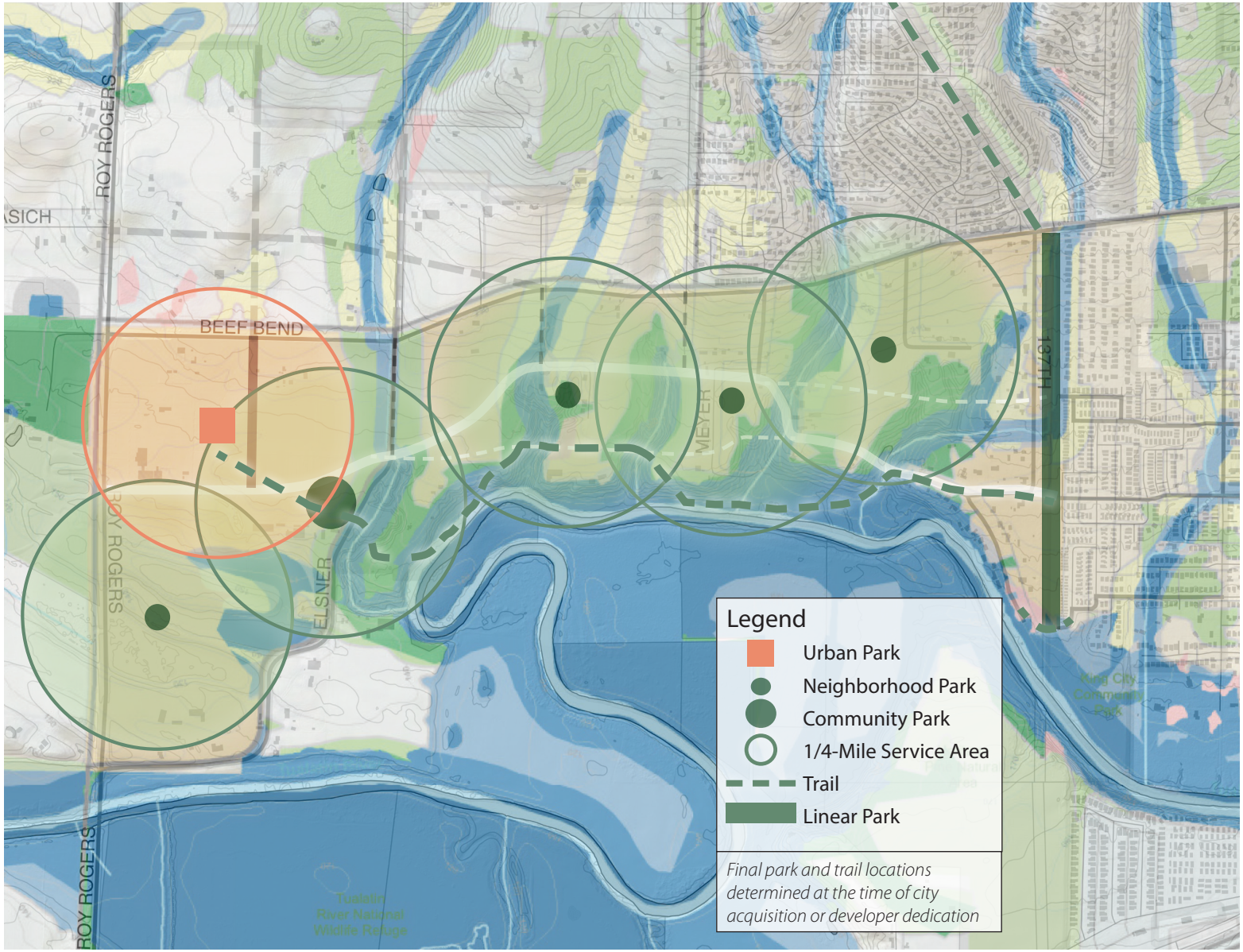
Parks in URA 6D

The conceptual map shows a general plan for parks in the URA. It includes smaller neighborhood parks between the natural ravines in the central and eastern portions of the URA. These neighborhood parks (3 to 5) were incorporated in the Funding Strategy Memo and may be any number of park types identified on the following page. A larger community park is envisioned in close proximity to a school and more dense development on the west. An urban park in the mixed use/town center area is desired around the denser development and may take the form of a public square or plaza, close to the corner of River Terrace Boulevard extension and green boulevard extension. In addition to these parks, a trail along the river is desired. This would be a continuation of the Tualatin River Greenway Trail.

Location, size and other requirements by park type would be developed during the master planning phase of the project. The tables (from Tigard River Terrace Parks Master Plan Addendum) are examples of what would be detailed at a later point including a city standard for size and a recommendation of park need.

Park Types for URA 6D

Park Type	Possible Standard (Acres or miles / person)	Examples (Existing examples in King City or URA 6D and new proposed locations)
Open Space	4.25 acres / 1,000	Areas under natural resource protection
Trail	.26 miles / 1,000	Proposed: Tualatin Greenway and Westside trail
Linear	1.25 acres / 1,000	Proposed: BPA Right of Way (utility easement between SW King Lear Way / SW Montgomery Way and SW 137th Avenue)
Community Agriculture	1.25 acres / 1,000	Proposed: Historic agriculture site(s)
Community	3 acres / 1,000	Existing: King City Community Park Proposed: Within Town Center / Main Street area
Neighborhood	1.5 acres / 1,000	Proposed: Within Beef Bend, General and Rural Neighborhoods
Private	No standard	Existing: Corner park at SW 131st Avenue and SE MacBeth Drive (King City), Rivermeade riverfront park (URA 6D) Proposed: New parks associated with homeowners associations
Pocket	No standard	Proposed: Small parks within each neighborhood
Urban	No standard	Proposed: Plazas and shared street space within the Town Center / Main Street area



Conceptual park and trails map for the URA 6D

Park Types for URA 6D

A number of different park types are envisioned for the King City URA 6D area, including the following:

- *Open Space*
- *Trails*
- *Linear Park*
- *Community Agriculture Park*
- *Community Park*
- *Neighborhood Park*
- *Private Park*
- *Pocket Park*
- *Urban Parks*

Open Space

Open spaces, generally along stream corridors and wetlands, protected from development.

Trails

A Trail system designed to connect to nearby regional trails, such as the Westside Trail and the River Terrace trail system to the north, and the Tonquin Trail to the south.

Linear Park

A greenway that links together points-of-interest within a community or provides green buffers between neighborhoods. These parks are nature oriented, and recreation is typically related to trail use.

Community Agriculture Park

Former farming site where property and buildings are maintained as an agricultural example with the intent to interpret and educate visitors in local food and plant production. Activities might include community gardens, historical markers, educational programming, farm tours, and trails.

Community Parks

Community parks are larger and support organized activities. They often have sport fields or other special facilities as their central focus. These parks can accommodate larger numbers of people and provide restrooms and parking.

Neighborhood Park
Generally small in size, neighborhood parks are a combination of playground and park designed primarily for spontaneous, non-organized recreation activities.

Private Park
These privately owned and maintained sites include parks owned by subdivision homeowners associations (HOAs), park amenities provided on corporate campuses, private golf courses, and privately owned sports field complexes.

Pocket Park
A small park, too small to accommodate active play, but large enough for a play structure, looped walking trail or sheltered picnic table, or a public sculpture or fountain. A pocket park provides a minimal amenity for an apartment complex or area of opportunity in a development.

Urban Park
Urban parks are located in busy, higher density, commercial areas or mixed-use centers. Examples of urban parks include public squares, promenades, and urban plazas.

Mobility Framework

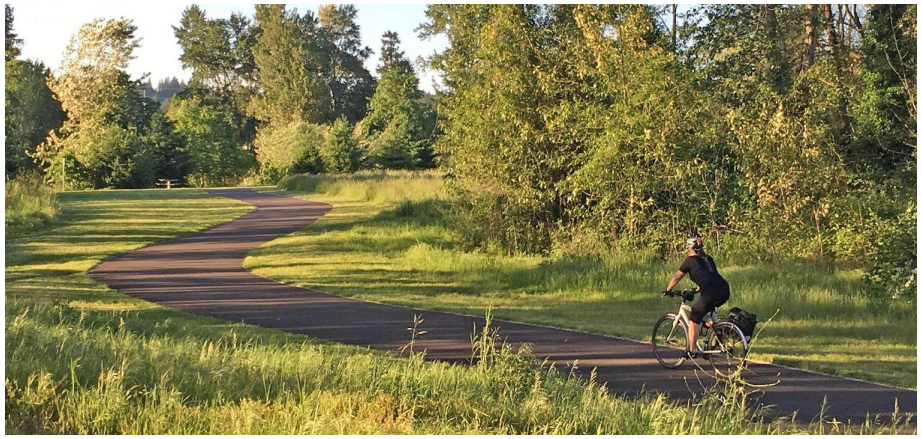
Mobility

Base Conditions Key Findings

- A network of internal local and collector streets will be necessary to balance traffic volumes and create better accessibility for all modes of travel.
- Walking and bicycling should be encouraged for local trips to school, shopping, recreation, etc.
- Only arterial or collector streets may connect to SW Roy Rogers and SW Beef Bend roads per Washington County policy.
- Design the mixed-use main street/town center and residential neighborhoods to be conducive for walking, bicycling, and transit.
- Design options for Roy Rogers, Beef Bend and other major streets should be identified. Ideally, they should be designed as urban boulevards rather than rural highways.
- A range of new street and trail designs, which maximize adaptation to the local conditions, should be considered.

Framework Design Philosophy

- Make connections with existing and planned streets and paths wherever possible.
- Maintain a long-term principle of connectivity, particularly for east-west street connections, while accommodating the two development phases: more immediate development on the west within first ten years and slow incremental development over a longer period on the east.
- Think about street and path types that may convert over time, for example, from a path to a street.



Connected Transportation Network: "Connected transportation network: Create an internal system of streets and paths that offer internal neighborhood mobility, so that Beef Bend Road is not necessary for every trip. Provide convenient connections to transit. Provide streets that seamlessly connect to trails and vice versa. Connect to existing and planned trails in the region."

--Concept Plan Vision and Goals

INTRODUCTION

The study area has historically been a rural area, governed by Washington County, therefore the major roads adjacent to and serving the URA are owned and operated by the County and include both arterials (SW Roy Rogers and SW Beef Bend Roads), and collectors (SW Elsner Road, SW Fischer Road and SW 131st Avenue).

Vision

In keeping with the Vision and Goals for the project, the Concept Plan promotes a connected transportation system of new internal streets and paths to provide travel options to and through the district, and take traffic pressure off the County arterials. Specifically the vision for the arterial streets that bound the URA (SW Roy Rogers and SW Beef Bend Roads) is that they evolve to become urban in nature where they abut the concept plan development area. SW Beef Bend and SW Roy Rogers would ultimately be transformed into urban boulevards with significant capacity for traffic but with additional improvements to provide a pleasant and safe walking and bicycling environment. These are characteristics which the current rural highway design lacks.

The transformation of these two streets includes attractive development which enfronts Beef Bend and Roy Rogers. Rather than facing the street with the backyards and tall fences which characterize many suburban arterial edges, the Concept Plan envisions development, set behind an expanse of green space, and facing the street. Tigard's River Terrace Boulevard provides inspiration for the King City design treatment.

In addition to creating multi-modal streets, the land use concept of interconnected neighborhoods and a mixed-use main street/town center will promote local walking and bicycling trips. In its Southwest Service Enhancement Plan, TriMet acknowledges future growth in this general area, including River Terrace and South Cooper Mountain. Although future bus routes have not been identified, the land use and urban design concept for URA 6D would establish a walkable and transit-friendly environment to support future transit service along major streets such as SW Beef Bend Road, SW Roy Rogers Road, and the southerly extension of SW River Terrace Boulevard.

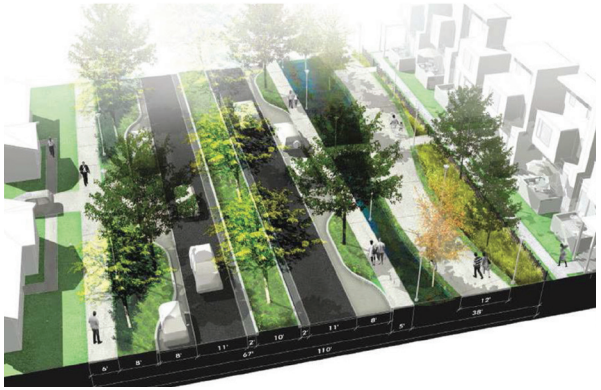
ALIGNING WITH THE VISION

- *Complete network of streets and path types*
- *Connected transportation network*
- *Support all modes of transportation*
- *Create a complementary walkable urban environment to support the provision of viable transit service.*

THE BIG STREETS

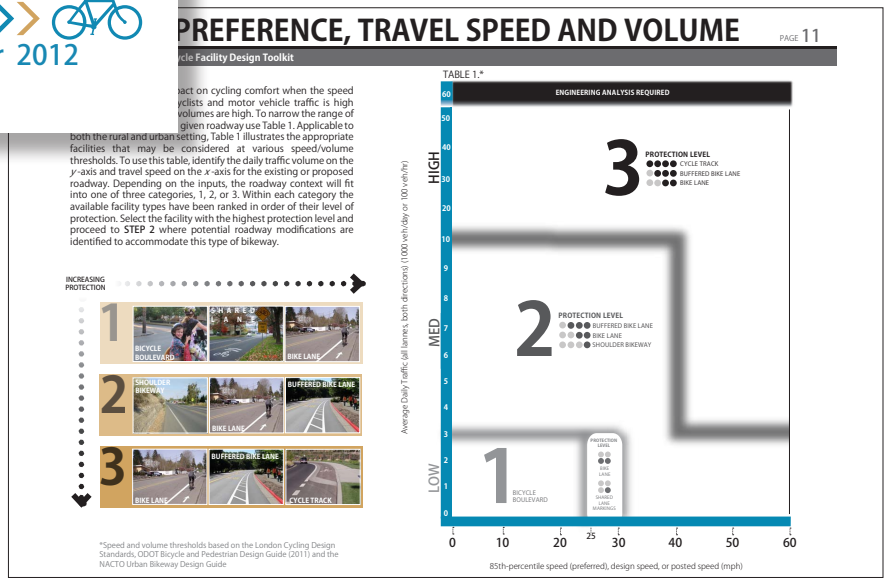
The Concept Plan proposal for SW Beef Bend Road and SW Roy Rogers Road includes several features:

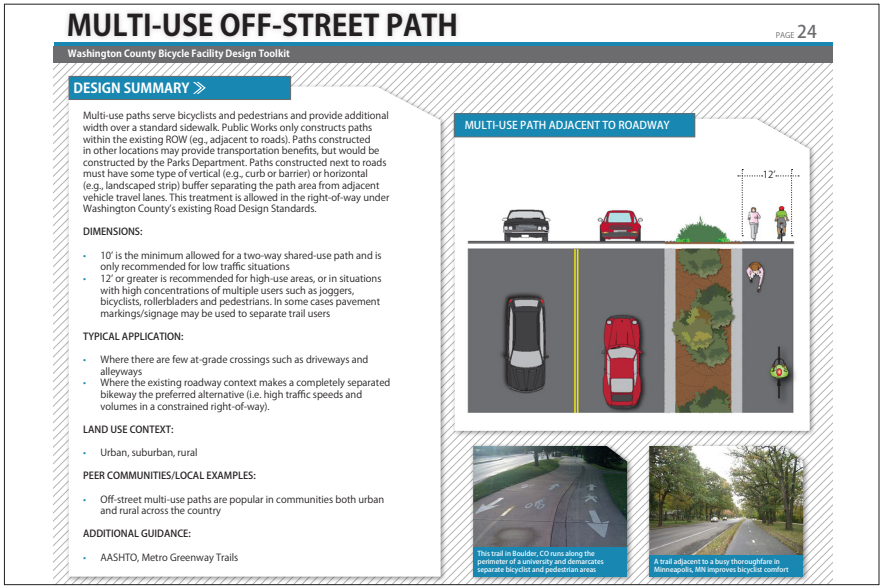
- Because Beef Bend travels east west along the foot of the Bull Mountain, travel lanes could be splayed to minimize the height and cost of retaining structures.
- Wide park-like green space would ease the grade change toward the developable area and provide for preservation of existing trees in the area.
- The planted central median would collect and clean stormwater before it flows toward the Tualatin River.
- A multi-use off-street path would provide a safe and attractive route for bicyclists and pedestrians.
- The proposed Beef Bend design is for three lanes, but additional right of way would be dedicated to accommodate a five-lane facility if analysis shows it is necessary.



River Terrace Boulevard Design Concept

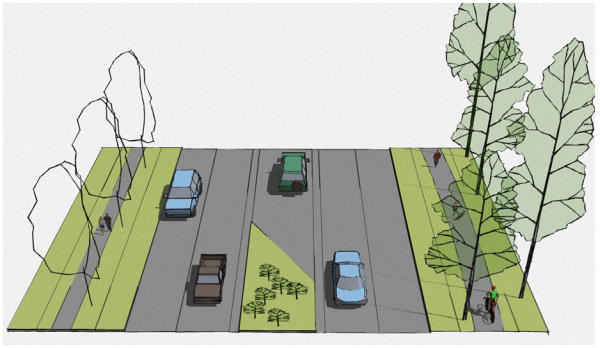
The multi-use off-street path proposed for SW Beef Bend Road would follow guidance like that found in Washington County Bicycle Facility Design Toolkit. Similar design treatment is envisioned for SW Roy Rogers Road where it abuts the URA 6D area.





Washington County Bicycle Facility Design Toolkit

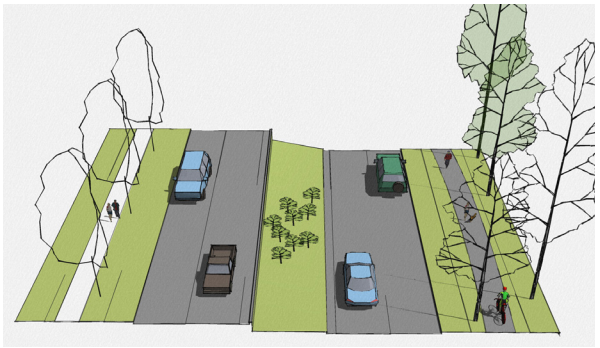
3-lane Beef Bend design at intersections



5-lane Beef Bend design at intersections

Beef Bend development design concept

3-lane Beef Bend design between intersections



5-lane Beef Bend or Roy Rogers design between intersections

Example of splayed travel lanes

Three-lane or five-lane Beef Bend

Beef Bend Road is suitable now as a three-lane facility, however, future proposed development could require a five-lane facility for capacity and mobility. Preliminary modeling by the County shows that a 5-lane facility may be necessary to accommodate the proposed development.

Future planning for the URA 6D would include transportation analysis that would measure the impacts of the proposed development, determine whether the roadway capacity is adequate for the proposed development, and identify mitigation that would be necessary to accommodate the proposed development.

It is anticipated that such analysis would be conducted during the Master Plan phase, and it would, in addition to the above, confirm the URA proposed development program, determine the street network capacity, the design and cost of the Beef Bend facility, and the financing plan.

Location and type of intersections on SW Beef Bend Road

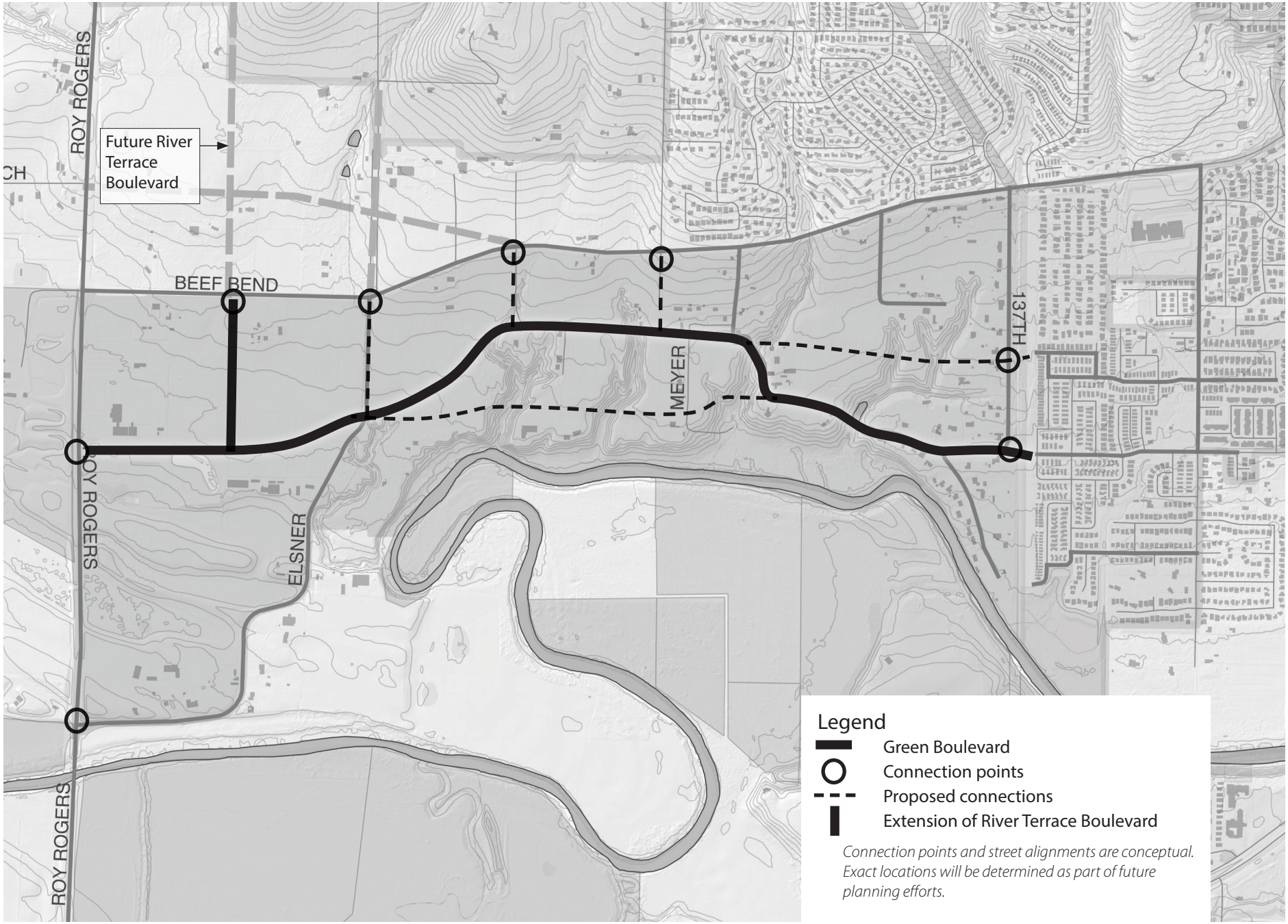
Location	Roy Rogers	River Terrace	Elsner	Cut-off	150th	137th
Intersection type	Signalized	Signalized	Signalized	Roundabout	Signalized	Oval-about

In certain locations on SW Beef Bend roundabouts may be preferable to signalized intersections, particularly to deal with the challenging situation at SW 137th Ave / Peachtree / Colyer (oval-about). Engineering analysis would need to satisfy any county concerns.

MOBILITY FOR ALL USERS

Every aspect of the Concept Plan emphasizes direct and pleasant facilities for walking, bicycling, and future transit. Active transportation is front and center to the design concepts:

- Streets and paths take a wide variety of forms—multi-use trails, alleys, green streets, shared streets, queuing streets, rural-style streets, boulevards, main streets— and are seamlessly integrated into a fine-grained network that serves transportation and recreation uses;
- Neighborhood design emphasizes walkable, urban-scaled blocks and buildings that face the street with porches and front doors, not garages or fences;
- Streets and paths are designed for the comfort and enjoyment of people of all ages;
- URA 6D streets and paths connect to the larger King City-Tigard-Washington County street and path network at every opportunity;
- Residential neighborhoods and the mixed-use main street are designed to provide walkable urban places that can be readily served by transit, and
- Streets that serve the region, such as Tigard River Terrace Boulevard and the extension through URA 6D, are designed to accommodate transit in the future.

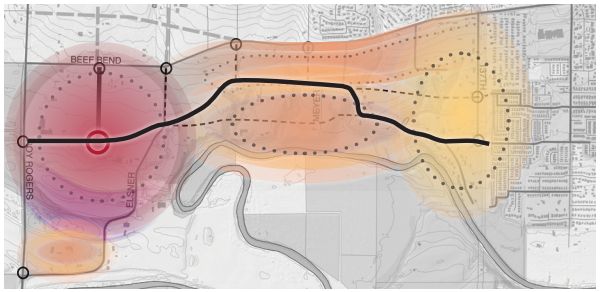

ROY ROGERS
Future River Terrace Boulevard
BEEF BEND
MEYER
137TH
ELSNER
ROY ROGERS
ROY ROGERS
Legend
Green Boulevard
Connection points
Proposed connections
Extension of River Terrace Boulevard
Connection points and street alignments are conceptual. Exact locations will be determined as part of future planning efforts.

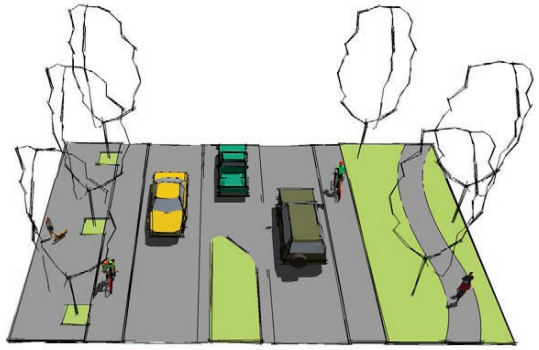
STREET TYPES

Green Boulevard

The Green Boulevard is envisioned as a street that will carry a moderate amount of vehicular traffic, while maintaining an approachable park-like character. In some places the boulevard may have a planted median and a separated multi-use path. In other places, such as through the Rural Character Neighborhood, it will take on the character of a rural road or country lane, with planted areas between the sidewalk and the drive lane. Planted areas will be designed to collect and treat stormwater. The Green Boulevard may include signalized and roundabout intersections. One lane of travel in each direction is desired, with left turn refuge pockets at major intersections, if traffic volumes require. The Green Boulevard could be built for a major east/west collector street within the URA.

The Green Boulevard design responds to the neighborhood context through which it runs. Through the Rural Character Neighborhood for example, planted areas that treat stormwater separate the drive lane from the walking path, creating a rural character that contrasts with the formal curb and park lane that typifies the Local Neighborhood and Queuing Streets.

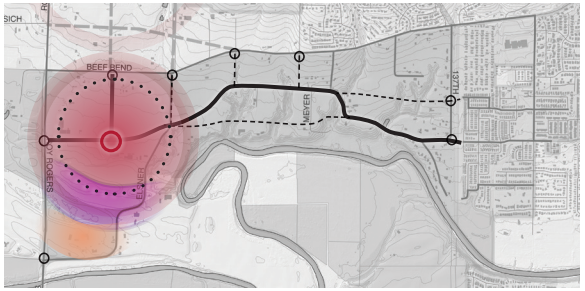


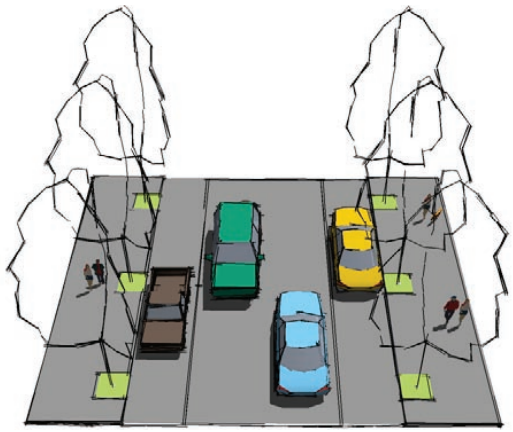


connects major destinations | planted median
stormwater management | separated multi-use path

Main Street

The Main Street has a narrow curb-to-curb distance. It is one travel lane in each direction with on-street parking, wide sidewalks and ample street trees. The street is designed for slower traffic speeds, and a main street-appropriate bike facility. This street type should be built in the heart of the new town center, where commercial and mixed use activities are prevalent. Buildings meet the edge of the sidewalk to encourage visual interest for pedestrians. Main Street is pedestrian and cyclist friendly, with the parked cars acting as a buffer between street traffic and the sidewalk.

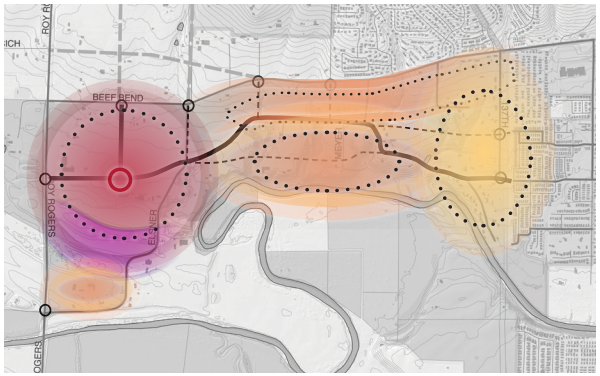




On-street parking | Slow traffic speeds | shared bike facility
wide sidewalks | street trees

Local Neighborhood

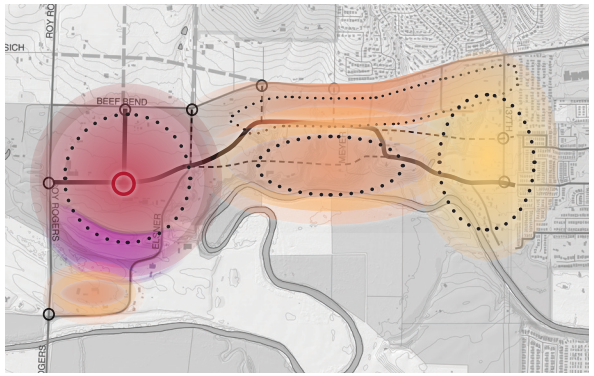
The Local Neighborhood street type is designed to connect neighborhoods to each other. This is a small street primarily used for local trips within the URA. It has a residential character with on-street parking, sidewalks, large tree canopies and one lane of travel in each direction.



connects neighborhoods | big tree canopies
residential character | stormwater management

Local Queuing

Similar to the Local Neighborhood street type, the Local Queuing street is designed to connect neighborhoods to each other. It has a residential character with on-street parking, sidewalks, and lots of street trees. The local queuing street has room for on-street parking on both sides and one lane of travel between parked cars. It has a narrower right-of-way and is designed for internal trips and local residents.

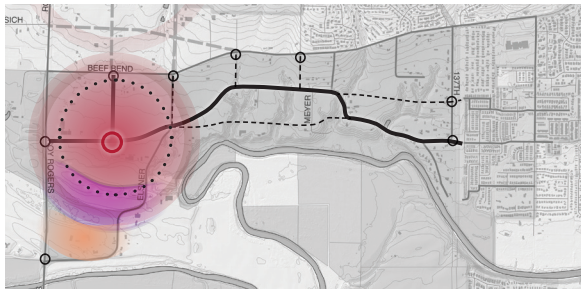


narrow right-of-way | on-street parking | shared bike facility
residential character

STREET TYPES

Shared Street

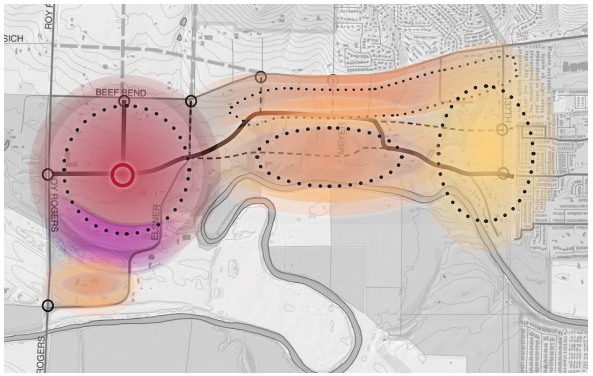
The Shared Street has a plaza-like feeling and is part of a more urban context. The design prioritizes pedestrians while still allowing vehicular traffic at very low speeds. This is a flexible street type that permits decorative paving and curbless edges, such as a festival street design. Shared Streets provide opportunities for community activities and may be adjacent to a plaza or other central gathering node.



community activities | decorative paving | festival street
prioritizes pedestrians and bicycles

Residential Alley

A Residential Alley contributes to a well-designed neighborhood. Unlike houses with garages in front, alley-accessed garages allow for front porches, ample street trees and more on-street parking. Collectively, these features create a desirable walking environment for pedestrians and allow for greater housing density.

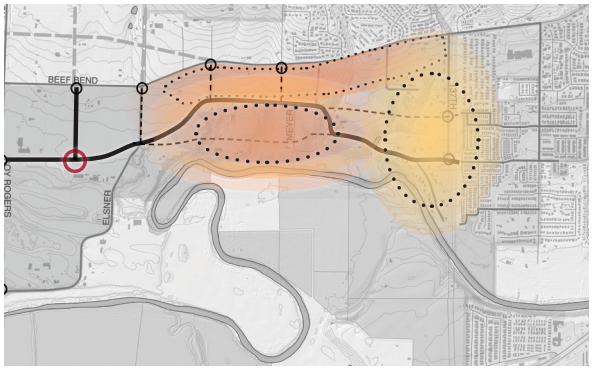


narrow right-of-way | allows for more street trees
on-street parking | visually appealing

STREET TYPES

Rural Character Street

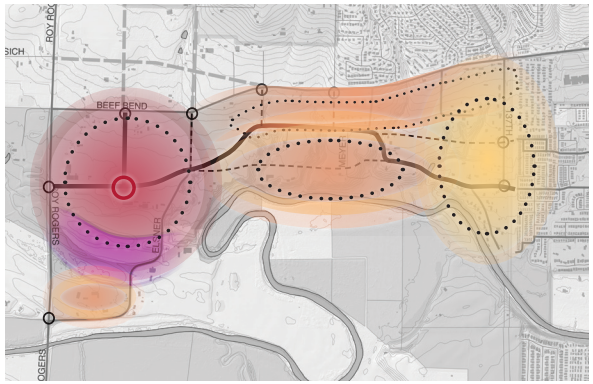
The Rural Character Street is modeled after the existing streets within the URA and is intended to help maintain the rural character of the area. The Rural Character Street has a planted area that separates the driving lane from the walking lane. The Rural Character Street is designed to be shared by all modes including vehicles, pedestrian, bicyclists and horses. Traffic volumes are low and the street serves lower-density residential areas, particularly on the east side of the URA.



street shared by all modes | low-volume traffic
residential character

Multi-Use Path / Trail

The Multi-Use Path provides opportunities for connections that are removed from vehicular travel, creating recreational spaces that are family-friendly. They can provide walking or biking paths through sensitive areas with a smaller footprint. Multi-use paths and trails are envisioned throughout the URA, connecting to regional paths and over deep ravines. They offer space for pedestrians, bicycles, horses and perhaps even golf carts.



Space for pedestrians, bicycles, golf carts and horses
connections to regional trails | family friendly

Public Utilities and Services Framework

Public Utilities and Services Infrastructure

Base Conditions Key Findings

Water

- Developed parcels within the URA planning area are currently served with on-site private domestic and/or irrigation wells.
- The public drinking water provider for King City, including future development of the URA is the City of Tigard
- Extension of transmission piping and possible development of additional storage facilities will be required to provide water service to the King City URA. Further study by the City of Tigard is recommended to identify the extent of deficiencies, need for additional infrastructure and funding mechanisms.
- Development should be coordinated with the City of Tigard as the water service provider for the area within King City.

Sanitary Sewer

- Developed parcels within the King City URA are currently served with on-site private septic systems.
- Clean Water Services (CWS) is the service provider for sanitary service within the City of King City and future development in the URA.
- CWS is in the preliminary planning stage of installing a sanitary sewerage pump station adjacent to Roy Rogers Road to serve the King City URA planning area and surrounding areas. In addition to the pump station, CWS is planning installation of a force main and gravity conveyance system improvements. This future pump station will also have the capacity to serve the western portion of the URA planning area.
- Natural topography and existing drainage ways limit the areas that can be served by gravity. It is expected that the southern half of the King City URA will require the installation of small developer pump stations as development occurs. A gravity trunk service option could minimize the need for smaller pump stations.
- Specific development should be coordinated with CWS to identify system needs based on the specific new development proposals.

Storm Drainage

- CWS is responsible for storm drainage throughout Washington County under a National Pollutant Discharge Elimination System (NPDES) – Municipal Separated Storm Sewer System (MS4).
- The King City URA consists of natural stormwater infiltration and conveyance through natural drainage ways that generally flow from north to south, ultimately discharging to the Tualatin River.
- The existing drainage ways are susceptible to erosion and degradation from high flows.
- New development within the planning area must meet CWS requirements, and it should occur in such a manner so as not to create an adverse impact to the existing storm drainage systems, in accordance with CWS' NPDES MS4 permit.
- Future development within the planning area should be coordinated with current upstream planning efforts to mitigate high flow events and prevent further degradation of the existing drainage ways.

Framework Design Philosophy

- Plan for utility infrastructure service that can accommodate the two development scenarios: more immediate development on the west within first ten years and slow incremental development over a longer period on the east.
- Provide equitable infrastructure fee system that works with property ownership and development pacing.
- Develop infrastructure plans that can be paid for by the development yield and is comparable to development fees in nearby jurisdictions.

OVERVIEW AND CONSISTENCY WITH VISION

As described in Section 4. Base Conditions and Key Findings, there is virtually no public water, sanitary sewer, or stormwater facilities within the planning area. This necessary public infrastructure must be provided to support urbanization of this area. The overall capacity of the service providers for this planning area and general vicinity is sufficient to serve this area. However, significant improvements and expansion of the existing public utility infrastructure will be necessary to support the vision and associated development. To a large extent, the design for each of the utility services—water, sanitary/sewer, and stormwater—will be dictated by topography and the location of sensitive natural features.

ALIGNING WITH THE VISION

- *Integrated stormwater management throughout*
- *Reduce runoff and heal erosion*
- *Use best practices for stormwater management and mitigation*

FUTURE SERVICE NEEDS

Water

Developing URA 6D will result in an increase in water demands and an extension of service that was not projected in the Tigard Water System Master Plan (Carollo, May 2010). Although not being proposed for inclusion into the UGB in the near future, URA 6C on the north side of SW Beef Bend Road will also ultimately increase water demand in this general area. This increase in demand from development is anticipated to trigger the need for additional 410-foot pressure zone storage to serve development on the west and south sides of Bull Mountain.

Future service to the planning area will require updated water system planning by the City of Tigard. In particular, Tigard will need to evaluate the need for, and timing of, additional 410-foot pressure zone storage and extension of transmission piping west along SW Beef Bend Road and south on SW Roy Rogers Road to serve the planning area and other urban development on the southwest side of Bull Mountain.

Water system infrastructure will likely consist of 8-inch and 12-inch diameter distribution mains for local domestic, irrigation and fire suppression service. This infrastructure will typically be located in existing and proposed rights-of-way and will be designed and constructed according to Tigard standards.

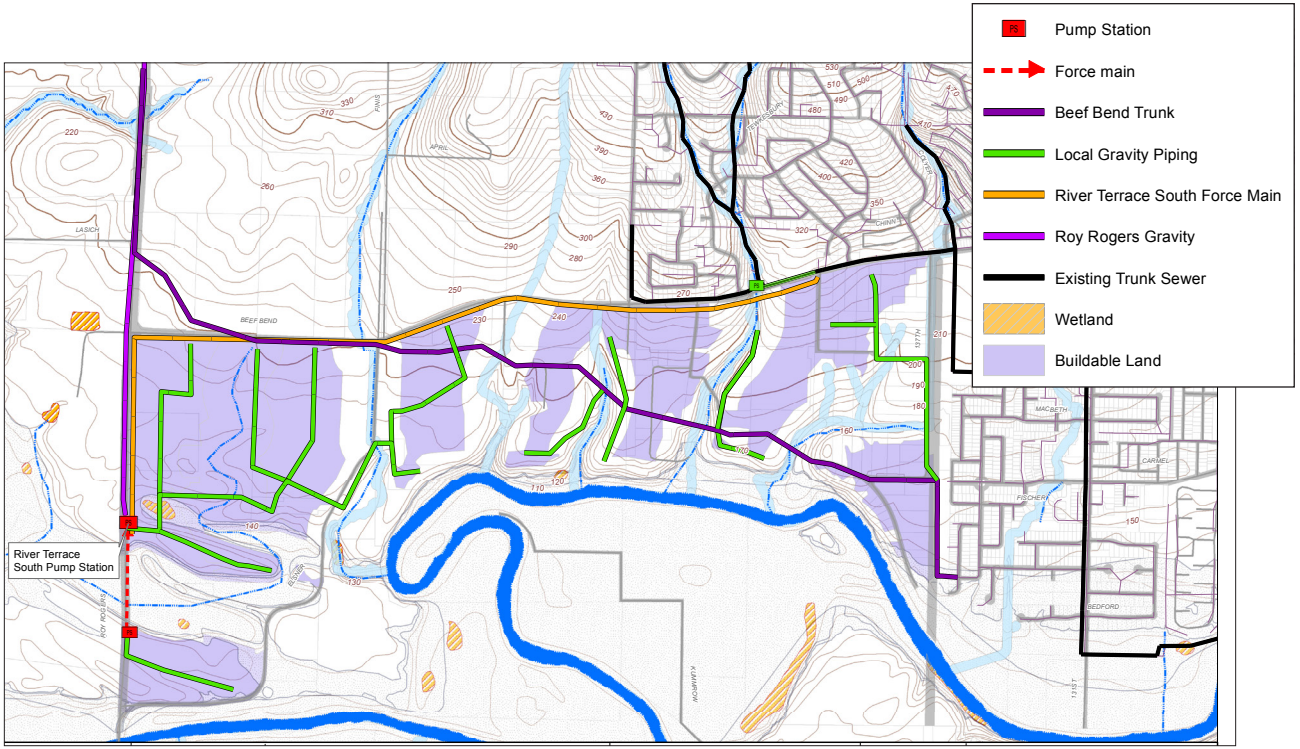
As development potential, phasing and timing are better defined, King City will need to provide Tigard with updated demand projections for the area to help inform water system planning and funding decisions.

Sanitary Sewer

The natural topography and existing drainage ways within the planning area create additional complexity for serving the entire planning area by gravity. The southern half of the planning area will require pump stations to lift sewage into the gravity conveyance system.

CWS is currently planning a new waste water pump station to be located on the west side of the planning area adjacent to Roy Rogers Road. This pump station will serve the western portion of the planning area, River Terrace South, and future urban development in URA 6C located between SW Beef Bend Road and River Terrace South. A force main will connect the proposed pump station to CWS' existing gravity system and will generally route north along Roy Rogers Road, then east along SW Beef Bend Road. Portions of the existing gravity conveyance system will be upgraded/upsized in conjunction with the construction of the new pump station. The pump station is being planned with the capacity to serve the King City URA.

Given this future CWS force main improvement, there are two potential options for serving development in the planning area with sanitary sewer. These alternatives will require additional coordination between King City, CWS, and the city of Tigard.



Option 1: Gravity trunk service through drainage culverts adjacent to roadways.

The figure shown above is preliminary in nature. It was developed to test the feasibility of public utility service at a concept level of planning, and is subject to change during master planning. During the Master Plan phase, the City will work closely with Clean Water Services and other municipalities to refine the design, location, phasing and funding of public utilities.

Option 1:

Gravity Trunk Service through URA 6D: This option would involve the installation of a gravity trunk line beginning north of the planning area along SW Roy Rogers Road, south and east to SW Beef Bend Road, and then east to the existing gravity flow system in King City. With this design, the western portion of the planning area would rely upon gravity flow to the CWS pump station on SW Roy Rogers Road. With the exception of the southern-most portion of the URA, the land located east of SW Elsner Road would generally be able to connect with the trunk line without pumping.

Option 2:

Small Subdistrict Pump Stations: This option would involve the installation of a series of smaller sub-area drainage pump stations that avoid drainage crossings and can develop incrementally. Smaller pump stations provide flexibility in the location and timing of development, however, from a cost and maintenance standpoint, the preferred design would be a series of gravity fed nodes with occasional localized pump stations.

The design of the sanitary/sewer system including pipe locations and configurations will be determined during the master planning process, in coordination with CWS. Pipe conveyance or future pump stations will be analyzed and coordinated with transportation projects.

Stormwater

Stormwater will follow the existing gradient and drainage ways to ultimately reach the Tualatin River. The key is in the design of individual development to properly manage stormwater volumes and to maintain or improve water quality. Development in the plan area can improve existing conditions through stormwater drainage improvements. New development within the King City URA will be required to meet CWS requirements, and stormwater facilities must be provided and in a manner that will not create adverse impacts for the existing drainage systems and environmentally sensitive areas. As the lead regulating agency, CWS will be consulted on stormwater management issues for new development in the URA planning area. Based on a review of the current CWS regulations, development within the URA planning area will be expected to conform to the following minimum requirements:

Existing Wetlands

Freshwater wetlands are present in the planning area and are part of the storm drainage system. Construction activities that impact existing wetlands, streams or sensitive areas may be subject to permitting through the Oregon Division of State Lands, the U.S. Army Corps of Engineers, and/or CWS. Wetland delineations will be required as part of the development process for properties containing potential wetlands to determine impacts and permitting requirements.

Drainage Channel Setbacks

Development setback requirements will be required for drainage channels, wetlands, and sensitive areas. The setback distance is determined by CWS or other regulatory agencies, and it is dependent upon the type and quality of the resource. Setback provided for recent development in River Terrace and King City would be indicative of the setback requirements that will be required within the planning area.

Hydrologic & Hydraulic Analyses

New development will be expected to evaluate the drainage basin(s) upstream and downstream of the site to determine the system capacity and verify that no adverse impacts will occur with increased storm water runoff. In some cases, this analysis will need to evaluate erosion or environmental damage causes by existing upstream development located outside of the planning area.

Off-site Improvements

Developers may be required to construct improvements to the storm drainage system outside of the planning area boundary to increase system capacity and mitigate adverse impacts created by development within the planning area.

Stormwater Management

On-site stormwater management should be expected if the proposed development has the potential to adversely affect upstream and/or downstream properties. Low Impact Development Approaches (LIDA) are Stormwater management approaches that optimize upland controls and enhance the natural resources to protect the water quality of the Tualatin River basin through a variety of tools, including grey infrastructure, green infrastructure and natural resource enhancements. Stormwater management approaches address water quality and impacts from post-development run-off. Situations that might require LIDA stormwater management approaches include, but are not limited to, potential downstream flooding due to increased peak stormwater flows, or potential upstream flooding due to high water levels in existing drainage channels. Existing natural areas may be a possible location to construct new LIDA stormwater facilities. Every street planned for URA 6D is assumed to function for stormwater conveyance and treatment, as well as for transportation. CWS maintains LIDA facilities that are designed to CWS standards. Note: flood control is regulated by FEMA and Washington County, not CWS.

Water Quality

Development of the subject area will need to conform to CWS stormwater quality and treatment requirements.

SERVICES

Tualatin Valley Fire & Rescue

Tualatin Valley Fire & Rescue (TVF&R) serves the King City Urban Reserve area. Planning for development of the area should consider transportation and water infrastructure to support emergency response needs. Not only is access to residential and commercial areas of concern to the Fire District, but connectivity through the area can impact response times. More specifically:

Topography

As streets are provided to accommodate new development, they should be designed to provide multi-modal access and in compliance with TVFR's access standards to ensure appropriate emergency response. The Fire District requires that fire apparatus roadway grades not exceed 12%. When fire sprinklers are installed, a maximum grade of 15% may be allowed (Oregon Fire Code 503.2.7).

Water infrastructure

Water from fire hydrants should be sufficient to provide at least 1,000 gallons per minute to all single-family and commercial buildings. If a structure is 3,600 square feet or larger, then additional flow may be needed (Oregon Fire Code B105.2). The Fire District strongly encourages new residential developments to include fire sprinkler systems to decrease fire and life safety risks.

Emergency Response

Based on years of public opinion research, TVF&R's citizens have consistently voiced that fast and effective emergency response is their top priority. In addition to Station 35 in King City, a network of fire stations serves this area. As part of a 10-year plan, the Fire District has identified at least seven sites, including West Bull Mountain, where additional fire stations and infrastructure will improve response times. Factors considered for station placement include housing density, types of development, demographics, and transportation infrastructure. As more specific details emerge about development in this area, Fire District planners will be able to assess what deployment changes might be needed. TVF&R's Standard of Cover reflecting response time standards is available upon request.

Police Capacity and Coverage

King City currently participates in regional public safety and law enforcement response and will continue to be a regional resource for King City and the surrounding communities. Recent annexations in 2017 have allowed the City to expand its police coverage and is now capable of staffing a department 24 hours a day, 7 days a week. Regardless, as a small city, King City lacks many of the resources of larger agencies. To that end, the City attempts to collaborate with partner agencies in an effort to ensure our officers have the best training available in order to respond effectively to the needs of King City and the surrounding areas.

The City provides financing for its local law enforcement through a tax levy of $0.55 p/1000 of assessed tax value. The city's tax levy in addition to the permanent tax rate of $1.53 p/1000 provides the City with consistent revenue to ensure continued operations and support for the City's law enforcement officials. With expanded area demands on city services are expected to increase and the City will likely need to add 3-5 additional officers at an average cost of $109,000 annual salary and benefits. The resulting range of salary and benefit expense to the city would range between $330,000 - $555,000 annually. The proposed expansion area is projected to add over 3,000 units. Given an average assessed value of $300,000 per unit, the current police levy is estimated to generate over $600,000 in tax revenue. These projected funds should help offset department expenses in addition to the salary expenses estimated previously.

Public School

A primary school site is assumed as part of the institutional/park mix of the Main Street/Town Center neighborhood. King City and the Tigard-Tualatin School District will continue to coordinate school siting needs during the master planning process.

Infrastructure Funding

NEED FOR A FUNDING STRATEGY

The planning area requires a variety of new infrastructure in order to develop in a manner that is consistent with the community Vision and Goals for the area and aligns with regional need and market potential. The King City West Funding Strategy by Leland Consulting Group (LCG), November, 2017, lays out major infrastructure projects and details how each infrastructure project might be funded. A funding strategy was created for a number of reasons.

- **Fragmentation of Ownership:** Property ownership is fragmented and varies greatly in size. In some cases, one property owner or developer controls a large area of land and in other instances the owner controls a single small lot. These owners may have different desires for how or if they wish to develop their land. In addition, certain areas within URA 6D pose development challenges due to access, slope, or other environmental constraints.
- **Timing and Phasing:** The western portion of the plan area has larger parcels and less ownership fragmentation. As a result, the western section is likely to see substantial coordinated development earlier than the eastern or central portions.
- **Physical Features:** The topography, including major ravines, presents specific challenges to infrastructure development by increasing costs for items such as new east-west streets because of increased need for bridge or culvert facilities.
- **Multiple Jurisdictions:** A number of different public agencies and entities are likely to be involved in the provision of infrastructure within the study area and surrounding areas.

Description of Funding Categories

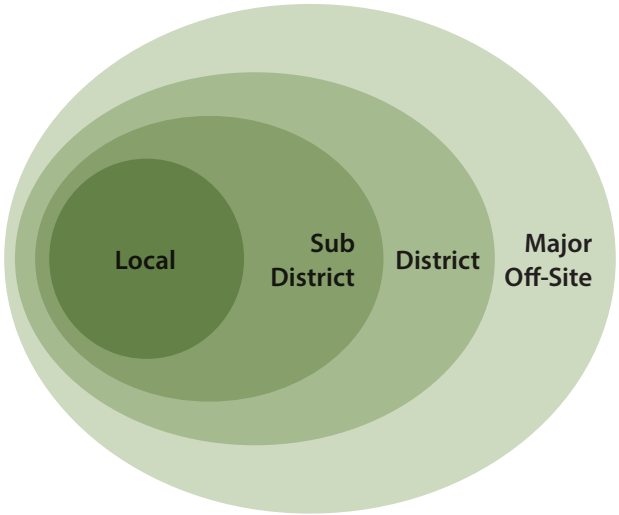
Infrastructure projects are organized into one of four categories:

Major off-site: Most often located outside of the planning area boundary and, while it might bring some benefit to the plan area, it primarily serves a larger area and is likely to be funded by a city, county or other regional capital improvement program.

Framework or district: Serves residents and businesses in the entire plan area and is fundamental to achieving the plan vision. Framework infrastructure is usually larger scale and more expensive than Subdistrict or Local infrastructure.

Subdistrict: Larger than one property but doesn't necessarily benefit the entire plan area. Subdistrict infrastructure might serve a 50 – 100-acre area, such as a neighborhood.

Local or on-site: Located on or adjacent to a development property and mostly serves the development. This infrastructure could be any type including transportation, sanitary sewer, water, stormwater or parks. Local infrastructure is largely paid for as part of a development project.



Infrastructure Costs and Allocation

The Funding Strategy recommends that some infrastructure costs be allocated to the entire plan area, to various subdistricts within the plan area or to parties outside of the plan area based on what area the project benefits. In general, the more broadly the infrastructure serves an area, the more broadly the cost is shared. Likewise, the smaller the area being served by infrastructure, the smaller the area of cost allocation.

Need for Equitable Allocation of Larger Costs

Framework infrastructure was the focus of the funding plan because it is important to fairly and equitably allocate larger costs. In addition, unduly burdening some developers with a greater share of costs can significantly reduce the financial feasibility of developing their land. "Oversize cost" is a concept designed to more equitably distribute costs. This is the difference between the typical local infrastructure costs and the costs of larger framework infrastructure. Since all developers will be required to build and pay for local infrastructure to serve their properties, it is only the oversize cost that is allocated to developers throughout the district.

Cost Estimations and Assumptions

All estimates are preliminary in nature and intended to provide high-level analysis appropriate for the concept planning process. The numbers represented in the Funding Strategy were built from cost estimates provided by Murraysmith and Associates. Different assumptions were used by LCG in the Funding Strategy. They do not include the cost of right-of-way acquisition, which is assumed to be dedicated by the developer or property owner.

Infrastructure Type	Project Name and number		Infrastructure Category
Transportation	T1	Green Boulevard (Collector, internal to URA)	Framework
	T2	Beef Bend: 150th to Roy Rogers	Framework
	T4	Culverts	Framework
	-	Local Streets	Local
Framework Utilities	-	Stormwater in Framework ROW	Framework
Major Sanitary Sewer (SS Concept 2)	SS1	River Terrace South Pump Station/Forcemain	Major Off-Site
	SS2	Subdistrict Pump Stations/Forcemains	Subdistrict
	SS3	Trunk Sewer (Concept 1 only)	Framework
Water	W1	Storage, Zone 410	Major Off-Site
	W2	Transmission: Beef Bend Road	Framework
	W3	Transmission: Roy Rogers Road	Framework
Parks	P1	Community Park (1 park)	Framework
	P2	Neighborhood Parks (3 to 5 parks)	Framework
Stormwater	S2	Subdistrict Facilities (5)	Subdistrict
	S1	On-site management	Local
School District	SD1	Primary School	NA
Total			

Infrastructure Summary Table, King City Funding Memo (LCG)

Figures and funding assumptions are preliminary, based on current information, and subject to change during master planning. During the Master Plan phase, the City will work closely with Washington County and other municipalities to refine the infrastructure funding plan.

Project Name and number		Cost Estimate Total	Cost Allocation				
			Min.Req.	Other Parties	See text for more information.	Framework Oversize allocable to plan area	Subdistrict Allocable to subdistricts
T	Green Boulevard	$26,140,282	$17,437,500			$8,702,782	
	Beef Bend: 137th to Roy Rogers	$22,040,863	-	$11,020,432	County, 6C developers.	$11,020,432	
	Culverts	$7,650,000	-			$7,650,000	
	Local Streets	Not estimated	-			-	
	Subtotal					**$27,373,214**	
-	Utilities in Framework ROW	Incl. in above.					
SS	River Terrace South Pump Station/Forcemain	$4,800,000		$3,502,703	RT & other developers.	$1,297,297	
	Subdistrict Pump Stations/Forcemains	$2,500,000					$2,500,000
	Trunk Sewer (Concept 1 only)	NA				NA	
	Subtotal					**$1,297,297**	
W	Storage, Zone 410	$2,500,000				$2,500,000	
	Transmission: Beef Bend Road	$3,000,000		$1,500,000	50% allocated elsewhere.	$1,500,000	
	Transmission: Roy Rogers Road	$2,800,000		$1,400,000	50% allocated elsewhere.	$1,400,000	
	Subtotal					**$5,400,000**	
P	Community Park (1 park)	$5,600,000				$5,891,340	
	Neighborhood Parks (3 to 5 parks)	$9,314,880				$9,314,880	
	Subtotal					**$15,206,220**	
S	Subdistrict Facilities (5)	Not estimated		TBD	Possibly CWS		Likely Yes, TBD.
	On-site management	Not estimated					
SD	Primary School	Not estimated		TBD	School District		
	Total	**$86,346,026**	**$17,437,500**	**$17,423,134**		**$49,276,731**	**$2,500,000**

Infrastructure Costs and Allocation, King City Funding Memo (LCG)

All figures are preliminary, based on the best information available at this time and subject to change during the master planning phase. Further transportation assessments are underway and will be provided as supporting documentation. The City will work with Washington County and other agencies to refine the infrastructure funding plan during the master planning phase of the project.

Supplemental Fee for Framework Infrastructure

Four framework infrastructure projects were identified in the Funding Strategy. These projects are essential to the plan area development and will have an impact on the entire district. Their cost will be shared throughout the district and are described in more detail below.

- **Green Boulevard:** As described in the infrastructure projects map, only the oversize cost is to be allocated to developers throughout the whole plan area. The remaining $17.4 million would be paid by property owners adjacent to the boulevard.
- Beef Bend 137th to Roy Rogers Road: The total cost estimate reflects both the north and south sides of Beef Bend Road. In keeping with typical policy, only the south side would be allocated to the plan area. The north side should be paid for by future developers of URA 6C (a separate urban reserve area), the City, County, or other party.
- **Culverts:** A series of culverts that will span creeks and sloped areas within the plan area is a key component of the Concept Plan. These are necessary in order to establish east-west connectivity. The entire cost ($7.65 million) is oversize and allocated to the district.
- **River Terrace South Pump Station/ Forcemain:** This pump station/forcemain will be required in the plan area. However, according to Murraysmith, about 73% of the demand for this facility will originate outside of the plan area, including the River Terrace area. The remaining 27% of demand will originate from within the plan area. Therefore, the costs of this project have been allocated on a pro rata share, with 27% allocated to the plan area.

LAND USE PROGRAM AND FEE CALCULATION

Land Use Assumptions

In order to allocate the costs of infrastructure to individual residential and commercial developments within the plan area, a land use program (the number and type of homes, offices, retail establishments, etc.) must be known or assumed. Because of the high-level nature of a concept plan, the amount of housing and commercial development is quite variable and would be further refined in the master planning process. The land use program assumed for a funding plan is shown in the Land Use Program Table. It is intentionally conservative regarding the ultimate amount of housing and commercial space; for example, a 20% housing "underbuild" is assumed here. This is a precaution put in place in case the amount of development (and therefore fees generated) is less than anticipated.

Supplemental Fee for Residential and Commercial Development

Using the Land Use Program assumptions about density and amount of development, LCG calculated a Supplemental Fee for the plan area. The Supplemental Fee table shows LCG's calculation of the supplemental fee for the plan area. An administrative fee of 5% was added to the total infrastructure cost in order to compensate the City, or other administering agency. The costs were then divided between the residential and commercial development based on LCG's estimate of the share of demand (for transportation and sanitary sewer infrastructure) that each category will comprise.

Plan Area	
Gross	525
Buildable	318
%	61%
Density per Buildable Acre	
Plan / Average / (Max. Allowed)	12.0
Housing Units	
Max per Plan	3,816
20% Underbuild, for funding analysis	3,050
Commercial (SF)	50,000

Land Use Program Table (LCG)

Residential	Estimated Housing Units		Allocated	Supplemental
	%	#	Cost	Fee/Unit
Single Family Dwelling	70%	2,135	$39,850,512	$18,665
Apartment	18%	549	$6,560,533	$11,950
Residential Condominium	6%	183	$1,984,920	$10,847
Manufactured Housing	0%	-	-	-
Assisted Living/Hospital/Nursing Home	6%	183	$1,044,758	$5,709
Total	**100%**	**3,050**	**$49,440,723**	

Commercial	SF	Allocated Cost	Supplemental Fee/1,000 SF
	50,000	**$2,299,845**	$45,997

Supplemental Fee for Residential and Commercial Development, (LCG)

All figures are preliminary, used to determine feasibility at a concept-level of planning and subject to change during the master planning phase. The City will work with Washington County and other agencies to refine the infrastructure funding plan during the master planning phase of the project.

Fee	King City URA 6D	Tigard River Ter.
WA County TDT	$8,458	$8,458
City Transportation SDC	-	$8,501
Parks SDC	-	$8,470
Sewer	$5,500	$5,500
Water Quality Fee (CWS)	$292	$292
Supplemental Fee (URA 6D)		
Transportation	$10,369	
Major Sanitary Sewer	$491	
Water	$2,045	
Parks	$5,760	
Subtotal	$18,665	$0
Total	**$32,915**	**$31,221**

Single Family Infrastructure Fee Comparison (LCG)

Based on preliminary calculations and current assumptions, the total infrastructure-related fees in the King City plan area can be competitive with those in nearby areas.

This estimate was based on a review of existing King City SDCs and the assumption that these SDCs are a reasonable reflection of infrastructure demand by use. More information can be found in the King City Urban Reserve Area Funding Strategy (LCG, December 2017) in the appendix.

Fee Comparison

Fees should be comparable to other infrastructure fees and taxes assessed by other cities in other developing areas nearby. If the costs of development in the plan area are much higher than the costs in other locations, developers will avoid building in the plan area.

Development fees in the plan area were compared to those in the Tigard River Terrace, located just north of the plan area. Based on preliminary calculations and current assumptions the total infrastructure-related fees for a single dwelling in the King City plan area can be competitive with those in nearby areas. Agencies that provide services to URA 6D (such as Tigard and CWS) reserve the right to conduct updates to their system development charges (SDCs) and may impose "supplemental SDCs" or "regional stormwater management charges" (RSMC) on URA 6D or identified subareas.

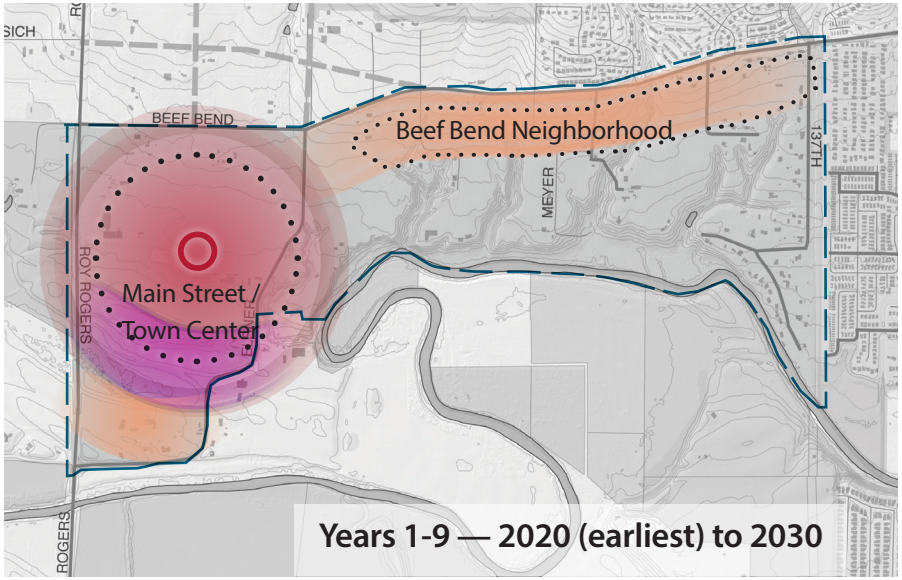
6. CONCEPT PLAN RECOMMENDATION

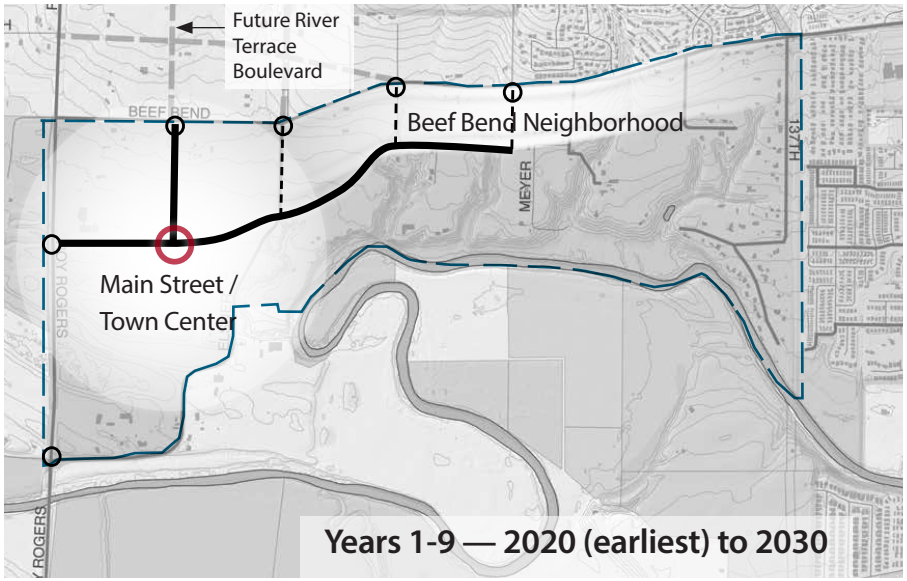
Development Phasing

If Metro brings URA 6D into the UGB in 2018, the anticipated market demand will be sufficient to prompt housing and commercial development within this area. Given the time necessary to complete additional planning steps (noted in "Overall Planning Time Line," page 6), construction would not be possible until after 2020.

Development of URA 6D is generally envisioned to occur with a first phase in the western and extreme northern portion of the planning area between 2020 and 2030 followed by a second phase in the central and eastern portions of URA 6D after 2030. A more definitive annexation plan will be developed as part of the master planning scheduled to begin in 2019. However, the general annexation concept would be to work with agency partners and interested property owners to create a logical and cost-effective strategy for annexation and provision of necessary infrastructure, transportation facilities, and urban services to support development. This strategy would be based upon a strong preference to annex property in a westerly direction from the existing King City rather than "cherry stem" annexation along street right-of-way. The annexation and development strategy is described in more detail in the following pages.

PHASE ONE DEVELOPMENT PROGRAM





The largest properties and highest development interest are generally located in the vicinity of the Main Street / Town Center. In addition, some interest in annexation and redevelopment has been expressed within the Beef Bend Neighborhood. It is assumed that many of the property owners in these areas would request annexation once able to do so after 2020.

Between 2020 and 2030, the Main Street / Town Center and the Beef Bend Neighborhoods are where the majority of the first 500-950 new dwelling units would be located. This amount of housing demand is forecast in the market analysis conducted by Leland Consulting Group (LCG). Major infrastructure, such as the Clean Water Service pump station along Roy Rogers Road and at least a portion of the western segment of the Green Boulevard, would be constructed during this period.

Commercial development relies on visibility and access to Roy Rogers and Beef Bend roads, as well as flatter land. The LCG analysis forecasts a demand for 40-60,000 square feet of neighborhood retail that would be developed near the intersection of the future Tigard River Terrace Boulevard and the new east-west connector street. This commercial development is anticipated six or more years after annexation (2026-2030). Between 2026 and 2030, 40,000 square feet of retail development are possible in the Main Street / Town Center. Additional commercial business may follow in subsequent years as URA 6D and the neighboring urban areas, such as Tigard's River Terrace, develop.

Main Street / Town Center and Beef Bend Neighborhoods

Years 1-9 — 2020 (earliest) to 2030

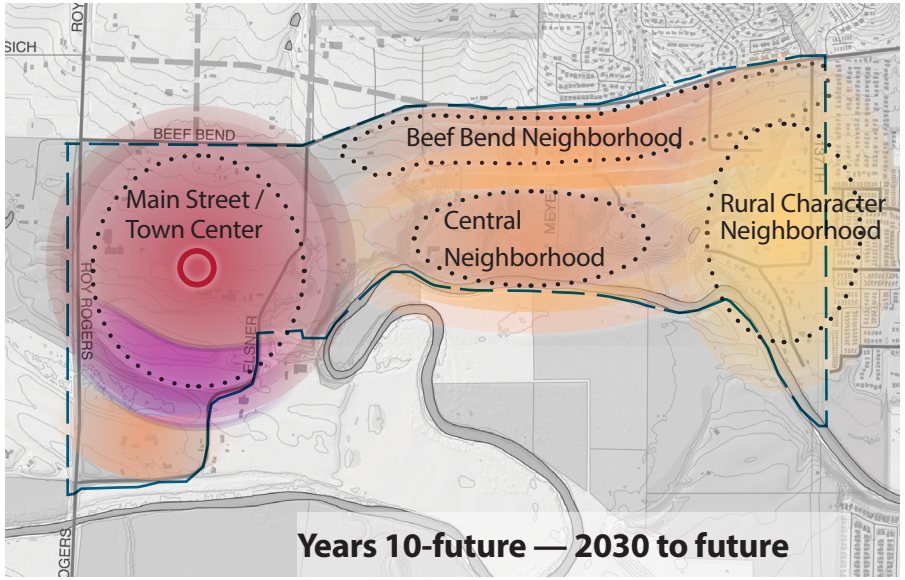
Housing Units 500 - 950	**Single dwelling** Rowhouses | Duplexes | Detached with or without ADU | Cottage Clusters
	Multi dwelling Apartments – stand-alone or over retail

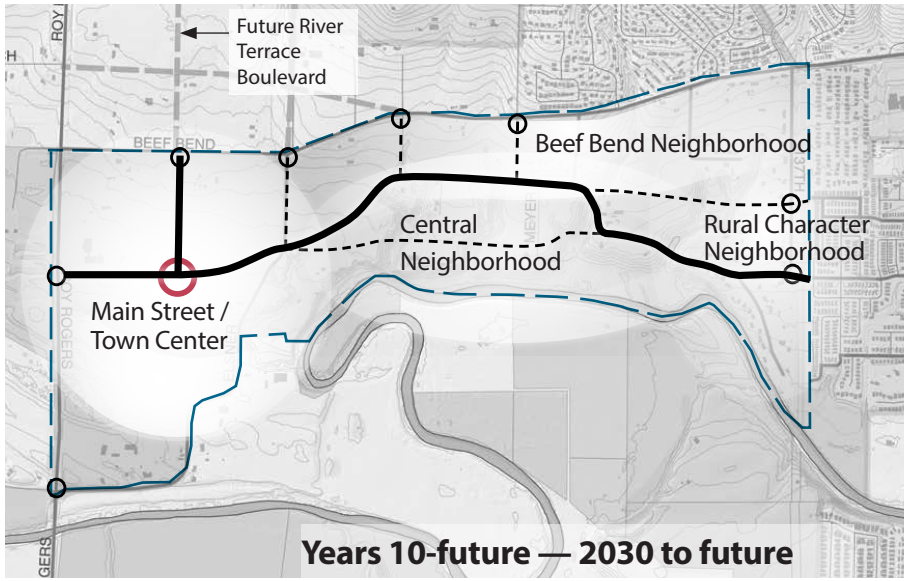
Main Street / Town Center

Years 6-9 — 2026 (earliest) to 2030

Commercial (square feet) 60,000	Retail | Neighborhood retail center

PHASE TWO DEVELOPMENT POTENTIAL





Sometime after 2030, an additional 2,626-3,0766 units are anticipated in the Main Street / Town Center, Beef Bend Neighborhood, General Neighborhood and the Rural Neighborhood.

Development and redevelopment on the east side is not anticipated for a decade or more after the Master Plan adopted. As will be the case throughout URA 6D, the pace and location of development activity will be largely driven by the desires of individual property owners to do so. During the master planning process, additional attention must be paid to the existing character of the Rural Neighborhood and where and how any development or redevelopment should occur. When lands are brought into the UGB by Metro, the County assigns an interim land use designation of Future Development 20-Acre District (FD-20). The purpose of this district is to provide for limited and interim uses until the land is annexed into King City. As indicated in the Overall Planning Time Line, land use regulations and transportation network options for the different neighborhoods (Main Street / Town Center, Beef Bend, Central, and Rural) would be developed with property owner participation as part of the Master Plan. These regulations would be known but would not become effective until property is annexed.

Main Street / Town Center, Beef Bend, Rural and Central Neighborhoods

Years 10-future — 2030 to future

Housing Units 2,626 -3,076	**Single dwelling** Rowhouses | Duplexes | Detached with or without ADU | Cottage Clusters
	Multi dwelling Apartments – stand-alone or over retail

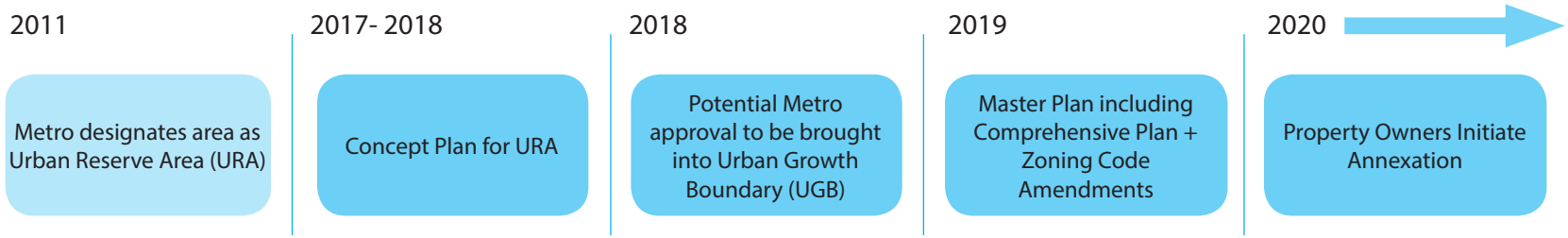
Main Street / Town Center

Years 10-future — 2030 to future

Commercial (square feet) 20,000 - 60,000	Retail | Campus-style employment or institutional uses Hospitality

7. NEXT STEPS

Overall Planning Time Line



This concept plan represents the beginning of the planning process that will require several subsequent steps before development may actually occur within URA 6D. The overall planning timeline includes the following:

INCLUSION INTO THE UGB

The completion of the Concept Plan qualifies URA 6D to be considered by Metro for inclusion into the Urban Growth Boundary (UGB). Urban development is contingent upon first being within the UGB. A city application to include URA 6D in the UGB will be considered by the Metro Council in 2018 with a final decision planned for December 2018.

MASTER PLAN

The Concept Plan will need to be refined with a master planning effort that could begin as early as 2019. There will be multiple purposes for the Master Plan including, but not limited to:

- Refining the land use concept by more specifically identifying land use and development parameters.
- Conducting additional planning, design, and coordination with partner agencies regarding public facilities and infrastructure including: transportation, water, sanitary sewer, stormwater, parks, civic uses, and schools.
- Creating a phasing plan for development and the public facilities necessary to support it.
- Refining the financing mechanisms for providing necessary facilities and infrastructure.
- Identifying necessary updates for the King City Comprehensive Plan and Community Development Code.

KING CITY PLANS AND REGULATIONS

The King City Comprehensive Plan and Community Development Code will need to be updated to properly reflect the Master Plan and support its implementation. In particular, the Community Development Code will need to include new zoning districts and development regulations to ensure appropriate development outcomes in URA 6D. These amendments could occur along with, or subsequent to, the creation of the Master Plan.

ANNEXATION AND DEVELOPMENT

Urban development in URA 6D may not begin until all of the above steps have been completed. The city's main role is to make properties in the planning area ready for urban development. However, properties must be annexed into the city prior to development, and the initiation of annexation will be the responsibility of property owners.

KING CITY AND PARTNER JURISDICTION PLANNING ROLES

The planning and development of URA 6D will require a coordinated effort with a number of partner agencies and jurisdictions. The major partners and their roles are summarized below:

- City of King City – overall planning, public involvement, coordination, approval of property annexation, and development review.
- Washington County – planning coordination, especially regarding transportation.
- Clean Water Services – planning coordination and design and regulation of sanitary sewer, stormwater systems, and environmental protection.
- City of Tigard – planning coordination regarding land use, transportation, and water facilities.
- Tualatin Valley Fire and Rescue – planning coordination regarding emergency access and development review.
- Tigard-Tualatin School District – planning coordination regarding potential school siting.

8. APPENDIX

A. King City URA 6D Concept Plan Charrette Report, May, 2017

B. King City URA 6D Concept Plan Natural Resources Baseline Report, March 2017

C. King City URA 6D Concept Plan Transportation Baseline Report, March 2017

D. King City Market Analysis Memorandum, March 2017

E. King City URA Concept Plan Existing Public Utilities Baseline Memorandum, March 2017

F. King City Urban Reserve Area Funding Strategy, December 2017

G. URA 6D Maps

H. City of King City Housing Needs Analysis, 2018

I. King City URA 6D Traffic Operations Analysis, 2018

KING CITY URBAN RESERVE AREA 6D CONCEPT PLAN

CHARRETTE REPORT

CHARRETTE DATES: MARCH 13-15, 2017

Project Team

City of King City Michael Weston, Keith Liden

Urbsworks Marcy McInelly, Erika Warhus

Murray Smith Brian Ginter

SCJ Alliance Anne Sylvester

Leland Consulting Group Chris Zahas

Technical Advisory Committee

ODOT Marah Danielson, Avi Tayer

Washington County John Floyd, Jessica Pelz

Metro Brian Harper

Clean Water Services Jadene Stensland

City of Tigard Susan Shanks

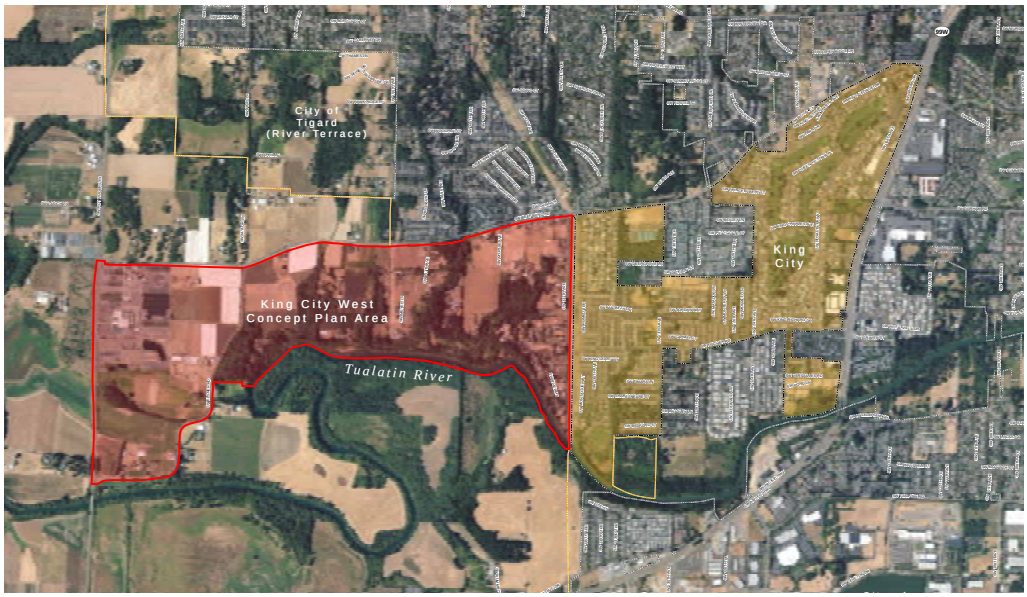
Tualatin Valley Fire & Rescue Alan Kennedy

Tigard Water Rob Murchison

Tigard Tualatin School District Philip Wentz

AARP Hal Bergsma

National Wildlife Refuge Larry Klimek



URBAN RESERVE AREA 6D
The area in red shows the study area, which is west of existing King City

INTRODUCTION

Purpose of this Report

This report summarizes the background work and charrette results, and ref ects work completed at the end of the charrette.

Project Background

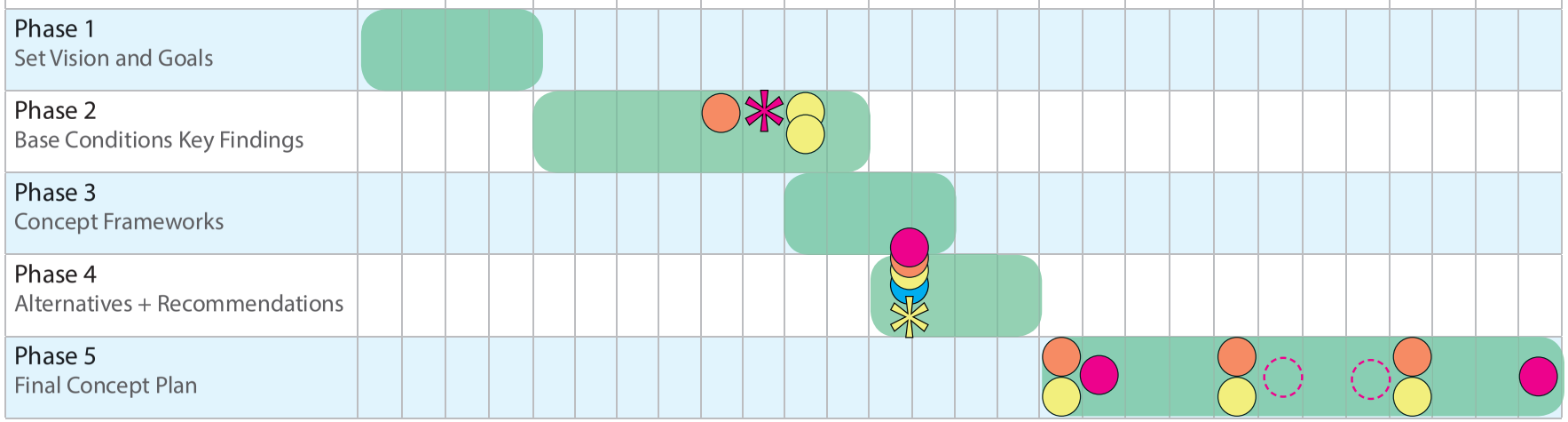
Metro designated an Urban Reserve Area (6D) for potential future urban development. This approximately 600-acre area is in unincorporated Washington County west of the current city limits, south of Beef Bend Road (see map). Because this area is adjacent to King City, the city is sponsoring an Urban Reserve Area 6D Concept Plan to consider how this area might be developed when Metro determines that it is needed to accommodate future urban growth. This long-range planning project is the second of a multi-step process involving area residents and stakeholders, affected agencies and jurisdictions, and Metro.

Project Description

The King City Urban Reserve Area 6D Concept Plan is a 4-phase project:

- Phase I – **Set Vision and Goals.** This phase initiated the project with an evaluation of the existing land use, infrastructure, transportation, public services, and market conditions. Stakeholders have been involved in this phase to identify important issues to be addressed during the project along with desired general outcomes they would like to see.
- Phase II – **Base Conditions and Key Findings.** Background reports have been produced and made available on the project website regarding housing, land use, infrastructure, natural resources, and environmentally sensitive areas.
- Phase III – **Concept Framework.** A draft overall plan framework will be developed with the involvement of stakeholders and local governments and service providers for public review and modification in Phase 4.
- Phase IV – **Concept Alternatives and Recommendations.** Concept planning alternatives will be prepared and a preferred alternative concept plan will be selected. A key involvement opportunity was the multi-day planning charrette, which occurred from March 13th to15th, 2017. The information and concept alternatives that were developed at the charrette will ultimately be refined into a preferred concept plan. Phase IV also includes infrastructure and cost evaluation of the concept plan alternatives.

King City URA Concept Plan Calendar

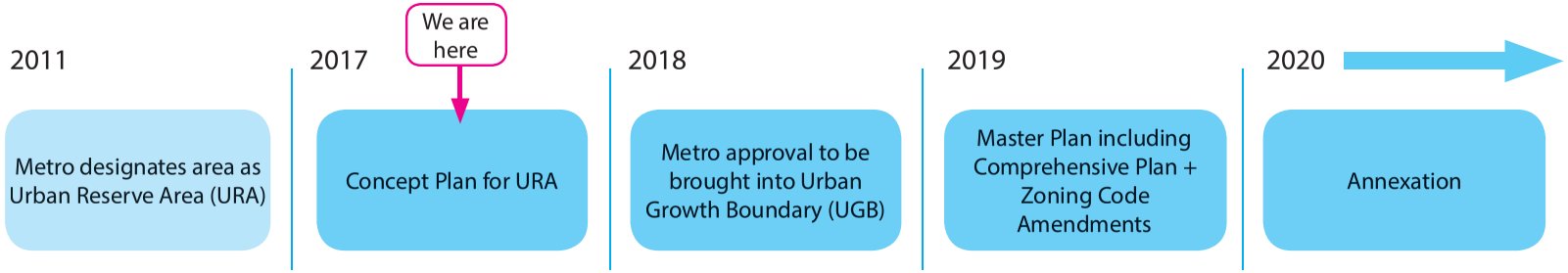


- TAC Meeting
- SAC Meeting
- Community Meeting
- Synthesis Workshop
- Joint City Council + Planning Commission
- CC update by City staff (regular meeting)
- Charrette
  March 13-15th

Important Dates

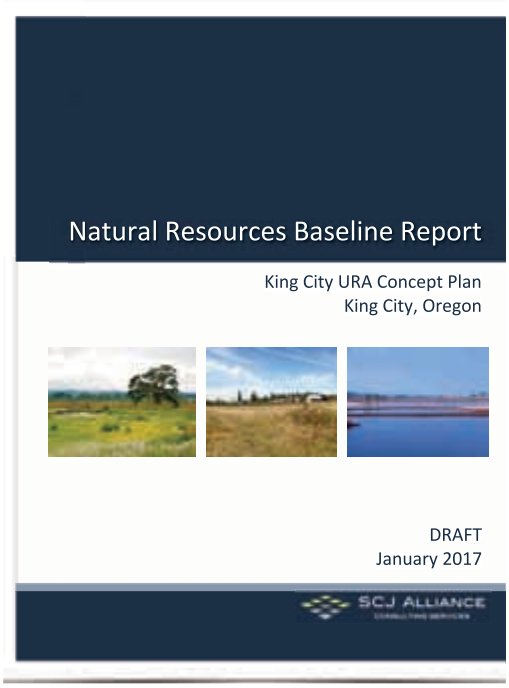
Charrette	March 13-15 *(at Deer Creek Elementary School)*
Public Design Workshop	March 13, evening *(at Deer Creek Elementary School)*

Overall Planning Time Line



BASE CONDITION REPORTS

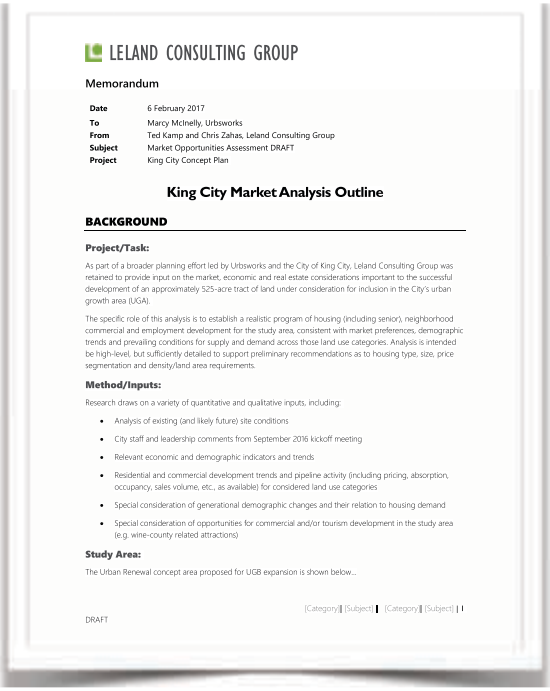
The project team analyzed existing conditions for natural resources, conducted a market analysis of the study area, and identified existing and planned transportation and infrastructure. This information was used to identify opportunities and constraints for development.


Natural Resources Baseline Report

King City URA Concept Plan
King City, Oregon

DRAFT
January 2017

SCJ ALLIANCE


LELAND CONSULTING GROUP

Memorandum

Date	6 February 2017
To	Marcy McInelly, Urbsworks
From	Ted Kamp and Chris Zahas, Leland Consulting Group
Subject	Market Opportunities Assessment DRAFT
Project	King City Concept Plan

King City Market Analysis Outline

BACKGROUND

Project/Task:

As part of a broader planning effort led by Urbsworks and the City of King City, Leland Consulting Group was retained to provide input on the market, economic and real estate considerations important to the successful development of an approximately 525-acre tract of land under consideration for inclusion in the City's urban growth area (UGA).

The specific role of this analysis is to establish a realistic program of housing (including senior), neighborhood commercial and employment development for the study area, consistent with market preferences, demographic trends and prevailing conditions for supply and demand across those land use categories. Analysis is intended be high-level, but sufficiently detailed to support preliminary recommendations as to housing type, size, price segmentation and density/land area requirements.

Method/Inputs:

Research draws on a variety of quantitative and qualitative inputs, including:

- Analysis of existing (and likely future) site conditions
- City staff and leadership comments from September 2016 kickoff meeting
- Relevant economic and demographic indicators and trends
- Residential and commercial development trends and pipeline activity (including pricing, absorption, occupancy, sales volume, etc., as available) for considered land use categories
- Special consideration of generational demographic changes and their relation to housing demand
- Special consideration of opportunities for commercial and/or tourism development in the study area (e.g. wine-county related attractions)

Study Area:

The Urban Renewal concept area proposed for UGB expansion is shown below...

[Category] | [Subject] | [Category] | [Subject] | I

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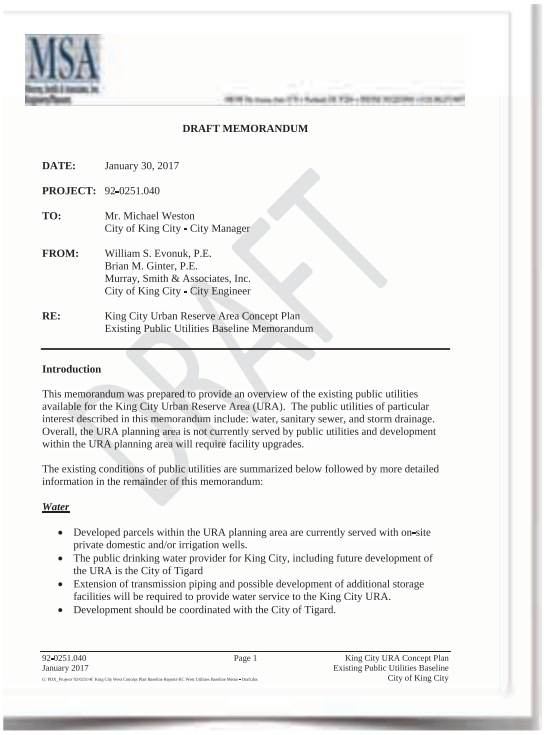

MSA

DRAFT MEMORANDUM

DATE: January 30, 2017

PROJECT: 92-0251.040

TO: Mr. Michael Weston
City of King City - City Manager

FROM: William S. Evonuk, P.E.
Brian M. Ginter, P.E.
Murray, Smith & Associates, Inc.
City of King City - City Engineer

RE: King City Urban Reserve Area Concept Plan
Existing Public Utilities Baseline Memorandum

Introduction

This memorandum was prepared to provide an overview of the existing public utilities available for the King City Urban Reserve Area (URA). The public utilities of particular interest described in this memorandum include: water, sanitary sewer, and storm drainage. Overall, the URA planning area is not currently served by public utilities and development within the URA planning area will require facility upgrades.

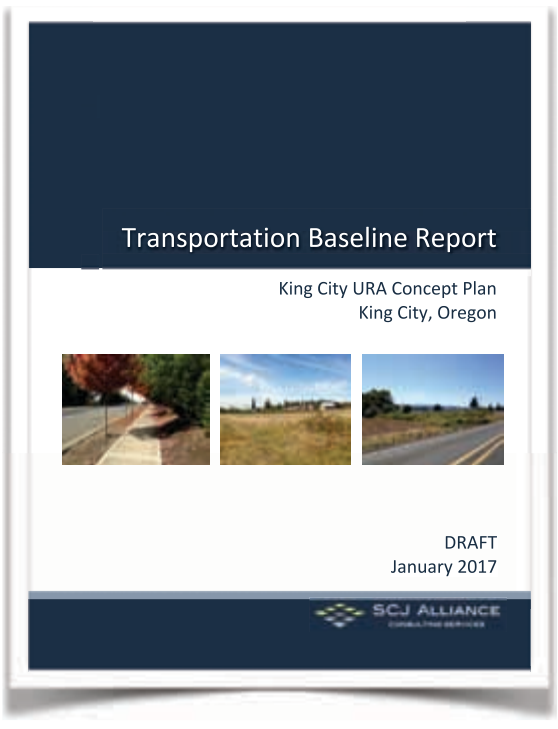
The existing conditions of public utilities are summarized below followed by more detailed information in the remainder of this memorandum:

Water

- Developed parcels within the URA planning area are currently served with on-site private domestic and/or irrigation wells.
- The public drinking water provider for King City, including future development of the URA is the City of Tigard
- Extension of transmission piping and possible development of additional storage facilities will be required to provide water service to the King City URA.
- Development should be coordinated with the City of Tigard.

DRAFT

92-0251.040 Page 1 King City URA Concept Plan
January 2017 Existing Public Utilities Baseline
City of King City


Transportation Baseline Report

King City URA Concept Plan
King City, Oregon

DRAFT
January 2017

SCJ ALLIANCE

BASE CONDITION REPORTS
identifying existing conditions, opportunities and constraints

MARKET ANALYSIS REPORT

Key Findings
The Market Analysis Report showed that there is ample market support for suburban development in the study area location

500-950 units are achievable within the study in the first ten years following master planning and annexation.

The market supports a wide range of housing types.

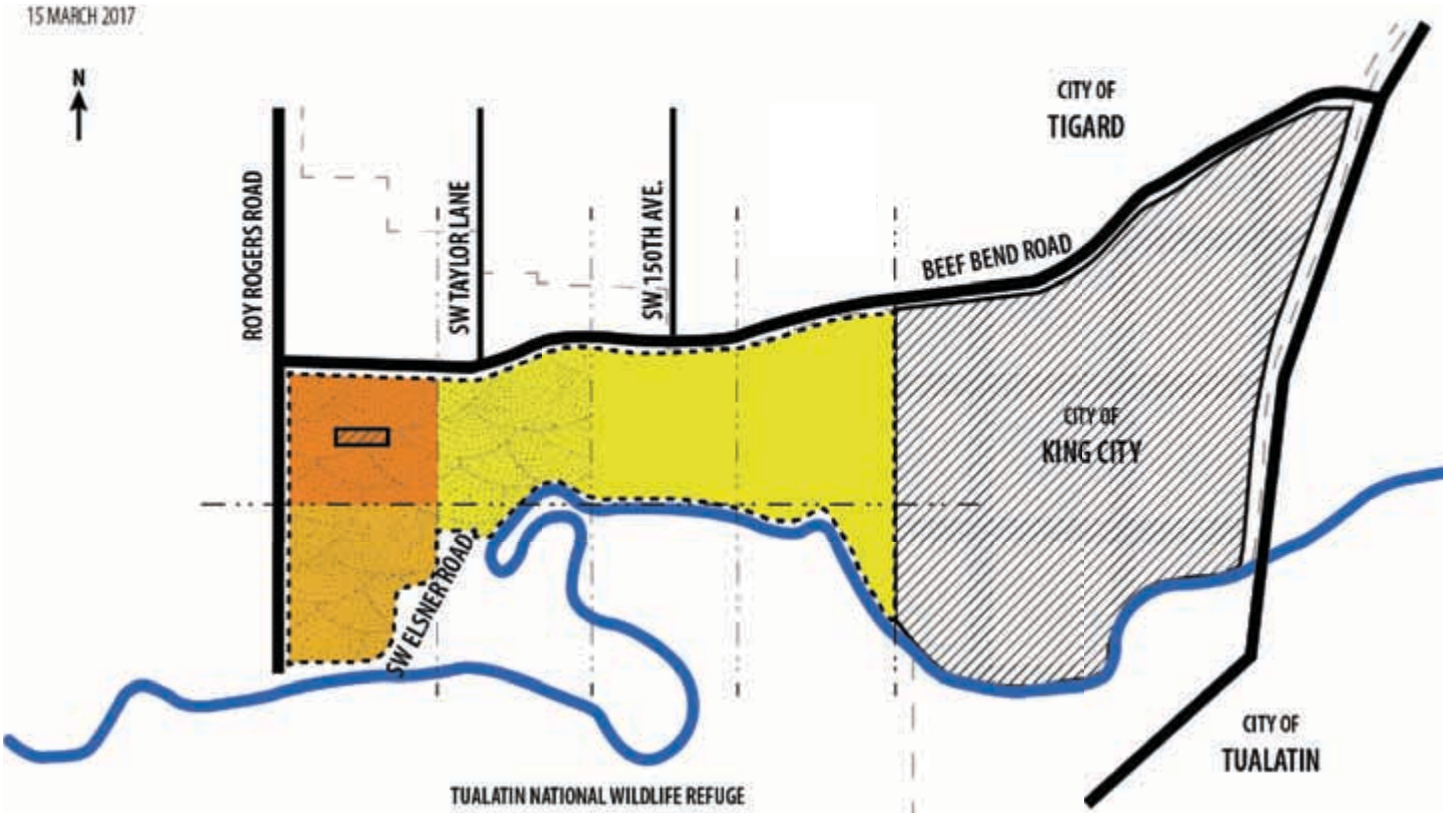
The location is well positioned in the region to capture housing growth.

40-60,000 square feet of a neighborhood retail (e.g., grocery, restaurants) could be supported.

Additional destination tourism-focused commercial is possible.

Creating a unique sense of place will be key to creating value for the area and the city.

King City



DEVELOPMENT FRAMEWORK

1. Higher density and mixed land uses located near major streets where land has the highest development potential

2. Land is flattest and there are fewer sensitive environmental areas in the northwest corner of the concept plan area

3. Commercial area possible with visibility from major streets

Progress Ridge

NATURAL RESOURCES REPORT

Key Findings
The study area has rich and diverse natural resources

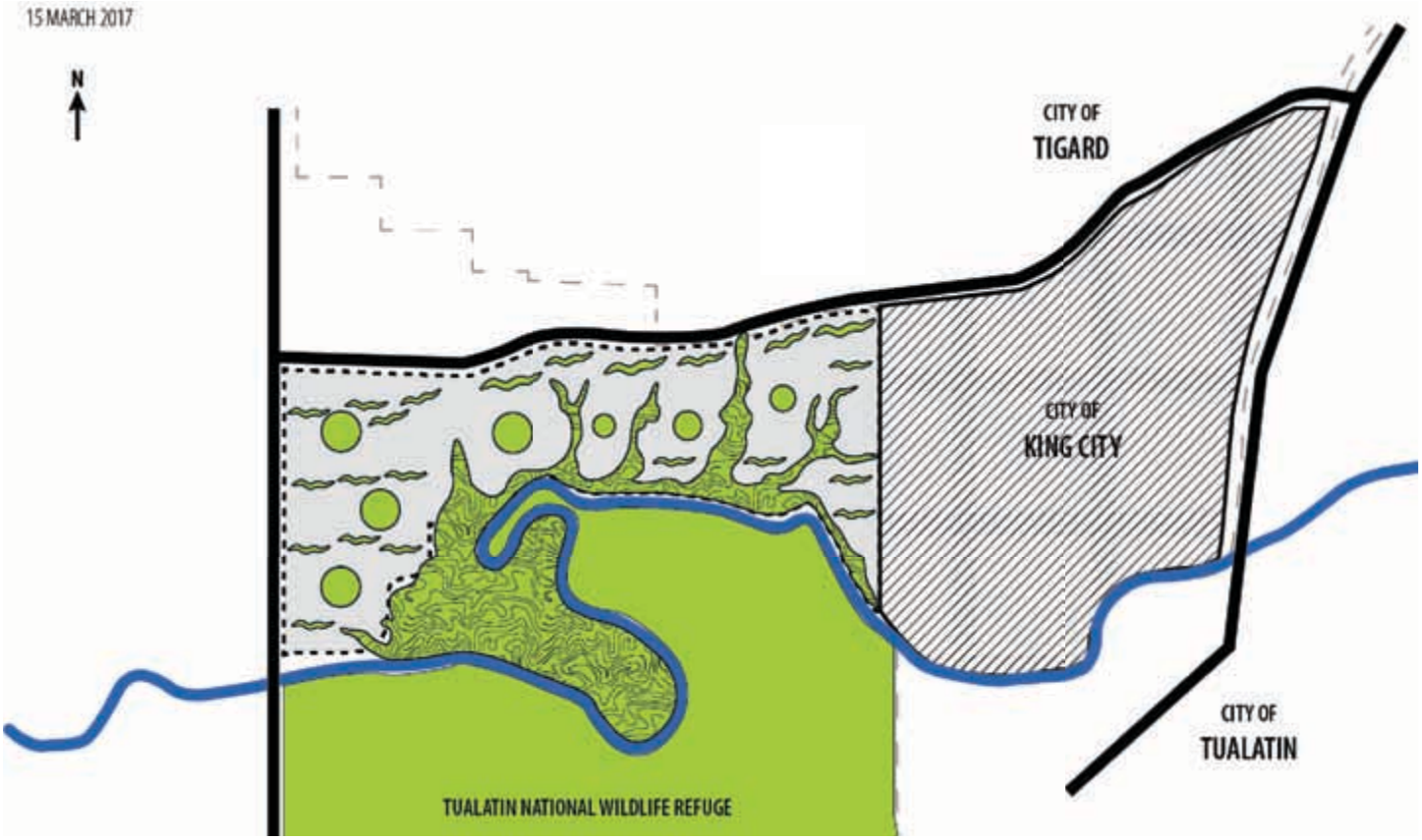
Areas of URA 6D act like a bioswale north of the Tualatin River.

Past development (north of Beef Bend Road) has caused significant environmental degradation in URA 6D.

Mitigation of development impacts to natural resource areas will be required in the URA.

The creation of a network of local streets and trails/walkways will need to address natural resource impacts and mitigation.

North Bethany



NATURAL SYSTEMS FRAMEWORK

1. Preserve and extend the natural systems that exist, including the habitat and wildlife network
2. Work with the natural system to better manage water
3. The natural system divides area into neighborhood units
4. Within neighborhood units, provide public park space

King City

TRANSPORTATION REPORT

Key Findings
Understanding the existing regional and local network

A network of local streets through the area is needed.

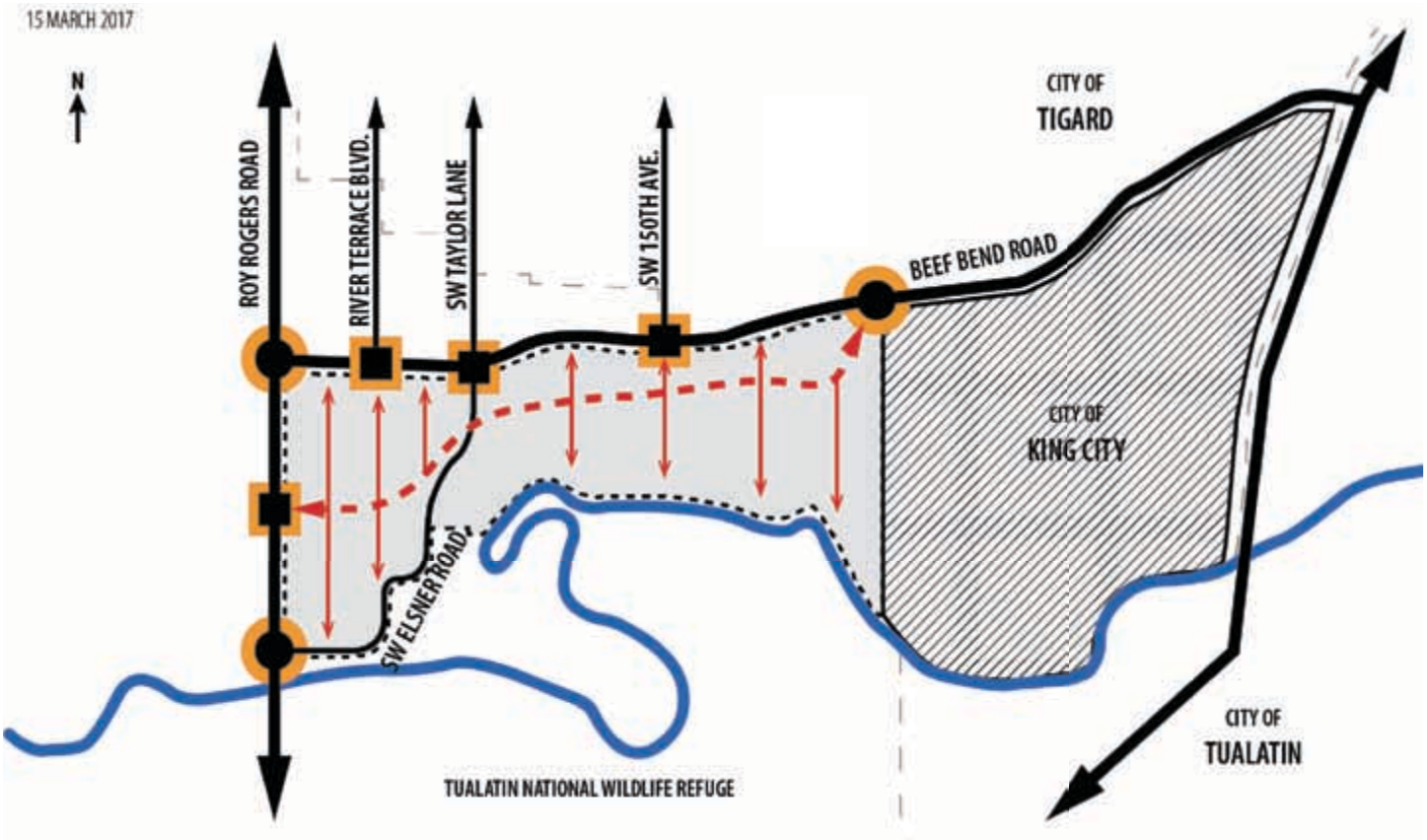
Walking and bicycling should be encouraged for local trips to school, shopping, recreation, etc.

Only collector streets can connect to Roy Rogers or Beef Bend roads per Washington County policy.

Design options for Roy Rogers, Beef Bend and other arterials and collectors should be identified to provide the environment for an urban boulevard.

Create street and trail design types to enhance the urban character of future development and enhance environmental protection.

North Bethany



MOBILITY FRAMEWORK

1. Shared backbone streets
2. Connect with existing (or planned) streets: Eslner to Taylor; extension of River Terrace Boulevard and150th
3. Smaller block sizes promote good pedestrian circulation
4. Meandering east-west connector will be continuous to provide good internal circulation; it may not extend east as far as 137th
5. East of 150th, east-west backbone street could be a collector or a local street

Walla Walla, Washington

INFRASTRUCTURE REPORT

Key Findings: Water

Existing development within the URA planning area is currently served with on-site private domestic and/or irrigation wells.

Development will require coordination with the City of Tigard and Tigard Water (service provider) for water service.

Additional storage facilities and water lines will be required to provide water service.

Further study should be conducted to identify the extent of deficiencies, need for additional infrastructure and funding mechanisms.

Fairview

Key Findings: Storm Drainage

Clean Water Services (CWS) is responsible for managing storm drainage throughout Washington County.

The King City URA consists of natural stormwater infiltration and conveyance through natural drainage ways that ultimately discharge into the Tualatin River.

The existing drainage ways are susceptible to erosion and degradation from high flows.

The City of Tigard and CWS are currently considering alternatives to manage high flows from upstream development to reduce or prevent further degradation.

New development within the planning area must not create an adverse impact to the existing storm drainage systems.

Encourage multiple developers to share stormwater features to lower costs.

Buffers will be required between riparian and wetland areas and new development.

North Bethany

INFRASTRUCTURE REPORT

Key Findings: Sanitary Sewer

Developed parcels within the King City URA are currently served with on-site private septic systems.

Clean Water Services (CWS) would be the sanitary service provider for future urban development in the URA.

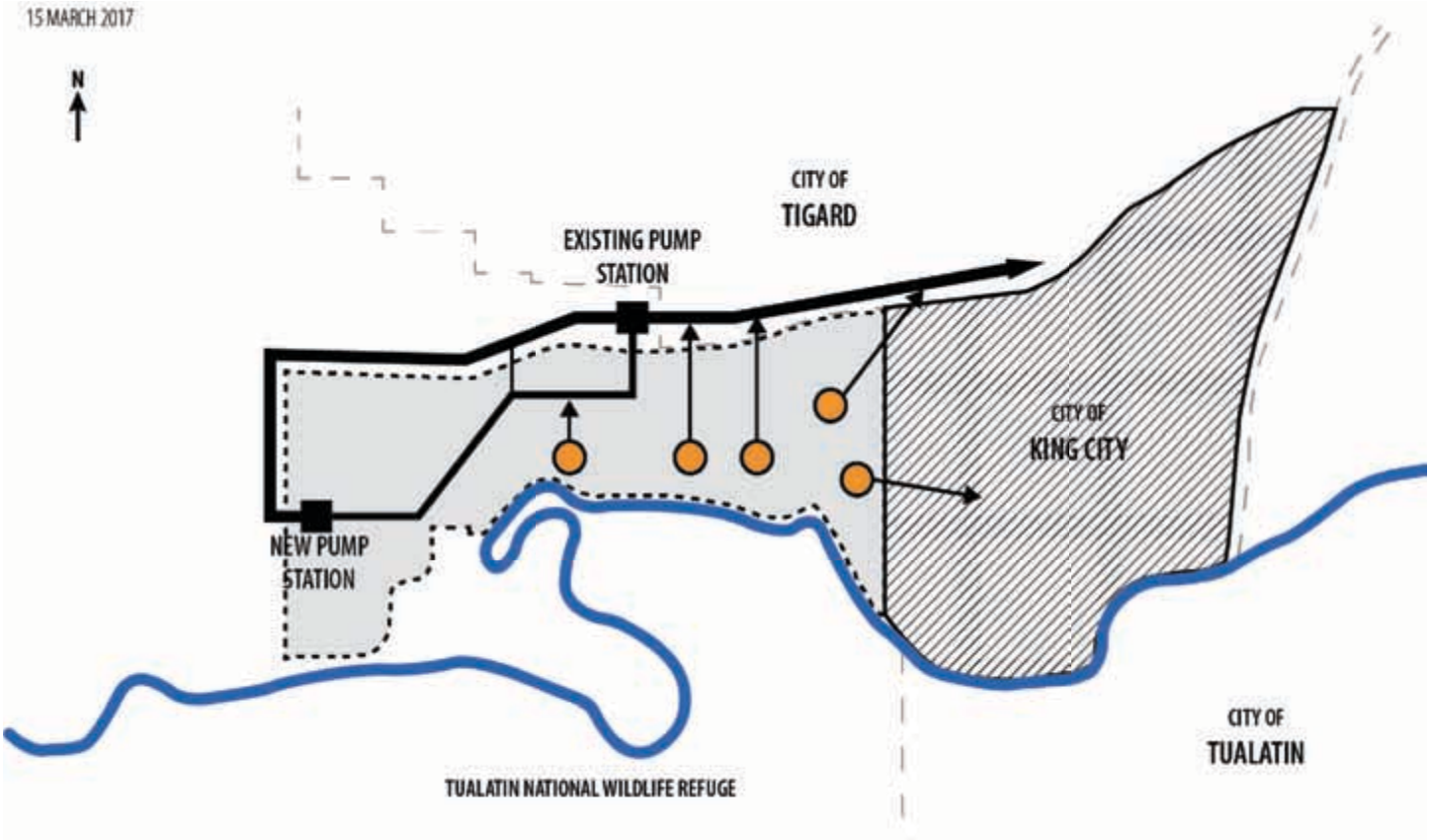
CWS is planning for a sanitary sewer pump station adjacent to Roy Rogers Road to serve future development in the area.

In addition to the pump station, CWS is planning installation of a force main and gravity conveyance system improvements.

The southern half of the King City URA will probably require small developer pump stations as development occurs.

Identification of specific development system needs must be coordinated with Clean Water Services (CWS).

Portland South Waterfront



Infrastructure Framework (Sanitary)

1. The system will be largely dictated by topography
2. There will be a future main line under Beef Bend
3. There will be a new line running to pump station north of Beef Bend
4. New pump station adjacent to Roy Rogers
5. Smaller pump systems could serve eastern area in the future as development occurs

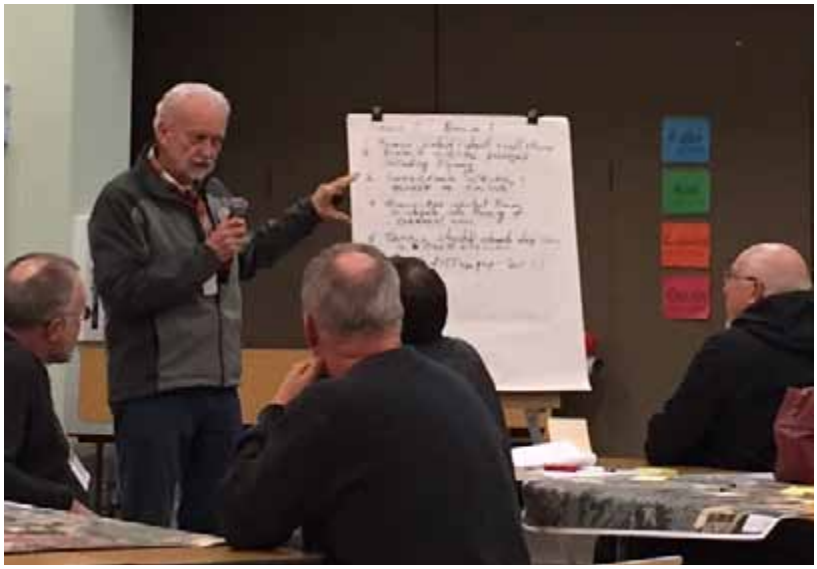
Portland Director Park

PUBLIC ENGAGEMENT CHARRETTE EVENTS + COMMUNITY FEEDBACK

COMMUNITY FEEDBACK
The map above highlights community involvement where blue dots represent attendees of the kick-off meeting and white dots represent stakeholders who participated in a one-on-one interview with members of the project team.

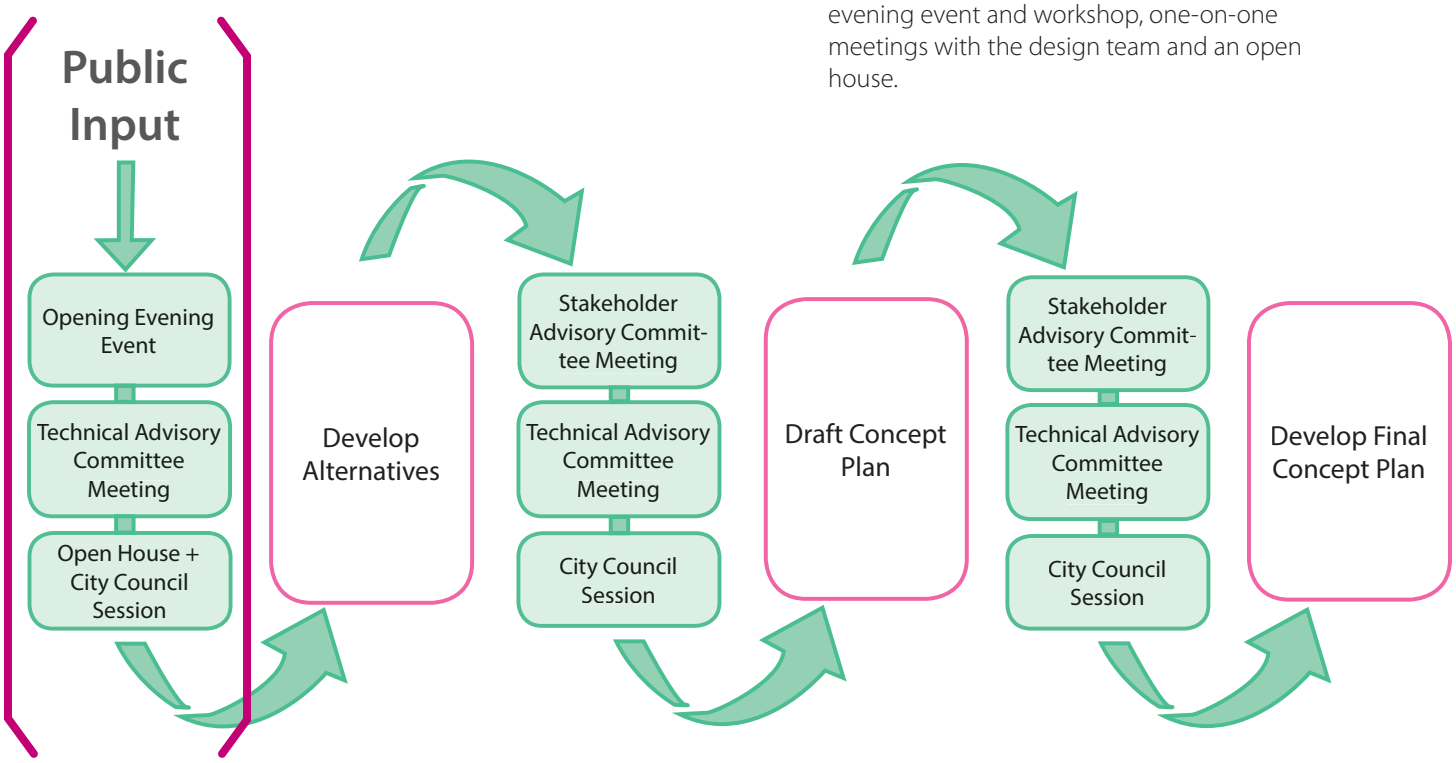
TECHNICAL ADVISORY COMMITTEE (TAC)
The TAC is made up of 10 members who represent the City of Tigard, Washington County, Clean Water Services, ODOT, Tigard-Tualatin School District, Tualatin River National Wildlife Refuge, Tualatin Valley Fire & Rescue, Metro, and AARP (formerly the American Association of Retired Persons).

STAKEHOLDER ADVISORY COMMITTEE (SAC)
The SAC is made up of about 9 members who represent property owners within and around the planning area, including Friends of the Tualatin Wildlife Refuge and Tualatin Riverkeepers.



THE CHARRETTE

CHARRETTE EVENTS
Charrette events included an opening evening event and workshop, one-on-one meetings with the design team and an open house.



CHARRETTE EVENTS MARCH 13-15

Site Tour
The kick off event of the design workshop was a site visit of the study area, attended by members of the City Council, residents of King City and members of the design team.

Opening Evening Event, Presentation and Public Workshop
The opening evening event was held at the Deer Creek Elementary School on the evening of Monday, March 13th. Stakeholder Advisory Committee (SAC) members co-facilitated small group exercises at tables around the cafeteria. A short slide presentation preceded the small group exercises. Approximately 40 people attended the event including stakeholder advisory committee members, property owners and city councilors.

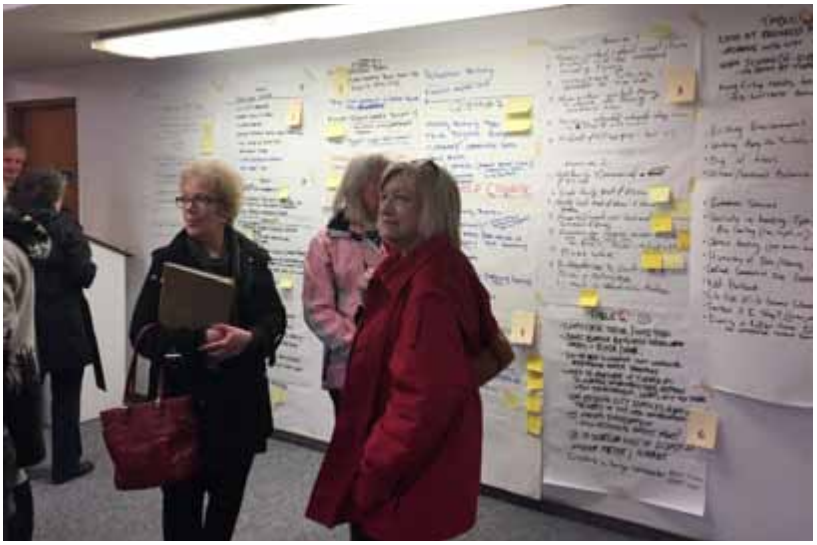
Technical Advisory Committee Meeting (TAC)
The TAC meeting was held on the afternoon of the second day, where members reviewed base conditions reports and discussed comments and questions from the previous night's opening evening event.

Pin Up and Open House followed by King City Council and Planning Commission Joint Briefing
Work from the design team, including preliminary alternatives, were displayed along with public comments from the opening evening event. Community members in attendance were asked to review the material and provide additional feedback. A final presentation was given to the city council and planning commission.

Charrette Schedule

	Monday March 13 Day One	Tuesday March 14 Day Two	Wednesday March 15 Day Three
Focus of the day's work			
8 am	Site Tour with stakeholders Set up charrette studio	Project Managment Team regroup Document and synthesize previous evening event feedback Internal design team meetings	Internal design team meetings and work Meet with stakeholders (drop-in or by appointment) Prepare for evening events
9 am			
10 am			
11 am			
12 pm Lunch			
1 pm	Team set up for Opening Event at Deer Creek	Technical Advisory Committee Meeting #2 (1-3pm)	Internal design team meetings and work Meet with stakeholders (drop-in or by appointment) Prepare for evening even
2 pm			
3 pm			
4 pm Dinner			
5 pm	5:30 - 7:30 pm Opening Event, Presentation and Public Workshop	Document and synthesize Technical Advisory Committee feedback	4:30 - 6:00 pm Pin-Up and Open House 6:00 - 7:00 pm Joint PC/CC Work Session
6 pm			
7 pm			

HANDS-ON WORKSHOP
About 40 residents, property, and business owners attended the opening night workshop (above)



DESIGN TEAM STUDIO
Between public meetings and workshops, the Design Team worked to draw the community's ideas (right)

CHARRETTE SCHEDULE
The charrette schedule details meetings and briefings that occurred during the design charrette. (page at left)

SAC + TAC MEETINGS
Members of the SAC and TAC attended each event, helping to facilitate table discussions and small group activities.

PC AND CC BRIEFING
City Council and Planning Commission and interested members of the public were briefed on the final night of the Charrette

COMMUNITY FEEDBACK COMMENTS FROM PUBLIC EVENTS

Comments received at the opening evening event and the City Council / Planning Commission Joint Briefing (closing event)

Development

Commercial activity near Beef Bend or Roy Rogers

Concerns about large apartment buildings

Need for senior housing; more single story homes

Plan for multiple generations

Develop houses right along Beef Bend Road

Townhomes along Beef Bend (mirror what Tigard has done)

Capitalize on river activities

Good example for commercial: Progress Ridge

Like to see affordable housing, planned parking, mixed zoning; a main street vibe

Mix housing types and Include small houses

Community spots, like a library, community center with arts and sports activities for all ages

Shared green space

Protect Rivermeade as is

Not wall-to-wall development

Not enough retail to support current growth

Houses with yards and decent parking, larger lots with ability to have horses

Ecotourism for innovative design

Good example of water management / livability: Village Homes in Davis, CA

Would like to see urgent care hospital

Tualatin Valley concept - wine tourism, eating, shopping

Natural Systems

Preserve the Refuge, the trees

Preserve, protect and integrate streams, wildlife passages and flyway

Development that does not degrade the land

Integrate new development with nature

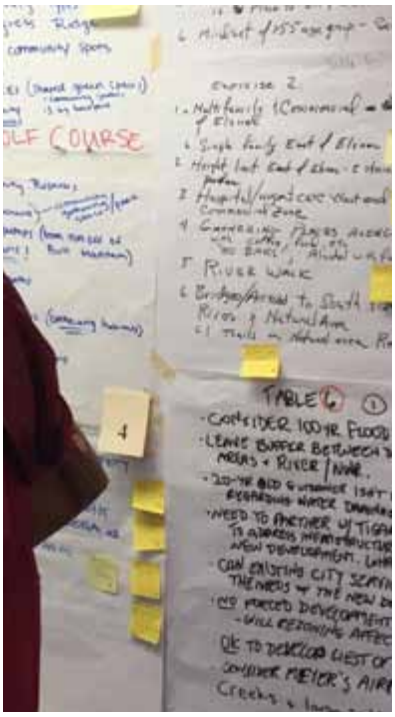
Leave a buffer between developed and undeveloped areas, the river, the Refuge

Integrate creeks into backyards or golf course

Allow points to access the river for boating, fishing or swimming

NE / central areas are sensitive and serve as drainages, don't develop there

Preserve rural character



Mobility - Streets and Trails

Generally need to improve Beef Bend Road; it's dangerous for pedestrians, bicyclists, drivers, there is already too much traf c

Specifically, need a signalized intersection at Elsner and Roy Rogers

Increase walking trails and connections

Consider Meyer's Airport

Create intimate system of trails and bridges that cross creeks

Infrastructure

The refuge helps with water management

Look at ways to combine recreation with stormwater management areas

Want clean well water

20 year-old guidance isn't working for water drainage

Can existing services serve new development?

COMMUNITY FEEDBACK COMMENTS FROM PUBLIC EVENTS

Community

Bring together this area as a community

Conflict between rural and urban uses

Limit expansion of Urban Reserve Area

Keep the character: "Everybody knows everybody"

History: Include the ferry crossing

Concerned about new commercial; we can't even fill the empty Albertson's

Respect the over-55 community

Concern about taxes increasing

Could King City be expanded by modifying existing areas

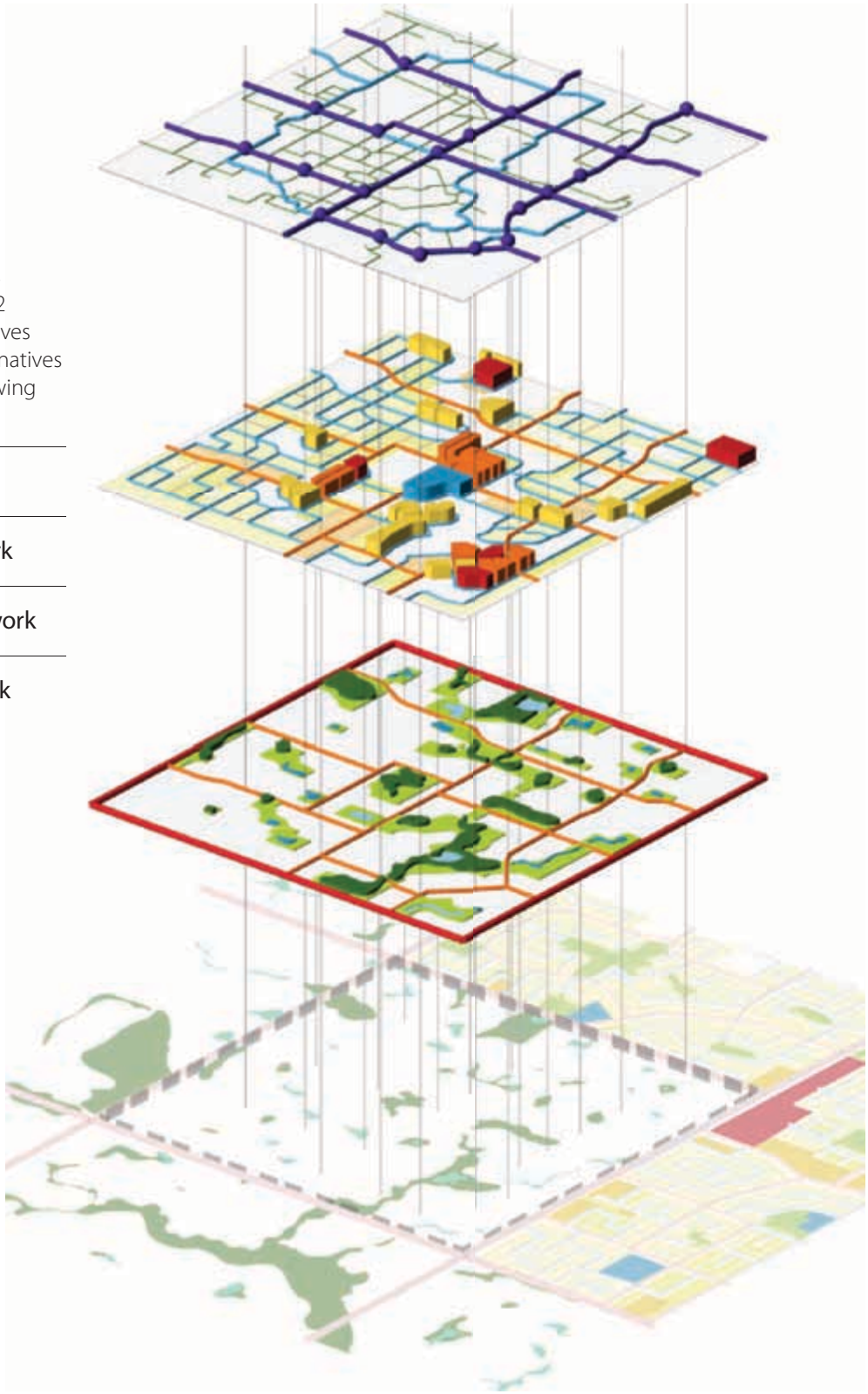
Rebuild current city hall in existing area

DEVELOPING ALTERNATIVES USING FRAMEWORKS

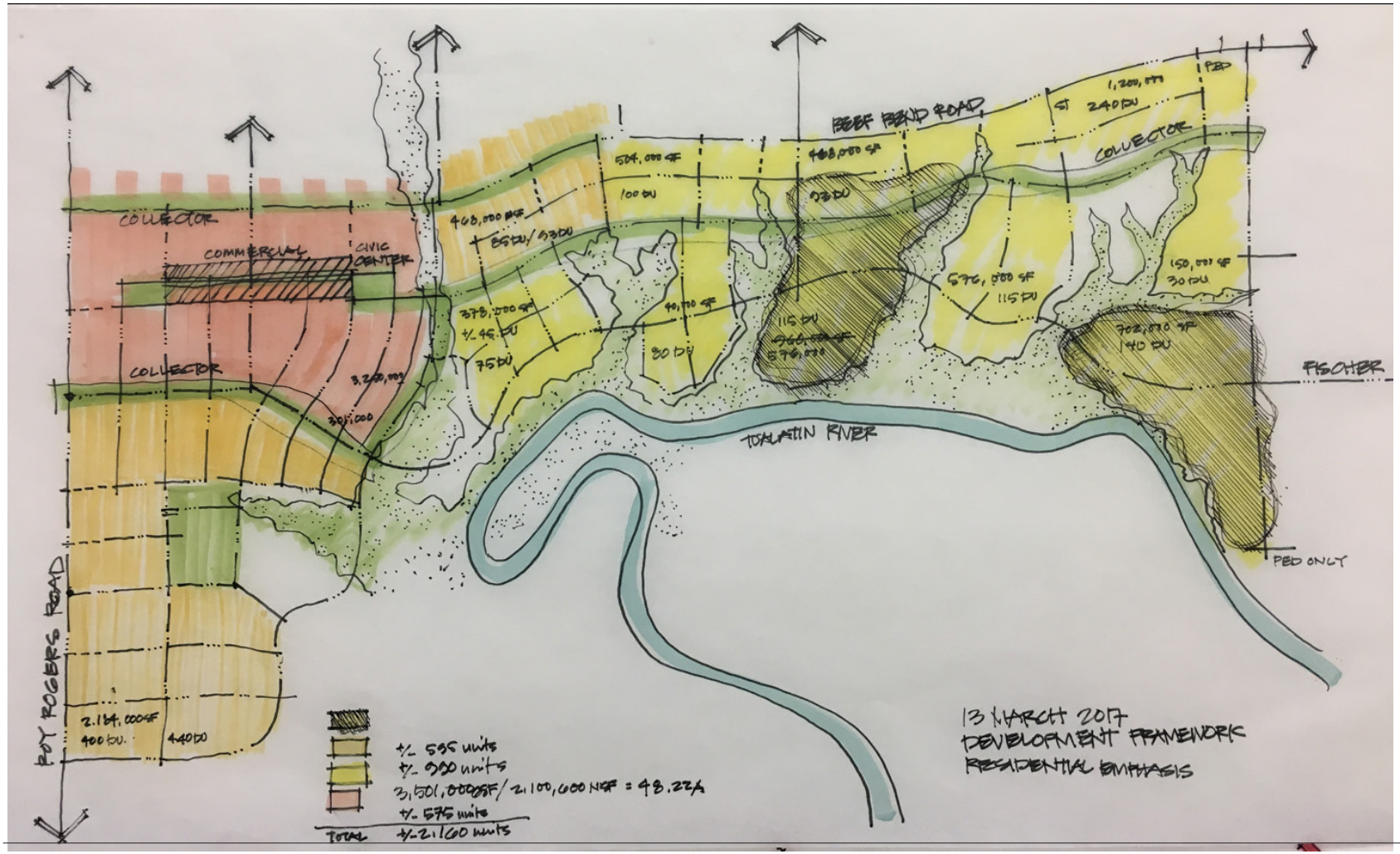
Using Frameworks

Using the frameworks from the base conditions reports and input from the public, 2 preliminary design alternatives were produced. These alternatives take into account the following frameworks:

1. Mobility Framework
2. Development Framework
3. Natural Systems Framework
4. Infrastructure Framework



PRELIMINARY ALTERNATIVES DESIGN CONCEPTS



PRELIMINARY ALTERNATIVE 1

This alternative shows how the entire plan area might develop, with more intensity at the NW corner

LAND USE

»Neighborhoods of distinctly dif erent character

»Higher density neighborhood at west; lower density neighborhoods at east

»Natural areas separate and surround individual neighborhoods

»Development intensity tapers downward close to southern edge

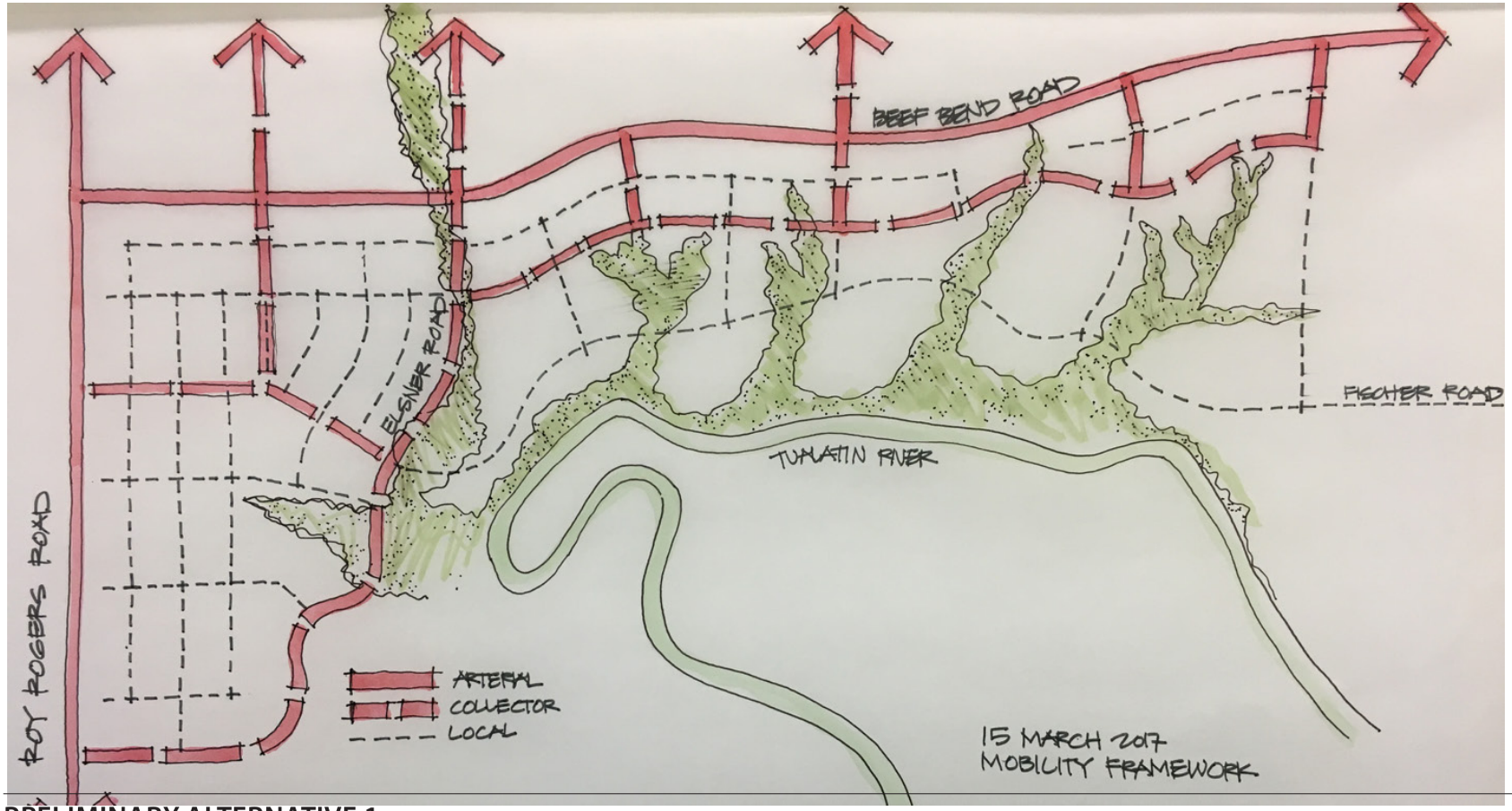
»Special area with development standards that control scale of development and promote compatible infill (mapped as the patterned area)

MIXED-USE AREA

»Located at the northwest area, near Roy Rogers and Bull Mountain

»Main street with local-serving retail and civic uses perpendicular to Roy Rogers

PRELIMINARY ALTERNATIVES DESIGN CONCEPTS



PRELIMINARY ALTERNATIVE 1

The mobility framework shows an east-west collector street running parallel to Beef Bend through the study area.

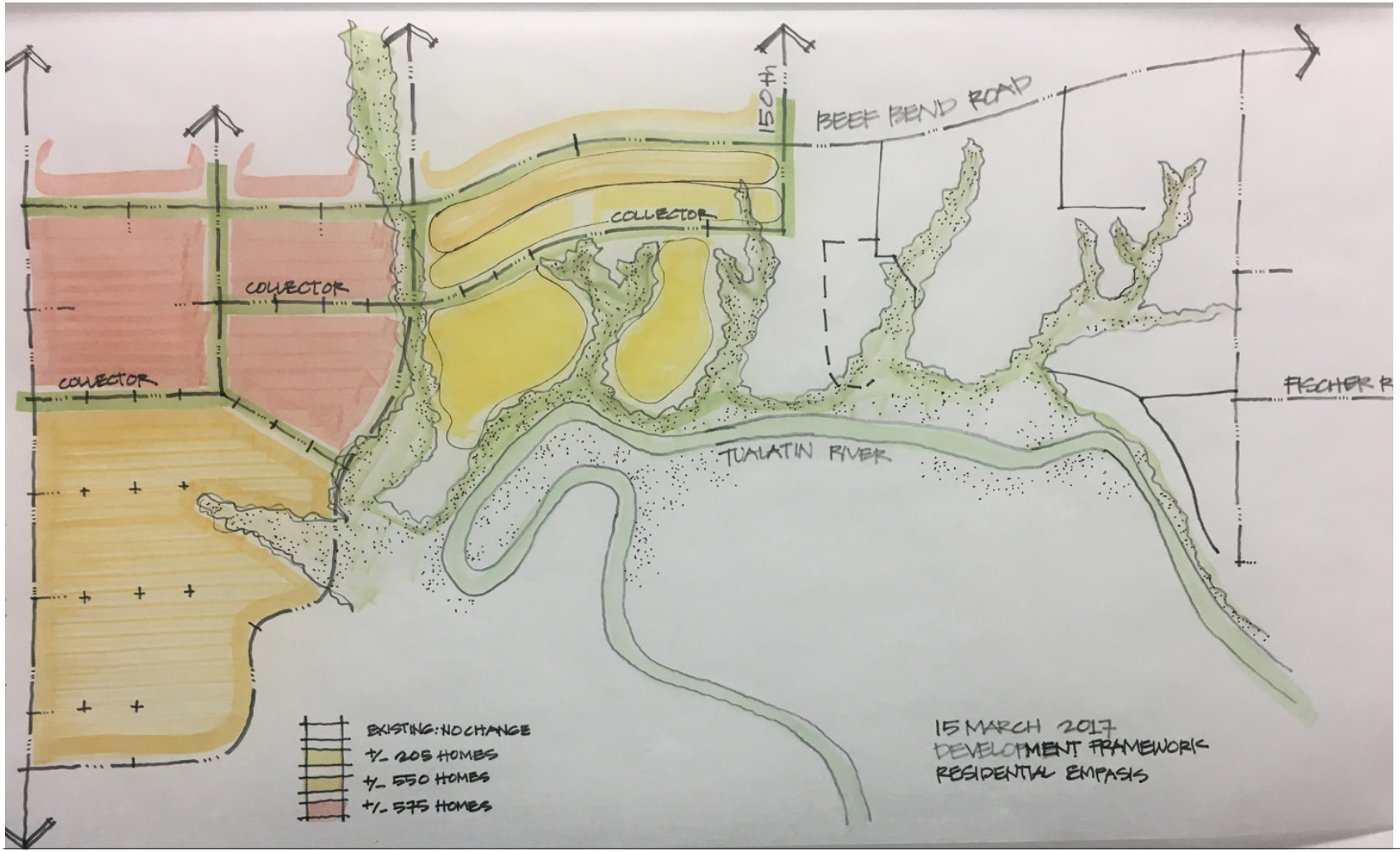
MOBILITY FRAMEWORK

»Collector with local character runs east-west (at north)
»Narrow, rural-character local street (or path system) connects Fischer and Roy Rogers (at south)
»Path system connects neighborhoods to each other

PARKS, TRAILS OPEN SPACES

»A variety of open spaces in each individual neighborhood unit
»Public gathering places with and urban character in northwest
»Community park in the southwest
»Small pocket parks in each neighborhood
»Green streets everywhere
»Riparian areas buf er development from streams and river edge

PRELIMINARY ALTERNATIVES DESIGN CONCEPTS



PRELIMINARY ALTERNATIVE 2

This alternative focuses on the western portion of the site, leaving out the eastern and middle areas

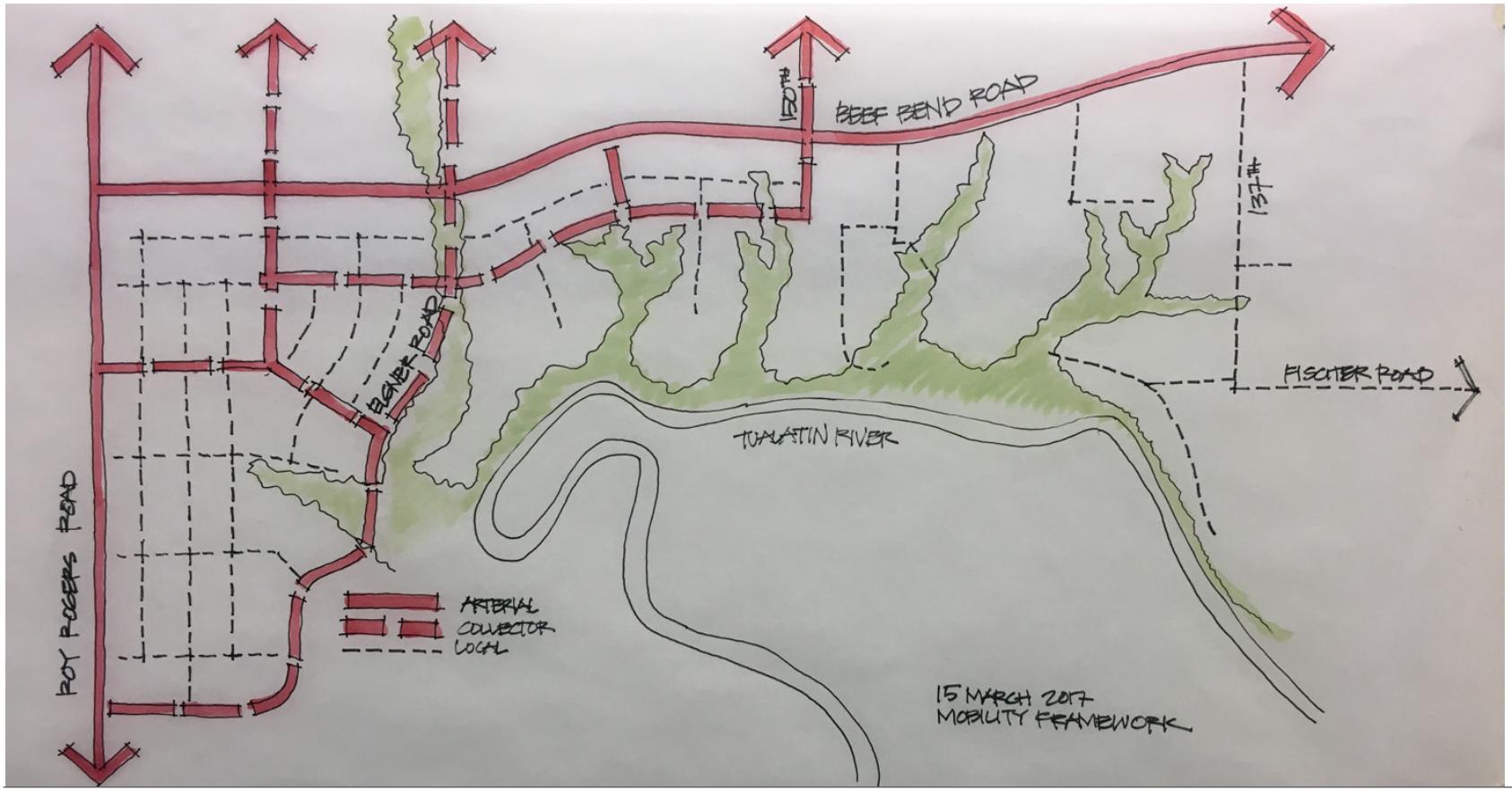
LAND USE

»New neighborhoods are concentrated to the west
»No new development to the east
»Natural areas separate new neighborhoods from existing residential development
»Development intensity tapers downward close to southern edge

MIXED-USE AREA

»Located at the northwest area, near Roy Rogers and Bull Mountain
»Main street with local-serving retail and civic uses perpendicular to Bull Mountain

PRELIMINARY ALTERNATIVES DESIGN CONCEPTS



PRELIMINARY ALTERNATIVE 2

The mobility framework shows a collector running parallel to Beef Bend as far as 150th.

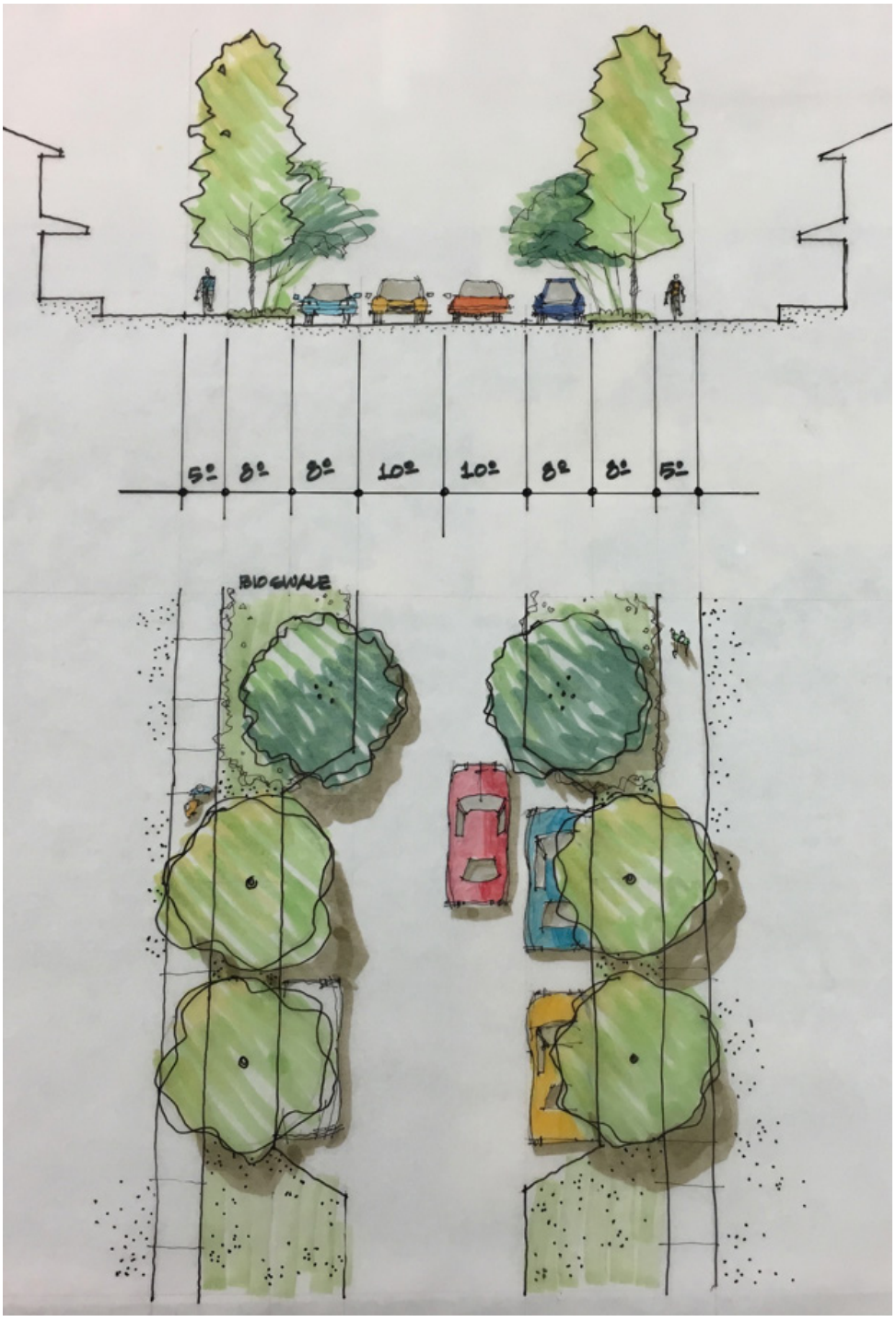
MOBILITY FRAMEWORK

»Collector with local character runs between Roy Rogers and 150th

PARKS, TRAILS OPEN SPACES

»Similar to Alternative 1 but limited to the west side of URA
»A variety of open spaces in each individual neighborhood unit
»Public gathering places with an urban character main street area
»Small pocket parks in new neighborhoods
»Green streets in new development
»Riparian areas buf er new development from streams, the river and existing residential development

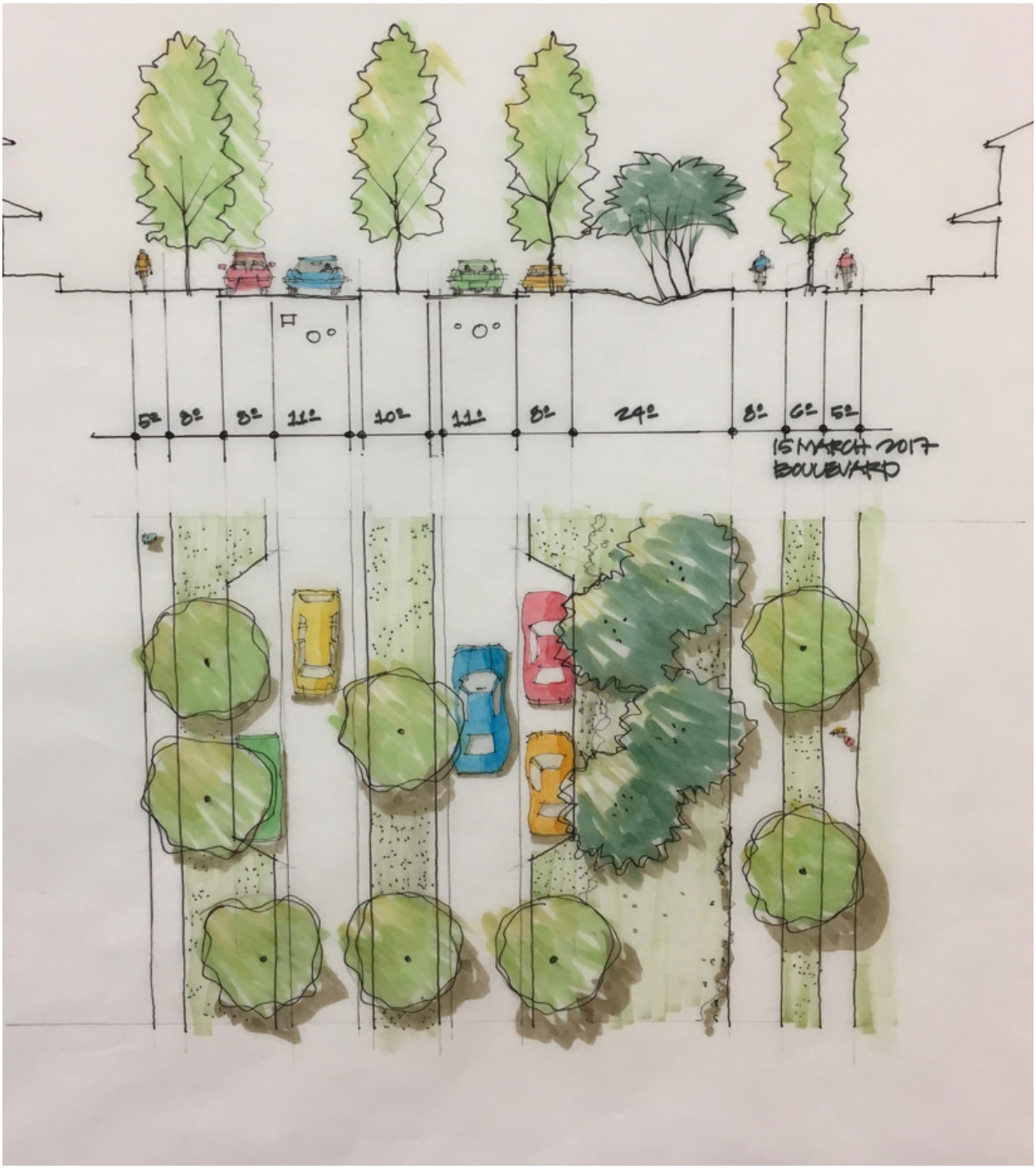
LOCAL STREET



DESIGN INTENT

»Narrow, rural-character local street
»Forms the network of local streets that promote walking
»Connects blocks within a neighborhood; connects neighborhoods to each other, and connects neighborhoods to schools, parks and stores
»"Green street" with stormwater treatment built in

BOULEVARD



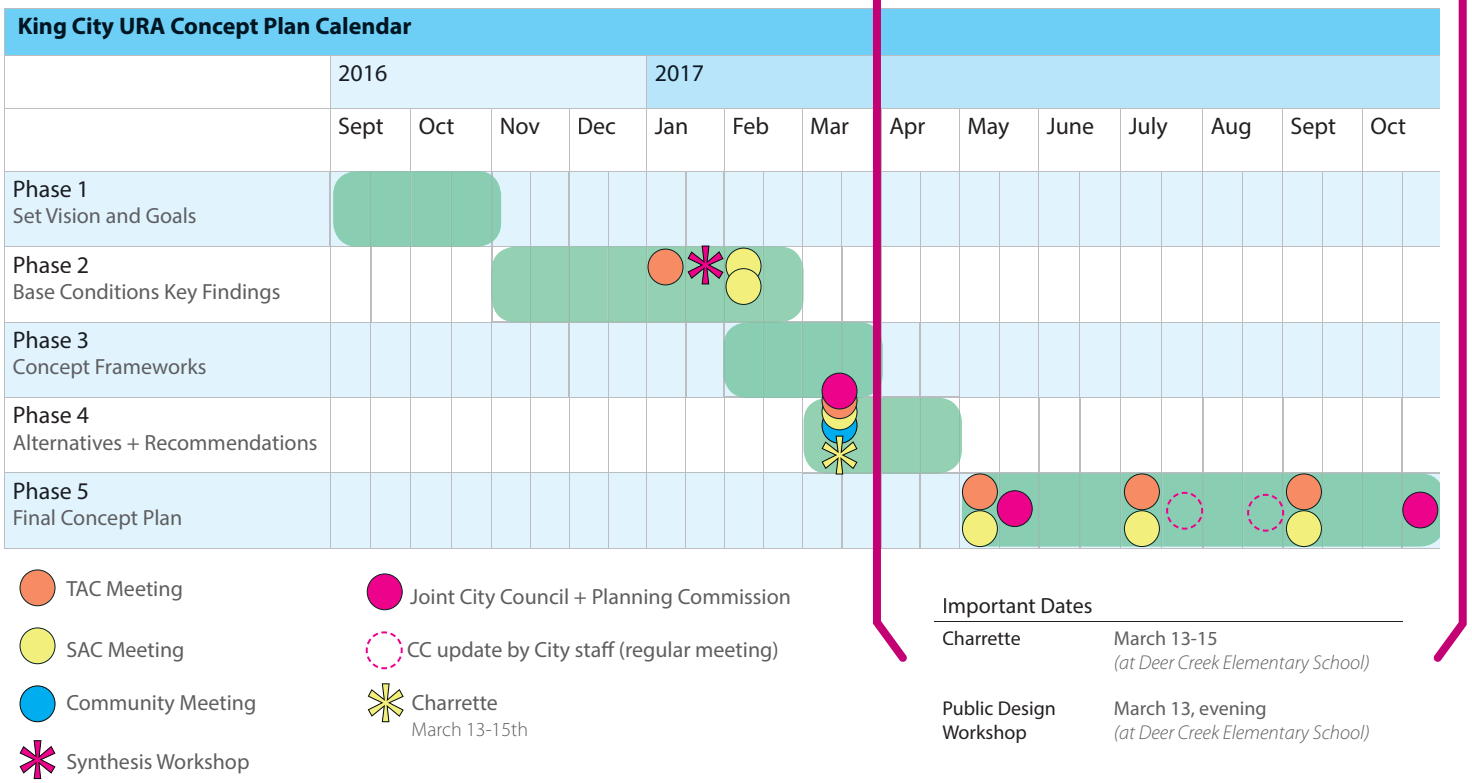
DESIGN INTENT

»Design for a collector or an arterial street
»"Urban boulevard" applicable to future Elsner, reconfigured Beef Bend or new east-west street
»Enhances environmental protection though stormwater treatment built in to edges and center median
»May include a protected or separated bike path on one side
»Enhances the urban character of future development

NEXT STEPS

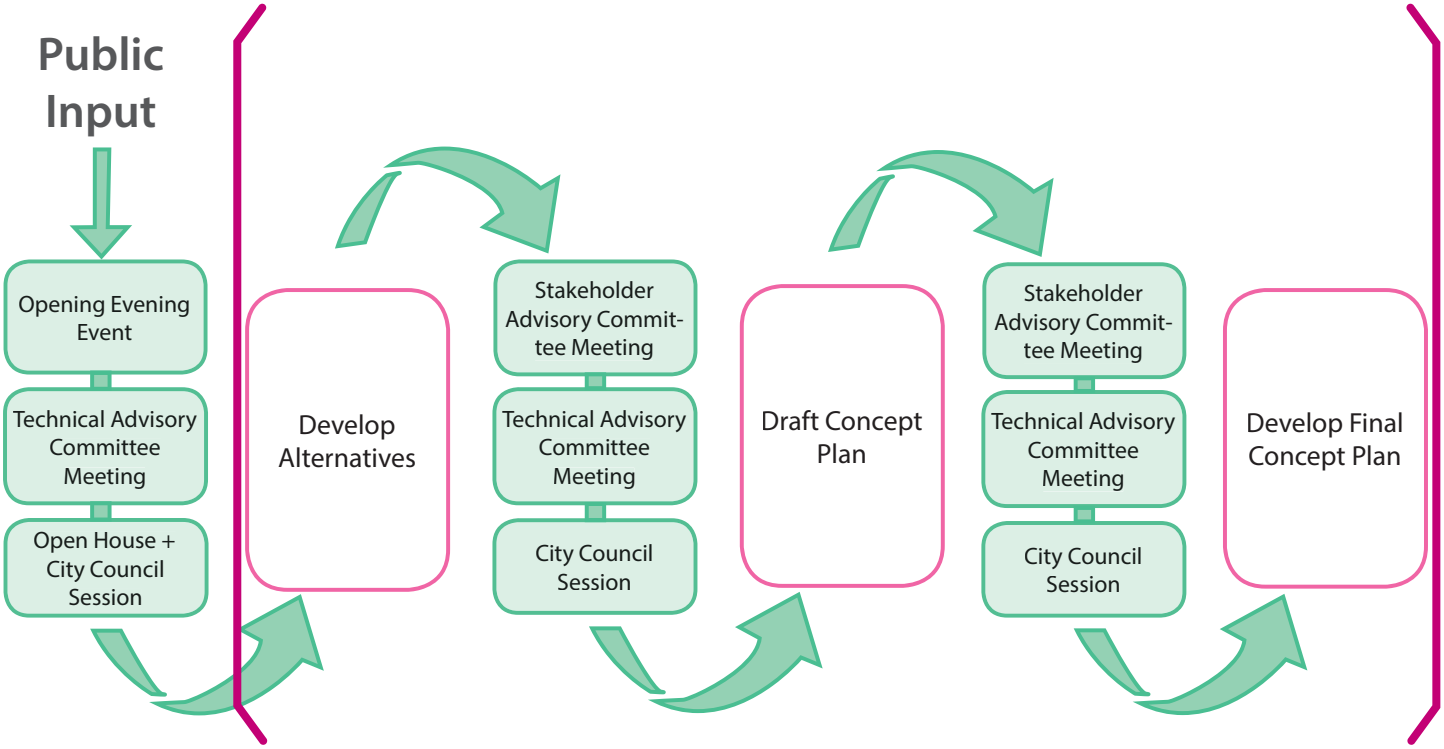
FOLLOWING THE CHARRETTE

The preliminary alternatives illustrated on pages 22-24 will be further developed in Phases 4 and 5, as shown in the project schedule below.



WHO IS INVOLVED

In Phases 4 and 5, at each stage of development, the SAC, the TAC, the King City City Council and Planning Commission, and interested members of the public will have an opportunity to review and comment on the alternatives, as shown in the public input schedule below. The alternatives will be refined into one single concept plan.



DESCRIPTION OF NEXT STEPS

Alternatives Analysis

The proposed concept plan alternatives will be summarized, compared, and evaluated, using previously accepted vision statements and goals. A recommendation including supporting rationale will be made to support the preferred concept plan alternative.

Infrastructure Finance Plan

The Infrastructure Finance Plan will identify the costs associated with each concept alternative, and the impacts, opportunities and constraints of each. Implementations strategies will identify the funding tools and strategies, including strategies for balancing costs across ownerships.

Natural Resources Baseline Report

King City URA 6D Concept Plan
King City, Oregon



FINAL
March 2017

SCJ ALLIANCE
CONSULTING SERVICES

Final Natural Resources Baseline Report

Project Information

Project: **King City URA 6D Concept Plan**

Prepared for: **Urbsworks**
3845 SW Condor Avenue
Portland, Oregon 97239

Reviewing Agency

Jurisdiction: King City
City Hall
15300 SW 116th Avenue
King City, Oregon 97224

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Project Reference: SCJ 1854.01
Path: N:\Projects\1854 Urbsworks\1854.01 King City Concept Plan\Task 02 - Base Conditions Research\Natl Resources Report\King City Baseline Report 12 20 2016 - HS.docx

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1. EXECUTIVE SUMMARY

This report provides a planning level assessment and description of natural resources in the King City Urban Reserve Area (URA) 6D study area. GOAL 5 resources discussed include: Riparian corridors; Wetlands; Wildlife Habitat; Groundwater Resources; Designated Natural Areas, and Trails. The following other GOAL 5 resources do not occur in the King City Urban Reserve Area (URA), and therefore are not discussed in the report: Oregon Scenic Waterways and Federal Wild and Scenic Rivers.

King City is in Washington County, covering about 460 acres in the southwest greater Portland metropolitan area at the edge of the regional Urban Growth Boundary (Figure 1). The City is northwest of Highway 99; north of the Tualatin River and south of Bull Mountain. Sanitary and stormwater services are provided by regional Clean Water Services (https://www.cleanwaterservices.org/), and water is provided by the City of Tigard which has a new water source completed in the City of Lake Oswego – the Tigard Water Partnership Project. The Clean Water Services Durham Sewage Treatment Plant that serves King City is in Tigard, about 2 to 3 miles to the east of the URA.

This report is intended to provide project planners with a hydrological and ecological baseline description of the King City URA. The information gathered is based only on paper research – a compilation of information already documented, but organized to provide context and to support an informed decision-making and planning process for the City. No field work has been conducted.

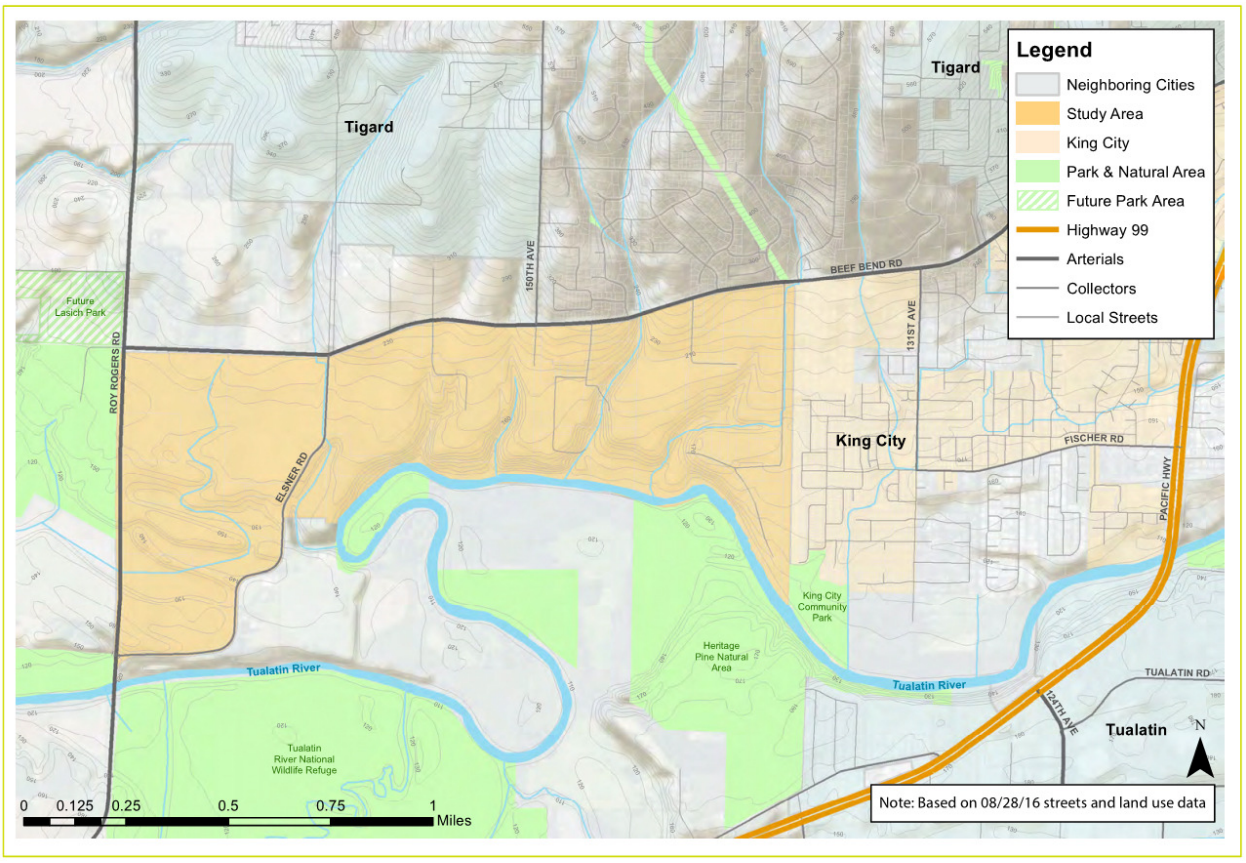

Figure 1. King City URA Study Area with Topography

The proposed King City URA (528 acres total, assumed to be about 460 acres of developable area) is directly adjacent and west of the existing King City limits, along the northern bank of the Tualatin River. It is bounded to the north by SW Beef Bend Road and by SW Roy Rogers Road to the west. The URA includes several north-to-south trending drainage ravines as well as some floodplain areas which create unique challenges for road building and development. Current land use in the URA area is dominantly agriculture with associated rural homesteads, but may include a few single-family homes unassociated with farming.

As noted, the Tualatin River forms the southern boundary of the URA, and is a key natural resource feature within the study area. The section adjacent to King City meanders and is a comparatively slow river, so does not provide ideal anadromous fish habitat, but according to local information, certain sections of the Tualatin River support a range of fish, including Coho salmon, cutthroat trout, squawfish, catfish, largemouth and smallmouth bass. The riverbank and stream corridors create opportunities for interconnected walking trails and wildlife habitat corridors within the City.

2. KING CITY URA PROJECT INTRODUCTION & BACKGROUND

2.1 NATURAL RESOURCES OVERVIEW

This report provides a description of natural features and conditions in the King City URA (Figure 2, Vicinity Map) that have potential to affect natural resource management, as well as planning and design for infrastructure and land use. This is a summary report, and intended to provide a general context of existing natural resource conditions in the URA west of King City.

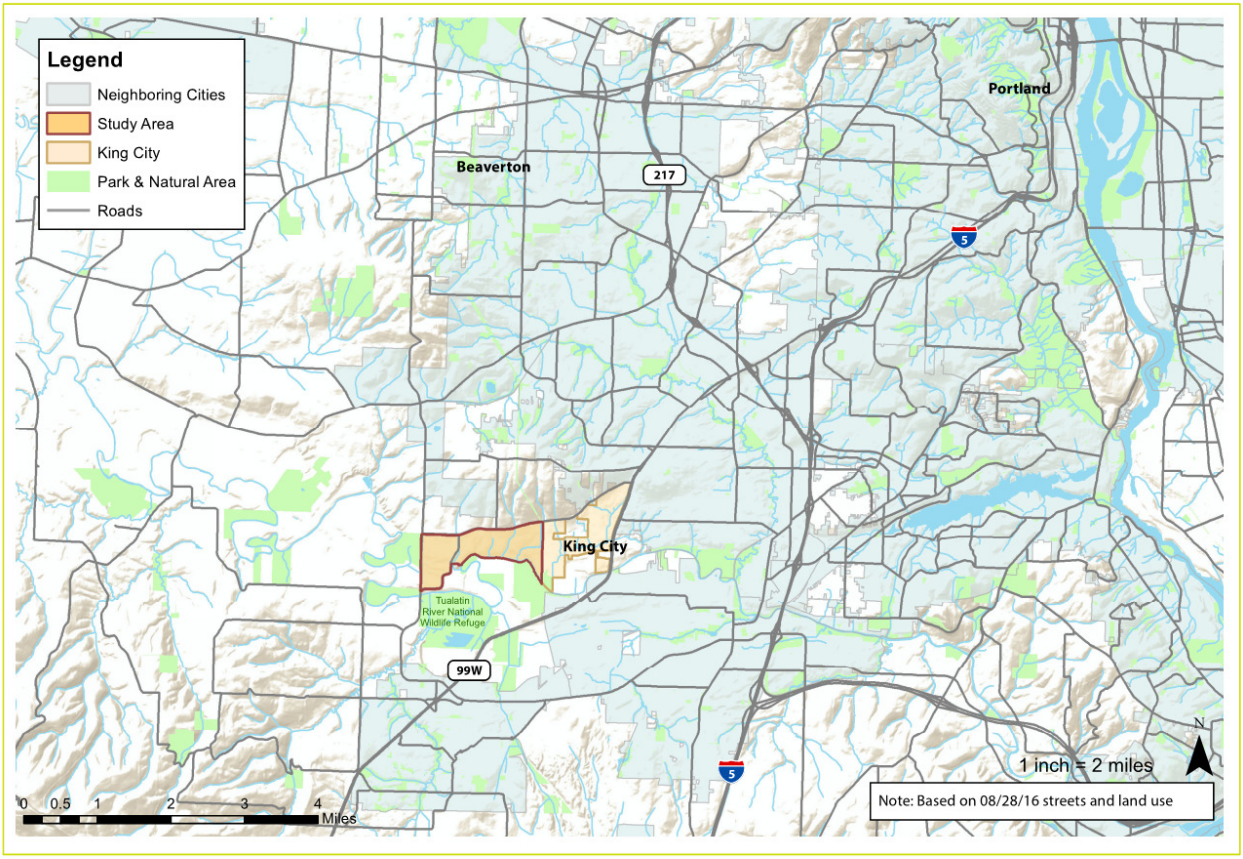

Figure 2. King City Vicinity Map

The existing incorporated area of King City includes about 460 acres and is situated in the Tualatin River Watershed at the southwestern edge of the Portland metropolitan area. Surface terrain in the area starts to transition from broad, flat alluvial valley floors of the Willamette Valley Ecoregion to the basalt foothills of the Coast Range Ecoregion. It is bordered to the south by the Tualatin River; to the north by SW Beef Bend Road, to the east by Highway 99W, and to the west by SW 137th Avenue.

The target URA is west of the current King City limits, along the north bank of the Tualatin River. It is bounded to the north by SW Beef Bend Road, and to the west by SW Roy Rogers Road. For purposes of this report, the URA has been split into two sub-areas, based on development potential and limitations (Figure 3).

2.1.1 Sub-Area Overview

The **Northeast URA sub-area** lies between SW Beef Bend Road and the river, bounded to the west by SW Elsner Road and to the east by 137th Avenue (Figure 3). This area has broad, relatively flat farm fields across the upper surface of the terraces, and four north-to-south draining stream ravines which become increasingly deep as they progress toward the Tualatin River.

The **West URA sub-area** lies between SW Elsner Road and SW Roy Rogers Road (Figure 3). This area is bisected by a west to east floodway / wetland swale about 2,000 feet south of Beef Bend Road. The floodway is crossed by an 800-foot bridge on Roy Rogers Road along the western URA boundary. The area from the southern edge of the floodway extending to Elsner Road is a farm, but includes a couple of single family homes that may not be associated with the farm. The area north of the floodway is a commercial plant nursery and a farm.

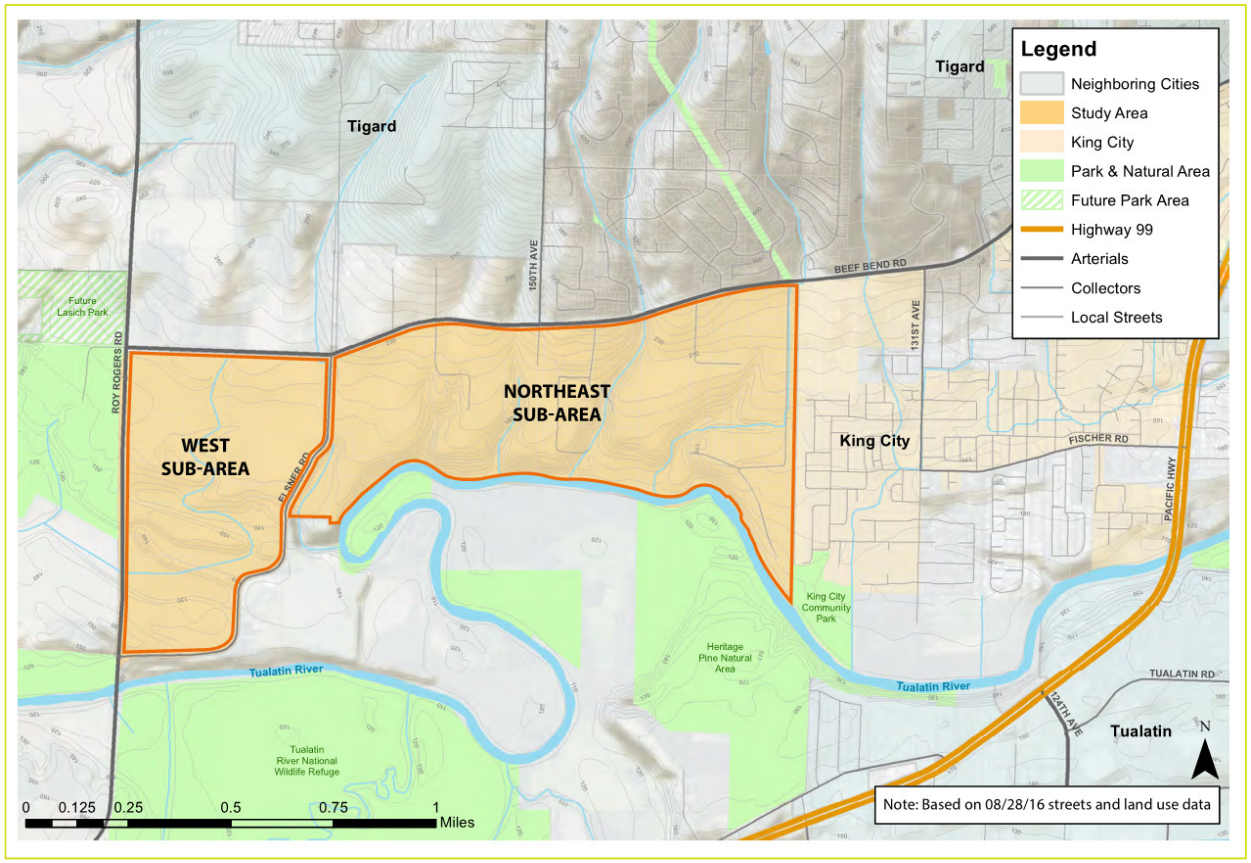

Figure 3. King City URA Sub-areas

2.1.2 GOAL 5 Guidelines

Under Oregon State GOAL 5 guidelines (OAR 660-015-0000[5]), local governments are encouraged to adopt programs designed to protect natural resources, as well as to conserve scenic and historic areas and open space. Local governments and state agencies are also encouraged to maintain current inventories for Historic Resources, Open Spaces and Scenic Views and Sites. The intent of this report is to provide information to King City about local Natural Resources to help carry out certain aspects of the King City URA planning process.

Goal 5 (adopted in 1982 and updated in 1996) provides a five-step planning process:

1. Inventory local occurrences of resources listed in Goal 5, and decide which ones are important.
2. Identify potential land uses on or near each resource site and any conflicts that might result.
3. Analyze economic, social, environmental, and energy (ESEE) consequences of such conflicts.
4. Decide whether the resource should be fully or partially protected, and justify the decision.
5. Adopt measures such as zoning to put that policy into effect

Under GOAL 5 guidance, the following resources are to be inventoried:

a. Riparian corridors, including water and riparian areas and fish habitat;
b. Wetlands;
c. Wildlife Habitat;
d. Federal Wild and Scenic Rivers;
e. State Scenic Waterways;
f. Groundwater Resources;
g. Approved Oregon Recreation Trails;
h. Natural Areas;
i. Wilderness Areas;
j. Mineral and Aggregate Resources;
k. Energy Sources;
l. Cultural Areas.

In addition, local governments and state agencies are encouraged to maintain current inventories of the following resources:

a. Historic Resources;
b. Open Space;
c. Scenic Views and Sites.

GUIDELINES FOR GOAL 5

See http://www.oregon.gov/LCD/docs/goals/goal5.pdf for more detailed information about guidelines for implementing Goal 5.

A. PLANNING

1. *The need for open space in the planning area should be determined, and standards developed for the amount, distribution, and type of open space.*

2. *Criteria should be developed and utilized to determine what uses are consistent with open space values and to evaluate the effect of converting open space lands to inconsistent uses. The maintenance and development of open space in urban areas should be encouraged.*

3. *Natural resources and required sites for the generation of energy (i.e. natural gas, oil, coal, hydro, geothermal, uranium, solar and others) should be conserved and protected; reservoir sites should be identified and protected against irreversible loss.*
4. *Plans providing for open space, scenic and historic areas and natural resources should consider as a major determinant the carrying capacity of the air, land and water resources of the planning area. The land conservation and development actions provided for by such plans should not exceed the carrying capacity of such resources.*
5. *The National Register of Historic Places and the recommendations of the State Advisory Committee on Historic Preservation should be utilized in designating historic sites.*
6. *In conjunction with the inventory of mineral and aggregate resources, sites for removal and processing of such resources should be identified and protected.*
7. *As a general rule, plans should prohibit outdoor advertising signs except in commercial or industrial zones. Plans should not provide for the reclassification of land for the purpose of accommodating an outdoor advertising sign. The term "outdoor advertising sign" has the meaning set forth in ORS 377.710(23).*

3. METHODS

3.1 RESOURCE INFORMATION AND MAPPING RESOURCES REVIEWED

A synopsis of the resource information and mapping resources consulting in the preparation of this report is presented in this section. Additional materials listed in References section.

- Oregon Department of Land Conservation and Development GOAL 5 regulations (OAR 660-015-0000(5) and guidelines were reviewed to ensure that this report provided adequate discussion on GOAL 5 resource assessment requirements. http://www.oregon.gov/LCD/docs/goals/goal5.pdf
- Oregon Dept. of Fish & Wildlife (http://www.dfw.state.or.us/) Oregon Plan for Salmon & Watersheds (http://www.oregon.gov/OPSW/pages/index.aspx)
- GIS mapping layers provided by project engineers
- City of King City website (http://www.ci.king-city.or.us/) for additional information on regulations, parks, and related plans.
- Clean Water Services, which provides for regional sewer and stormwater system management and infrastructure (http://www.cleanwaterservices.org/about-us/)
- The Oregon State Department of Environmental Quality, Drinking Water Program, which provides information on the King City water supply system, served through the City of Tigard: (http://www.tigard-or.gov/city_hall/departments/PublicWorks/Water/water_quality_report.pdf)
- The Tualatin River Water Shed Council website provides several resource maps as well as excellent description of the Tualatin Basin watershed (http://trwc.org/tualatin-basin-information/)
- Washington County NRCS Soil Survey (online version: WEB Soil Survey)[1] (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx)
- National Wetland Inventory Mapper (http://www.fws.gov/wetlands/data/mapper.HTML)
- Google Earth historic timeline aerial photos of the project areas

[1] SOIL SURVEY OF WASHINGTON COUNTY, OREGON By George L. Green, Soil Conservation Service Fieldwork by George E. Otte, Duane K. Setness, Richard T. Smythe, and Calvin T. High, Soil Conservation Service United States Department of Agriculture, Soil Conservation Service, in cooperation with the Oregon Agricultural Experiment Station, 1982

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4. FINDINGS

4.1 GOAL 5 SUMMARY

Oregon State GOAL 5 guidelines (OAR 660-015-0000[5]) encourage local governments to adopt natural resource protection programs and to conserve scenic and historic areas and open space. The following Resources are to be inventoried under GOAL 5 guidelines: Riparian corridors; Wetlands; Wildlife Habitat; Federal Wild and Scenic Rivers; State Scenic Waterways; Groundwater Resources; Approved Oregon Recreation Trails; Natural Areas; Wilderness Areas; Mineral and Aggregate Resources; Energy sources; Cultural areas.

4.1.1 GOAL 5 Existing Resources

The following GOAL 5 Resources **do exist** in or near the King City URA planning area, and will be characterized in the report below:

- Riparian corridors;
- Wetlands;
- Wildlife Habitat;
- Groundwater Resources;
- Natural Areas;
- Oregon Recreation Trails;
- Mineral and Aggregate Resources;
- Cultural areas.

4.1.2 GOAL 5 Non-Existing Resources

The following GOAL 5 Resources **do not exist or are not currently designated** in the King City URA planning Area, and therefore, are not discussed below:

- **Oregon Scenic Waterways and Federal Wild and Scenic Rivers**: No local rivers are designated as wild and/or scenic in the King City area.
- **Wilderness Areas**: No wilderness areas are located near King City; they occur in the Cascade Range (about 80 miles east) and along the Oregon Coastline (about 40 miles west).
- **Energy Sources**: This is predominantly focused on large-scale wind, geothermal or water energy facilities, although may also control issues along powerline transmission corridors. No new energy facility sites are located in or near King City.

4.2 PLANNING AREAS: KING CITY URBAN RESERVE AREA & VICINITY

King City is situated in the greater Tualatin River Drainage Basin, which forms the foundation for surface and subsurface hydrologic systems in and around the King City URA. The basin headwaters emanate from the Coast Range foothills, dominated by a basalt bedrock foundation. Lower elevation portions of the basin east of the foothills flow through Willamette Valley floodplains, eventually flowing into the Willamette River. King City is situated at the transition between the Middle Tualatin Sub-watershed Basin and the Lower Tualatin Sub-watershed Basin as illustrated in Figure 4.

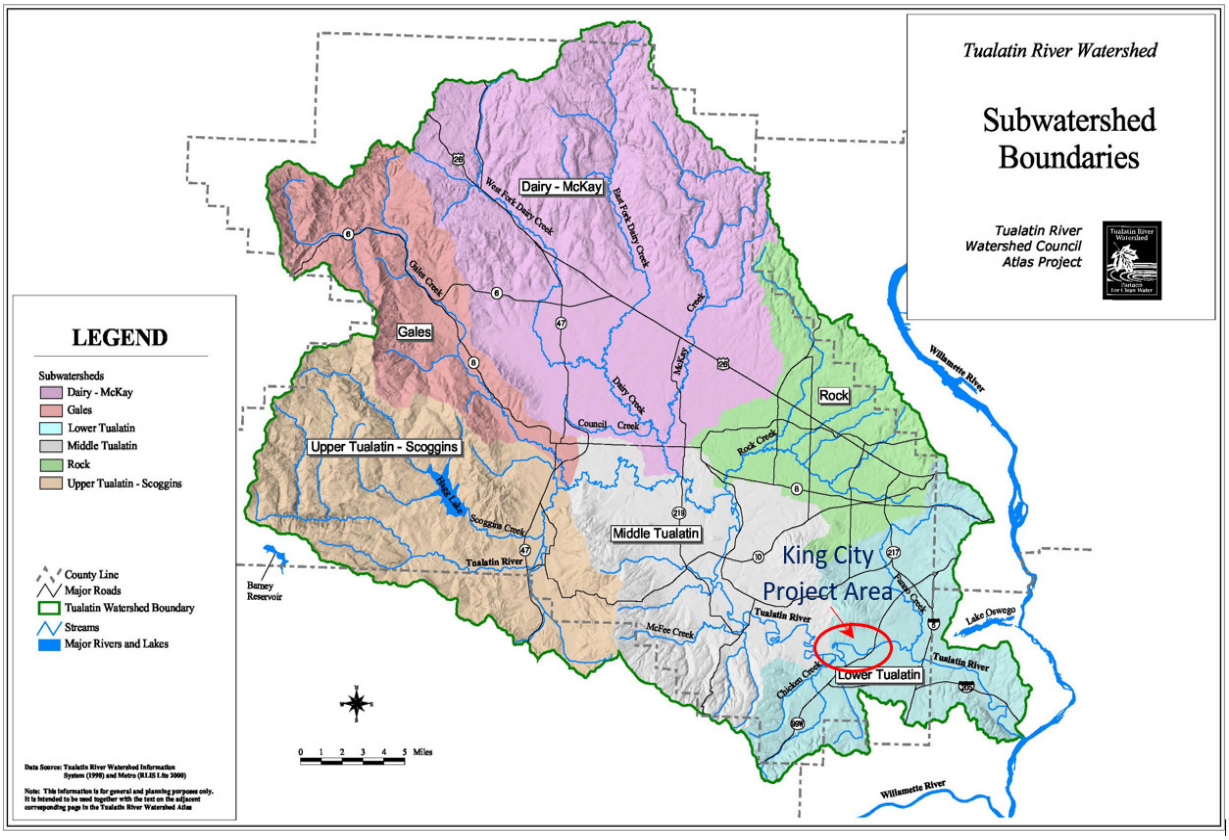

Figure 4. King City Location in the Tualatin River Basin (Figure adapted from Tualatin River Watershed Council map gallery http://trwc.org/tualatin-basin-information/)

4.3 KING CITY URA SUB-AREA DESCRIPTIONS

The **Northeast URA sub-area** is between SW Beef Bend Road and the river, bounded to the west by SW Elsner Road and to the east by 137th Avenue (Figure 5). Elevations range from 200 to 260 feet above sea level along the north boundary (Beef Bend Road) down to 110 feet at the river surface. This area has broad, relatively flat farm fields across the upper surface of the terraces (about 5 percent slopes), and five north-to-south draining stream ravines (about 8 percent slopes), which become increasingly deep, cutting down through the upper terrace as they drain toward the Tualatin River. Four of the five drainages are heavily wooded with only a few crossings, indicating that they are deep enough to make them unsuitable for clearing and farming. The fifth drainage has been redirected to flow in a ditch along Elsner Road at the western end of this sub-area. The most easterly drainage has also been partially redirected from its primary flow channel into a ditch along 137th Avenue down to Watson Street, then back into its natural drainage course into the Tualatin River. These streams appear to be fed by seasonal stormwater runoff, but maps indicate that some of them may have year-round flow. Recent reports describing surface stormwater hydrology in the surrounding area indicate that some of these drainages

(particularly the first, second and fourth drainages, counting from the west) may be downcutting and eroding significantly due to impacts of stormwater runoff from developing areas to the north[2].

There are a few interior farm roads, some of which cross the drainages to access single-family homes (SFH), not associated with farming activities. These existing crossings may be advantageous when developing future road systems in this area, as permitting processes for existing crossings tend to be simpler, and farm roads are often located where it is easiest to cross. The upper farmed terraces in this area can be relatively easily developed, with the biggest challenge how to develop an effective east to west road system across the drainages.

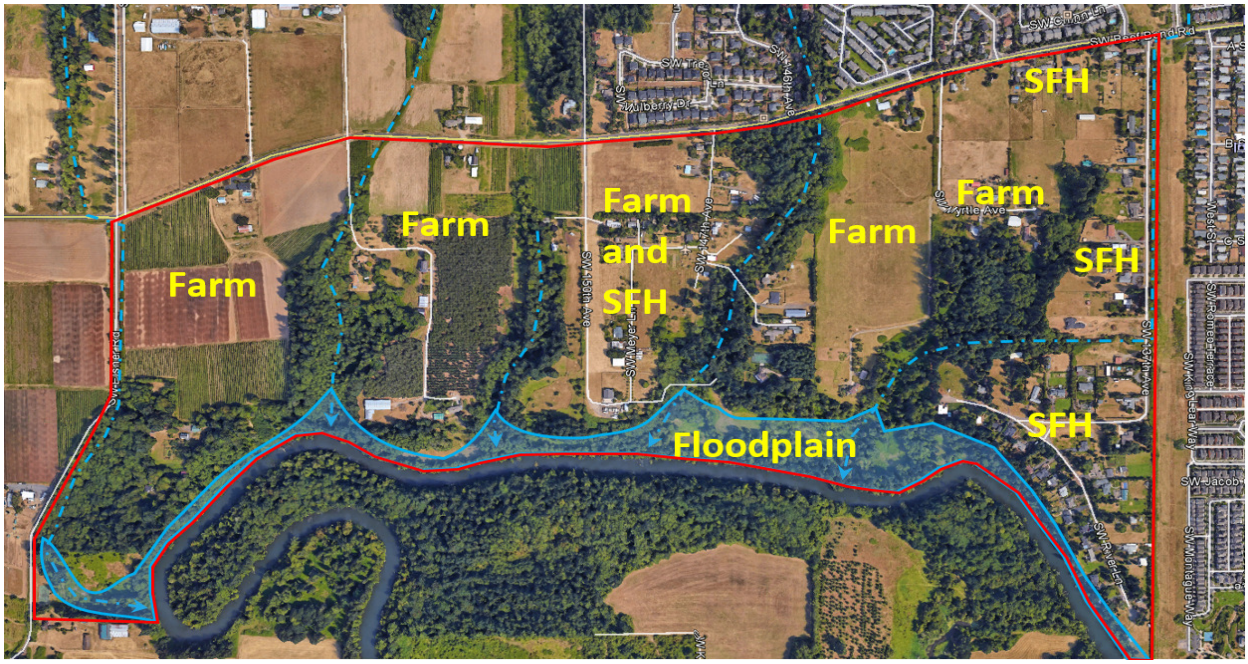

Figure 5. Northeast Sub-Area Current Land Use – Farms and Single-family Homes (SFH)

The **West URA sub-area** is between SW Elsner Road and SW Roy Rogers Road (Figure 6). This area is bisected by a floodway / wetland swale about 2,000 feet south of Beef Bend Road. The floodway is crossed by an 800- foot bridge on Roy Rogers Road. The area south of the floodway swale to Elsner Road is a farm, but includes a couple of single family homes that may not be associated with the farm. Surface elevation ranges from 180 to 200 along the north side (Beef Bend Road) down to about 120 feet in the central floodway (approximately a 3-4 percent slope).

A wholesale/commercial nursery operation is located between the floodway and the intersection of Beef Bend Road and Roy Rogers Road. A kidney-shaped pond is excavated in southeast corner of the nursery. The pond is the final remnant of an old redirected stream channel, but is well above the floodplain and has been a farm pond since before the early 1990s. The commercial nursery operation is called Al's Garden Center, with an entry from Roy Rogers Road. The wholesale nursery surrounds Al's

[2] Otak Memorandum describing River Terrace Area High Flow Conveyance Alternatives to the Tigard City Engineer dated October 15, 2015; onsite drainages are described as T8, T9 and T10 in the Otak Memorandum.

Garden Center on all sides, and has an entrance along Beef Bend Road. Most of the soil surface in the wholesale nursery is covered with plastic, indicating that most of the plants are grown in pots.

A farm operation currently exists between the east side of the nursery and Elsner Road, with row crops in the north, and a horse stable operation at its southern end (adjacent to the floodway). This operation has a barn, a riding arena, a lunging pen and at least 38 paddocks of various sizes and dimensions. Only the paddocks closest to the barn appear to get regular use; the southern paddocks may flood periodically in winter months.

Maps of the West URA sub-area area indicate a stream drainage used to meander across the eastern nursery area. The stream is barely visible in 1952 photos, and was redirected into ditches and drains over the years as farming activities expanded. Under current conditions, several diagonal ditches send water from the eastern nursery edge to a central roadside ditch, and then south to the floodway swale described previously. Aerial photo records indicate the nursery has been at this location at least since the early 1990s, and the area has been farmed since at least 1952.

Aside from a need to avoid the floodway areas and a possible need for drainage maintenance/ improvement in the area between the nursery and the farm north of the floodway, this portion of the western URA can be developed.

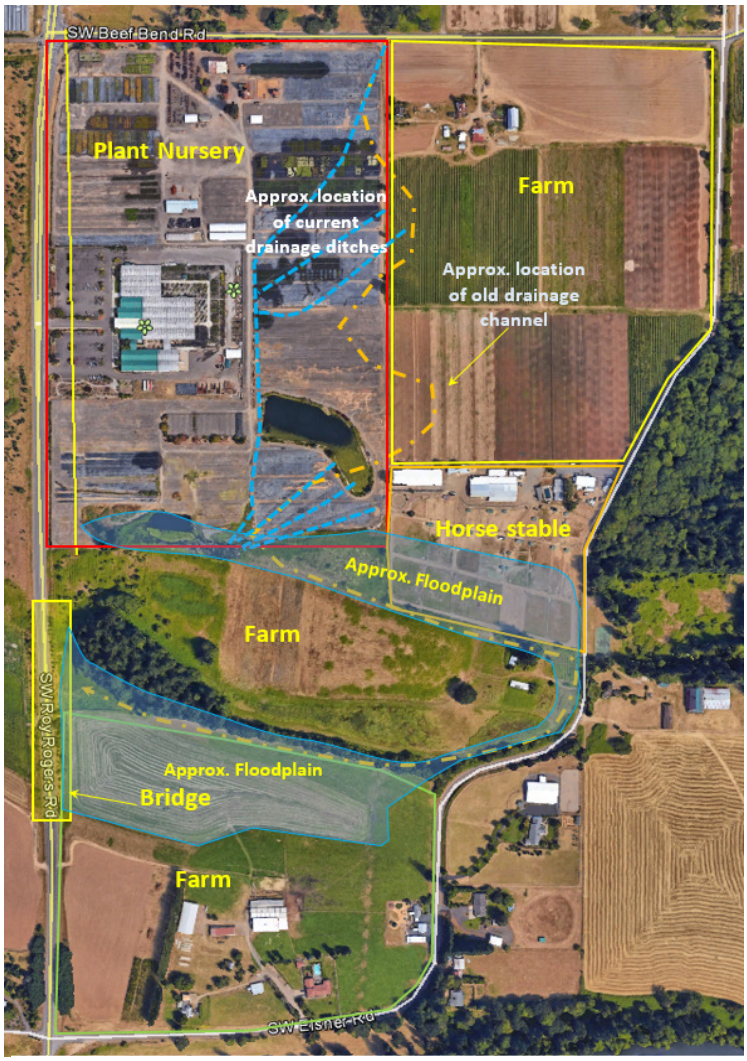

Figure 6. West Sub-Area Conditions

4.4 Riparian Corridors; Wetlands, Wildlife Habitat Resources

4.4.1 Tualatin River Watershed and Wetlands

King City lies in the southern portion of the greater Tualatin River Watershed, which covers over 700 miles and lays southwest of the Portland metropolitan area. The watershed initiates in the Oregon Coast Range and extends approximately 83 miles southeast where it merges into the Willamette River system. King City is in the Rock Creek Sub-basin, along the banks of the Tualatin River.

There are 6 major sub-basins in the greater Tualatin watershed: Upper Tualatin-Skoggins; Middle Tualatin; Lower Tualatin; Gales; Dairy-McKay; and Rock Sub-basins (see Figure 4). King City is located

the Lower Tualatin Basin – the last basin before the Tualatin River merges with the Willamette River, about 12 to 14 miles to the east of King City. In the King City area, there are two minor sub-basins: Chicken Creek, which flows into the Tualatin River along the south side of the URA, and Saum Creek, which is downstream to the east, and so does not affect the URA (Figure 7).

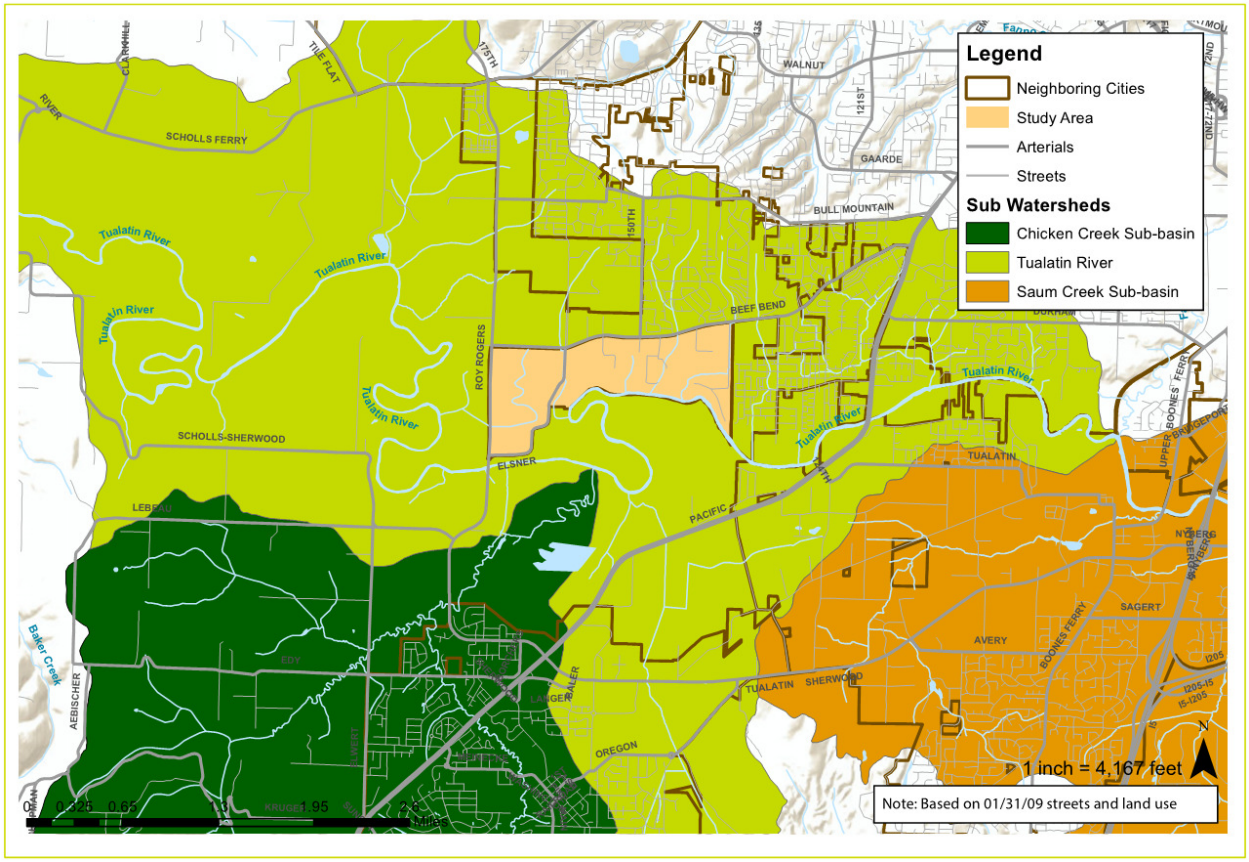

Figure 7. Sub-basins in the King City URA Area

The Lower Tualatin basin downstream of the URA is densely urbanized, but still includes some farmlands along the river, mostly in floodplain areas. The upstream basin is mostly in farmland.

The Tualatin River meanders around the southern edge of the URA, in an incised channel between farm fields. The standard buffer ranges from 125 to 200 feet dependent on the slope of uplands adjacent to the river. Mitigation would be required for minor encroachment but major encroachment would not be permitted. The river surface is at about 110 feet in elevation in summer months; the adjacent floodplain in the southern portion of the study area is about 10 feet higher. Total width of the vegetated (trees and shrubs) riparian corridor ranges about 300 feet, with the main flow channel being about 120 feet wide. Wetlands in this area are mostly farmed, ditched, and drained to varying degrees, although there are some protected areas that remain in natural vegetation, mostly on the southern side of the river.

Anadromous and resident fish habitat in these farmed portions of the slow-moving Tualatin not high quality, due to lack of large woody debris, lack of clean spawning gravels, lack of rearing and overwintering habitat (side channels) and high water temperatures (from lack of stream-side vegetation). However, Coho salmon, and cutthroat trout, and other resident fish are documented as being present in certain areas of the Tualatin River.

Aside from the National Wetland Inventory and information that can be gleaned from local Soil Survey maps (provided below), there is no local wetland inventory of the area. NWI maps indicate only a few small wetlands are in the URA, mostly associated with floodplain areas (Figure 8). However, there may be wetlands associated with the drainages, or on broad flat terrace surfaces where drainage is limited.

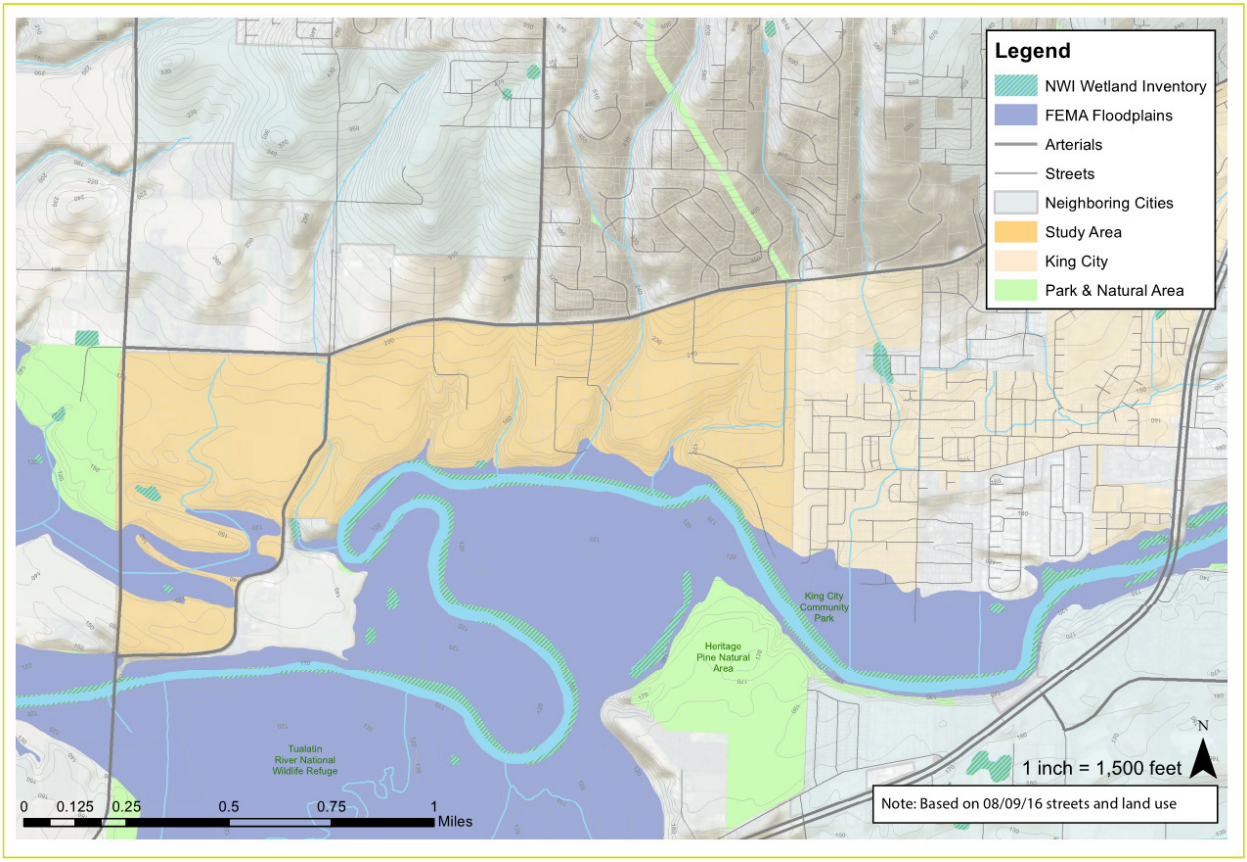

Figure 8. National Wetland Inventory Maps and FEMA 100-year Floodplain Maps

4.4.2 NRCS Soil Survey

The local Soil Survey can be used to evaluate potential for wetland conditions, or shallow groundwater by identifying Hydric Soils (sols typically found in wetlands) and those with shallow water tables. There are 13 soil series mapped in the URA planning area, some with 2 to 4 different slope classes (Figure 9, and Table 1). Most represent some form of silty floodplain soil, but also reflect proximity to the more clay dominated foothills to the west.

The flatter floodplain soils in the Willamette Valley are formed in sediments that were deposited during the last Ice Age – 10,000 to 100,000 years before present. These floodplain deposits were carried in hundreds of catastrophic floods that flowed periodically across eastern Washington and down the Columbia River from a glacial lake in near what is now Missoula, Montana. Water from the floods ponded in the Willamette Valley as far south as Eugene, depositing many feet of sediment on the valley floor. Soils from these floods near the Columbia River are sand dominated, but most of the floodplain deposits between Portland and Corvallis are silt loams.

Soils farther west, in the foothills of the Coast Range, are much older – having formed in place for hundreds of thousands of years. Thus, the foothill soils are highly weathered and relatively stable kaolinite3 1:1 clay dominated. Some of those clays wash downstream along the Tualatin River and collect on terraces and in backwater areas; other smectite or montmorillonite 2:1 clays form in place, usually in low-lying areas. These clays can cause problems when building due to shrinking and swelling potential.

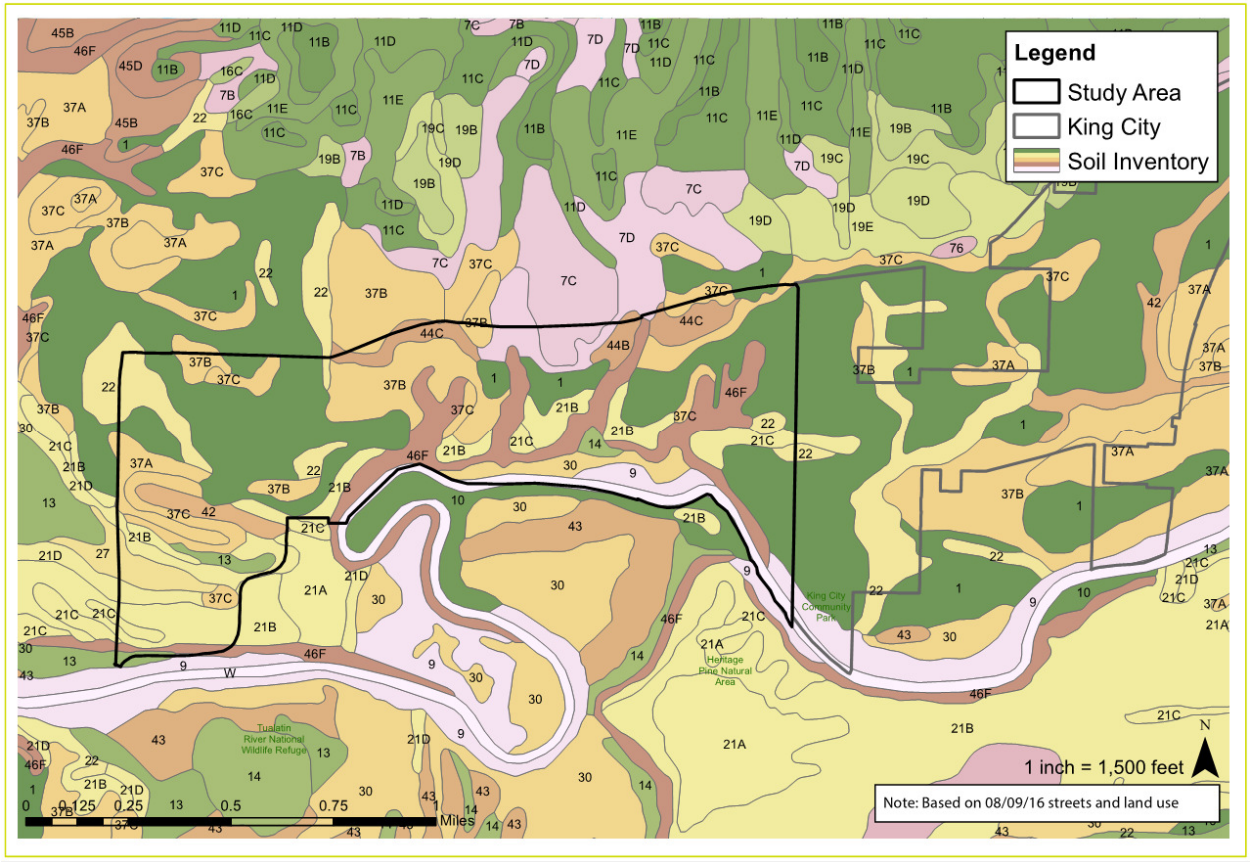

Figure 9. NRCS Soil Survey of the King City URA and Surrounding Area

The dominant soils types in the northern portions of the URA are the Aloha silt loams (SMU 1); the Cascade silt loams (SMU 7C, 7D); the Hillsboro loam (21A, 21B, 21C, 21D); and the Quatama loams (SMU 37a, 37B, 37C). These soils are all relatively fine-textured (silt-dominated), and the Aloha and Cascade soils in particular may have a shallow water table during winter months if not drained or managed properly. Erosion and sediment control during construction will be very important.

[3] Kaolinite clay is a 1:1 clay, very old and very stable; Smectite or montmorillonite clay is a 2:1 clay, younger and more active; will shrink and swell as it dries and wets.

Table 1. Soil Map Unit Names and Brief Descriptions

Map Unit Symbol	Soil Map Unit Name	Description	Hydric Soil (Y/N)
1	Aloha silt loam	Very deep, somewhat poorly drained soils that formed in mixed alluvium or lacustrine silts on river terraces. Somewhat poorly drained; slow runoff; moderately slow permeability. A perched water table is expected at 1-2 feet below the soil surface from December through April (unless drained).	Yes
7C, 7D	Cascade silt loam, 7-12% slope (7C), and 12-20% slope (7D)	Moderately deep to a fragipan [weakly cemented layer], somewhat poorly drained soils that formed in silty materials on uplands. Somewhat poorly drained; slow to rapid runoff; slow permeability.	No
9	Chehalis silt loam	Very deep, well drained soils that formed in silty/loamy mixed alluvium on nearly level to undulating flood plains. Well-drained; slow runoff; moderate permeability; flooding from November to April.	Yes
13, 14	Cove silty clay loam and Cove clay	Very deep, poorly and very poorly drained soils that formed in mixed alluvium from sedimentary and basic igneous rocks on flood plains. Smectite clays. Poorly and very poorly drained; slow to ponded runoff; very slow permeability; flooding occurs from December to April; high water table fluctuates at 0-1-foot depth below soil surface from December to June.	Yes
21A, 21B, 21C, 21D	Hillsboro loam, 0-3% (A), 3-7% (B), 7-12% (C), 12-20% slope (D)	Deep, well drained soils that formed in mixed alluvium on terraces. Well drained; slow to medium runoff; moderate permeability.	No
22	Huberly silt loam	Deep, poorly drained soils that formed in stratified glacio-lacustrine deposits on terraces. Poorly drained; slow to ponded runoff; slow permeability. Soils are saturated with water during the winter season unless artificially drained.	Yes
27	Labish mucky clay	Deep, poorly drained soils that formed in mixed alluvial and lacustrine material stratified with lenses of peat or muck on bottomlands. Smectite clays. Soils are saturated with water during the winter season unless artificially drained.	Yes
30	McBee silty clay loam	Very deep, moderately well drained soils that formed in alluvium weathered mostly from sedimentary and basic igneous bedrock on flood plains and low terraces. Moderately well drained; slow runoff; moderate permeability; on flood plains are subject to flooding from December to April. High water table at about 3-foot depth from December to March.	Yes
37A, 37B, 37C	Quatama loam, 0-3% (37A), 3-7% (37B), and 7-12% (37C) slopes	Deep, moderately well drained soils that formed in stratified glaciolacustrine deposits on low terraces. Moderately well drained; slow runoff; moderately slow permeability.	Yes (Huberly inclusions)
42	Verboort silty clay loam	Very deep, poorly drained soils that formed in loamy alluvium over silty and clayey glaciolacustrine deposits. Verboort soils are on narrow low terraces. Poorly drained; slow runoff; very slow permeability; Flooding from December to April. The profiles are usually saturated with water many months of the year unless drained.	Yes
44B, 44C	Willamette silt	Very deep, well drained soils that formed in silty glaciolacustrine	Yes

	loam, 3-7% (44B) and 7-12% (44C) slopes	deposits on broad valley terraces. Well drained; slow or medium runoff; moderately slow permeability. Seasonal water table at 40+ inches.	(Dayton inclusions)
46F	Xerochrepts and Haploxerolls, very steep	Steep side slopes on drainage ravines; no detailed soil profile description.	No

4.4.3 Wildlife Habitat – Streams, Wetlands and Tualatin River

As mentioned above, only a few small wetlands are mapped in the URA planning area. However, an inventory process consistent with Title 13 of the Metro Functional Plan which "combines Regionally Significant Riparian & Upland Wildlife habitat, Habitats of Concern, and impact areas into one integrated layer" provides a relatively robust map of local intact habitat and hydrography systems – rivers, streams and floodplains – which are expected to encompass most natural wetlands in the area (https://databasin.org/datasets/afdbf390255549418f26855af59b2f79). Some of the wetlands have been drained or are being farmed, so do not provide typical wetland functions and values. Figure 10 illustrates the riparian corridors and related floodplain and upland habitat in the vicinity of the King City URA.

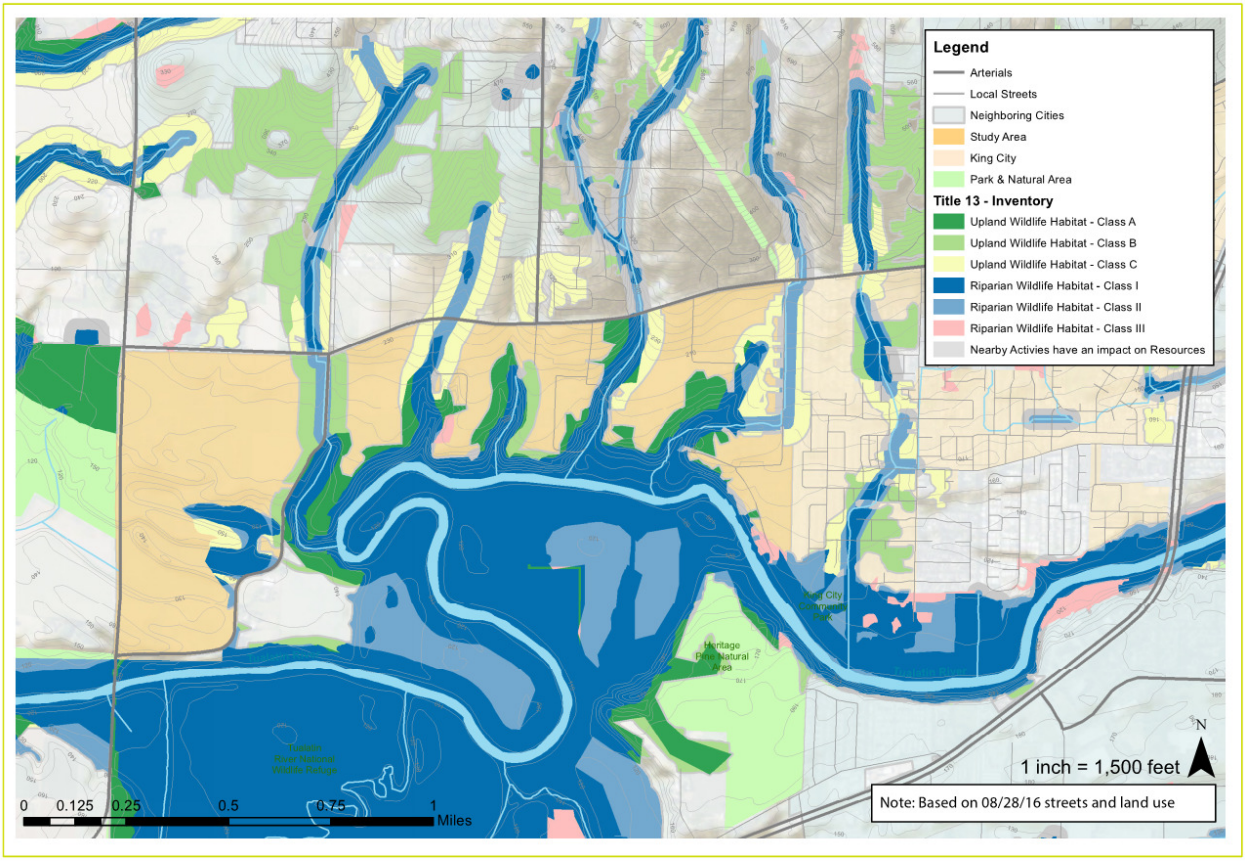

Figure 10. Riparian Corridors and Related Floodplain and Upland Habitat in the URA Project Area

The vegetated stream drainages across the site provide wildlife habitat corridors to the Tualatin River, and they also provide excellent opportunities for public trail systems, but make road development from east to west more challenging from the standpoint of both engineering and permitting.

4.4.4 Wastewater Treatment

Clean Water Services manages and operates the Durham Wastewater Treatment Facility that serves King City. This facility is located in the City of Tigard about 2-3 miles to the east of King City. This "state of the art" facility processes and cleans about 22 million gallons of wastewater per day, then either returns it to the Tualatin River after treatment, or provides water for local irrigation. The commercial nutrient recovery system in this facility captures 80 percent of the phosphorus in the waste stream and converts it into a slow-release fertilizer. The system also recovers fats, oils and grease from the waste stream and converts those materials into an alternative energy resource that provides for 60 percent of the power needed to run the plant. (https://www.cleanwaterservices.org/media/1225/durham-at-a-glance.pdf)

Conversion of the URA area from septic systems to CWS sanitary treatment systems will improve groundwater quality in the URA over time.

4.4.5 Stormwater Conveyance

There are no formal stormwater systems serving the URA at present, aside from some interior farm ditches and pond systems that ultimately direct runoff toward stream systems and the Tualatin River. However, stormwater runoff from offsite areas north of the URA is directed to the headwaters of three out of five drainages that cross the URA. As mentioned previously, a technical memorandum and associated technical report from October 2015 describes plans to manage stormwater runoff from the River Terrace area, which is located about a mile upstream and north of the King City URA. The report indicates that steep terrain and excess runoff from that densely urbanized area has resulted in destabilizing and downcutting the stream channels at several locations[4].

The memo describes two approaches intended to resolve the water quantity/quality control problem: a high flow bypass pipe, which would divert excess water from the stream and send the treated stormwater directly to the Tualatin River, and/or a stream channel rehabilitation project, which would rebuild stream structure in such a way as to increase storage and residence time. The proposed rehabilitation projects would potentially include sections of streams within the URA.

An Existing Conditions report attached to the Technical Memo provides descriptions and photographs of various stream reaches along what are called Tributary 8, Tributary 9 and Tributary 10 (T8, T9, and T10). Downstream reaches of these tributaries flow through the URA (Figure 11). Access was not allowed by adjacent landowners for certain sections of T8 and T9 streams within the URA (marked in red in Figure 11), but the rest of the reaches and all of T10 were directly assessed and photographed. Fish passage barriers were marked.

The report describes evidence of human impacts to the streams within the URA, such as old concrete foundations or woody remains of old dams; current dams with man-made ponds upstream of the dam structure; and many culverts. They also describe where these structures are not installed properly, such as a culvert under Elsner Road that is "perched 30 feet above the stream channel" with large rip rap at

[4] October 15, 2015, Otak Technical Memorandum to the City of Tigard, River Terrace High Flow Conveyance Alternatives

the outfall in the channel. Access to the lowest T9 reaches (Reaches 1, 2 and 3) adjacent to the Tualatin River was not allowed by adjacent landowners. However, Reach 4 of T9, which starts at Beef Bend Road and extends southward for about 600 feet, was described as having once been used to dump garbage from the surrounding area, with "bottles, machinery and plastics" clearly evident on incised ravine sidewalls. Reaches along T10 also included some evidence of alternations, including diversions into ponds; a slide-gate weir and several culverts.

The proposed stream restoration projects described in the Otak Technical memo would improve stream habitat and hydrology functions and would reduce water quality impacts to the Tualatin River.

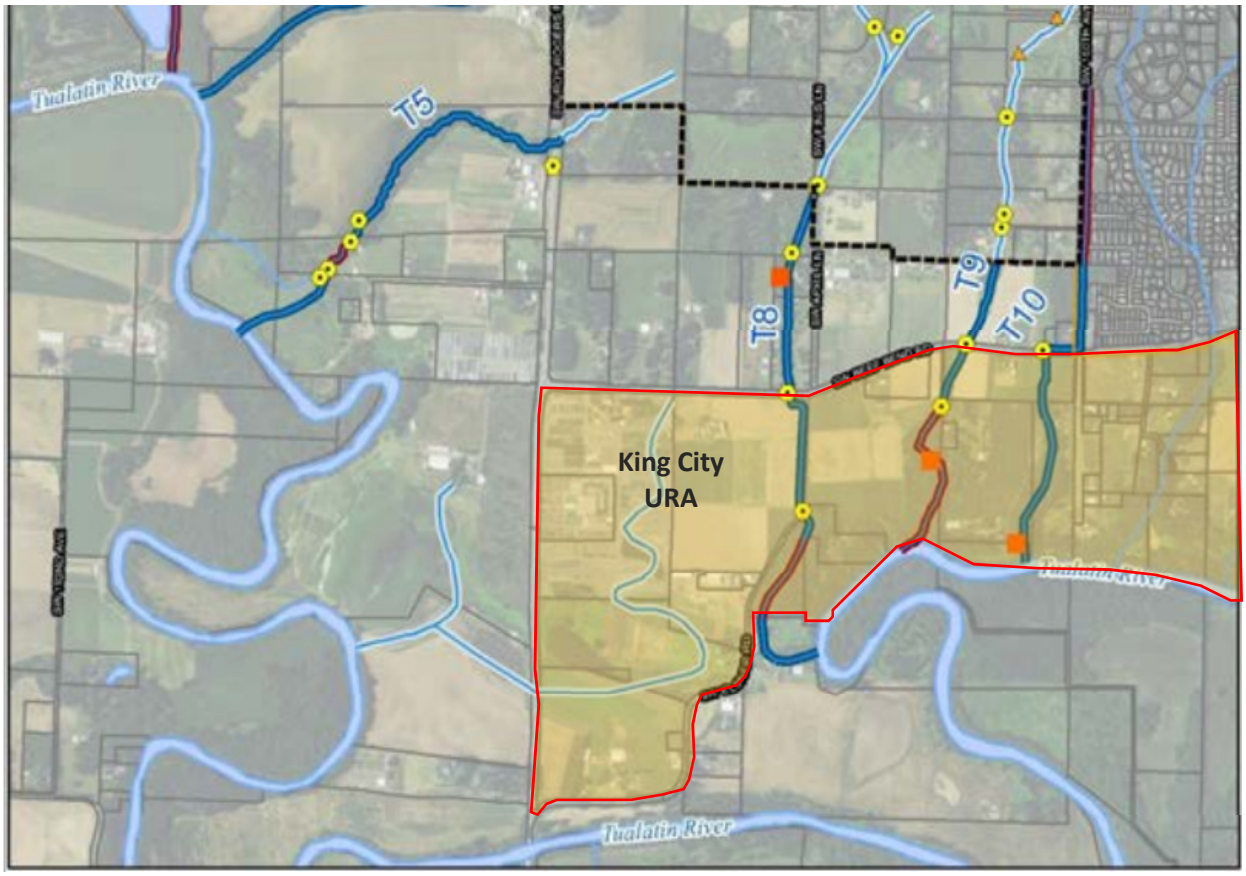

Figure 11. Adapted from Otak Technical Memorandum Figure 1, River Terrace RSA Stream Access

4.5 REGULATIONS: WETLANDS, STREAMS, WATER BODIES, WILDLIFE HABITAT

All streams, wetlands and associated ponds are potentially regulated by the U.S. Army Corps of Engineers (COE) and U.S. Environmental Protection Agency (EPA) under Sections 404 and 401 of the Clean Water Act. Under certain circumstances, the COE may not take jurisdiction over isolated wetlands and small ponds (with no surface water connection to streams). All jurisdictional[5] wetlands are also

[5] Jurisdictional wetlands are those areas that have been determined by a government agency to warrant regulation, based on presence of hydric soils, hydrophytic vegetation and wetland hydrology, as defined in the 1987 Wetland Delineation Manual, and in the 2010 Western Mountains, Valleys and Coast Regional Supplement, and as adopted and regulated under Oregon State Law.

regulated by the Oregon Department of State Lands (DSL[6]), which also makes determinations as to whether certain highly impacted areas that were once wetlands or streams may still be regulated at some level. Title 13 of Metro's Urban Growth Management Functional Plan regulation was adopted in 2005. This regulation requires that all cities and counties in the Metro area () the develop land use codes and policies that protect water quality and related fish and wildlife habitat, including for new lands incorporated into the Metro Urban Growth Boundary. Title 13 does not preclude development in these areas, but instead requires that certain measures be taken to mitigate or minimize impacts to habitat or water quality adjacent to development.

As mentioned above, it is possible that not all jurisdictional wetlands are known in the King City URA as no detailed wetland inventory has been carried out. Some wetlands in the area have been ditched and drained for farming to various degrees, and some of these areas are likely to be regulated as wetlands, depending on whether they were only partially drained versus have been effectively drained and no longer have wetland hydrology. Current state and federal laws provide descriptions and definitions of how a disturbed area is assessed for presence of wetland conditions; standardized processes and methodologies are used to determine whether a wetland is present.

Adoption of urban land use designations in the new planning areas may trigger application of the Goal 5 Administrative Rule, which requires local governments to conduct and adopt a local wetlands inventory, and to develop a list of locally significant wetlands (per rules described in ORS 197.279(3)(b)). A local wetland inventory will be needed for the URA. Jurisdictional wetlands not currently identified or inventoried will still be regulated under state and federal law. The city is also encouraged to develop land use codes protecting streams, water bodies, and wetland resources. New lands brought into the Urban Growth Boundary must protect Upland and Riparian habitat, per Title 13.

Clean Water Services (CWS) provides review and environmental service provider letters (SPL) for the City. This includes the review of vegetated corridors on streams and wetlands[7] through a Pre-screening Site Assessment process to assess whether there are sensitive areas (wetlands, lakes, ponds, springs, streams, or rivers) within 100 to 200 feet of a proposed development activity. Avoidance of direct impacts that may affect water quality is the primary goal of regulations. Unavoidable impacts to these resources may require additional reports, permitting and review processes. Consultants should review Chapter 3 of CWS Design and Construction standards for discussion on how to protect Natural Resources.

The City may also protect upland wildlife habitat or critical wildlife corridors through development of voluntary compliance programs or by formal designation of certain areas with high quality habitat, such as an area supporting an extensive and healthy native forest plant community. These areas may be designated as Significant Natural Resource Areas (SNRAs). SNRA protections processes or rules can incorporated into the planning process.

4.6 GROUNDWATER RESOURCES

The King City drinking water system is provided by the City of Tigard which has a new water source completed in the City of Lake Oswego – the Tigard Water Partnership Project. According to a 2015 technical memo provided by the City of Tigard[8], King City, Durham and the City of Tigard all fall within

[6] Oregon Wetland Regulations and Permits: http://www.oregon.gov/DSL/WW/Pages/Permits.aspx

[7] CWS guidance and links to regulations: http://www.cleanwaterservices.org/permits-development/step-by-step-process/environmental-review/

[8] http://www.tigard-or.gov/city_hall/departments/PublicWorks/Water/water_quality_report.pdf

the Tigard Water Service Area (TWSA). About 90 percent of the TWSA water supply is described as coming from three wholesale water providers: Portland Water Bureau (PWB), the Joint Water Commission (JWC) and the City of Lake Oswego.

The PWB manages the Bull Run Watershed (Mt. Hood area), and accesses the Columbia South Shore Well Field (Troutdale area) as a backup system. The JWC draws surface water from the Trask and Tualatin River watersheds via rivers or reservoirs. During the winter, the majority of raw water comes from the Tualatin River; during summer months, water supply is supplemented by drawing from Barney reservoir and Scoggins Reservoir (Hagg Lake). Lake Oswego withdraws water from the Clackamas River basin. They have a Clackamas River intake facility at Gladstone, near Oregon City. Water is treated and pumped to the Waluga Reservoir near Waluga Park, then to Tigard into the water supply system. All of the water from these three sources is filtered and chlorinated to ensure a safe drinking water supply.

The URA is not currently served by the City for drinking water. However, there are dozens of domestic wells in the area. Some are irrigation wells, but most serve primarily as a drinking water supply. GOAL 5 requires protection for a certain critical groundwater areas. King City and most of the URA fall within the Cooper/Bull Mountain Critical Ground Water Area – an area with a basalt aquifer that has experienced significant drawdown. Special restrictions help stabilize ground water levels in these areas.

Wells in the URA are only allowed for single family domestic and stock water purposes on 10 acres or more. Water for stock must be piped to tanks or troughs, and not allowed to overflow. In certain areas, domestic users may irrigate up to 1/4 acre of noncommercial lawn and garden, but in areas where water in the well has declined 20+ feet from the original static water level, no irrigation from the well is allowed. Water use cannot exceed one acre-foot (325,850 gallons) per year[9].

4.7 DESIGNATED OREGON RECREATION TRAILS RESOURCES

There are several planned and proposed connectors to regional trail systems in and around the King City URA (See Figure 12). The City of Tigard has a proposed park (Lasich property) located northwest of the intersection of Beef Bend Road and Roy Rogers Road, directly across from the northwest corner of the URA. The planned Westside Trail would run along the BPA powerline easement that forms the eastern boundary of the URA, and then loop around Bull Mountain to the north to connect with other secondary planned trails to the northwest and south along Roy Rogers Road. Connections would also be available to the proposed trail system in the recently approved River Terrace project which could substitute for or augment the steep portions of the Westside Trail north of Beef Bend Road.

There will also be opportunities to connect south to branches of the "Ice Age Tonquin Trail" that will lead to Sherwood and Wilsonville. Other locally planned trails include an extension of the Tualatin River Greenway from the east, which would follow the north shore of the Tualatin River through the King City URA, and continue offsite to the west, eventually connecting to the planned Reedville Trail. (http://www.oregonmetro.gov/sites/default/files/2014%20Regional%20Trails%20and%20Greenways%20publication_print.pdf)

These regional trail systems provide opportunities for long-distance bike rides, but also provide for local walking and running users. In addition to the trail systems, there are some existing opportunities for bicycling along the wide shoulders of Roy Rogers Road and there are some bike-friendly streets in the area north of Beef Bend Road and on lower volume streets within King City. Washington County is currently improving Fischer Road between 131st Avenue and Highway 99W to add bike lanes. There are

[9] http://www.co.washington.or.us/Watermaster/GroundWater/GroundWaterManagementAreas/cooper-bull-mountain.cfm

few other opportunities for comfortable bicycling within or near the URA as many streets carry higher volumes of traffic and operate at higher speeds. This situation not only increases the need for caution but also makes plans for completion of the connected regional trails systems even more important when carrying out long-range planning processes for the King City URA.

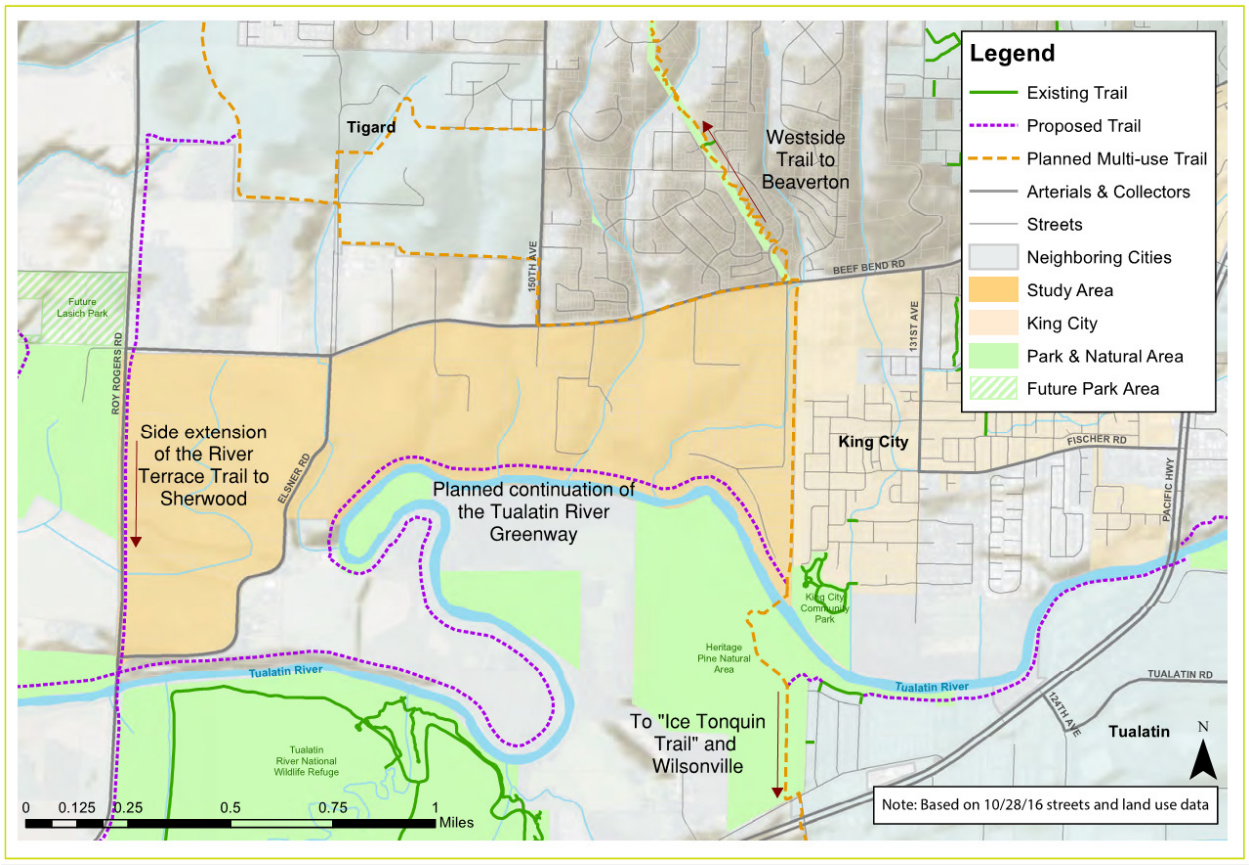

Figure 12. Existing, Proposed and Planned Trails in the URA 6D Vicinity

4.8 Open Space Resources

The King City URA has no internal parks, but the Tualatin River National Wildlife Refuge and the Heritage Pine Natural Area are directly across the river to the south. King City to the east has a 9-hole Golf Course in the northeast portion of the City (which may not be considered Open Space), and a 17-acre Community Park in the southwest corner of the City, near the Tualatin River, with a soccer field and playground. Figure 13 shows natural areas and parks that are located within and near to King City and the URA. This figure also illustrates locations with extensive natural tree canopy cover.

To expand and connect Open Space, Parks and Trails systems, the City could develop cooperative relationships with regional organizations and agencies outside of the City – such as the Intertwine Alliance (http://theintertwine.org/partners), and Metro and Washington County Parks. These and other similar organizations or adjacent Cities could be helpful in developing trail connections and other ideas for providing access to these nearby natural areas, most of which are currently unavailable due to being on the opposite side of the River.

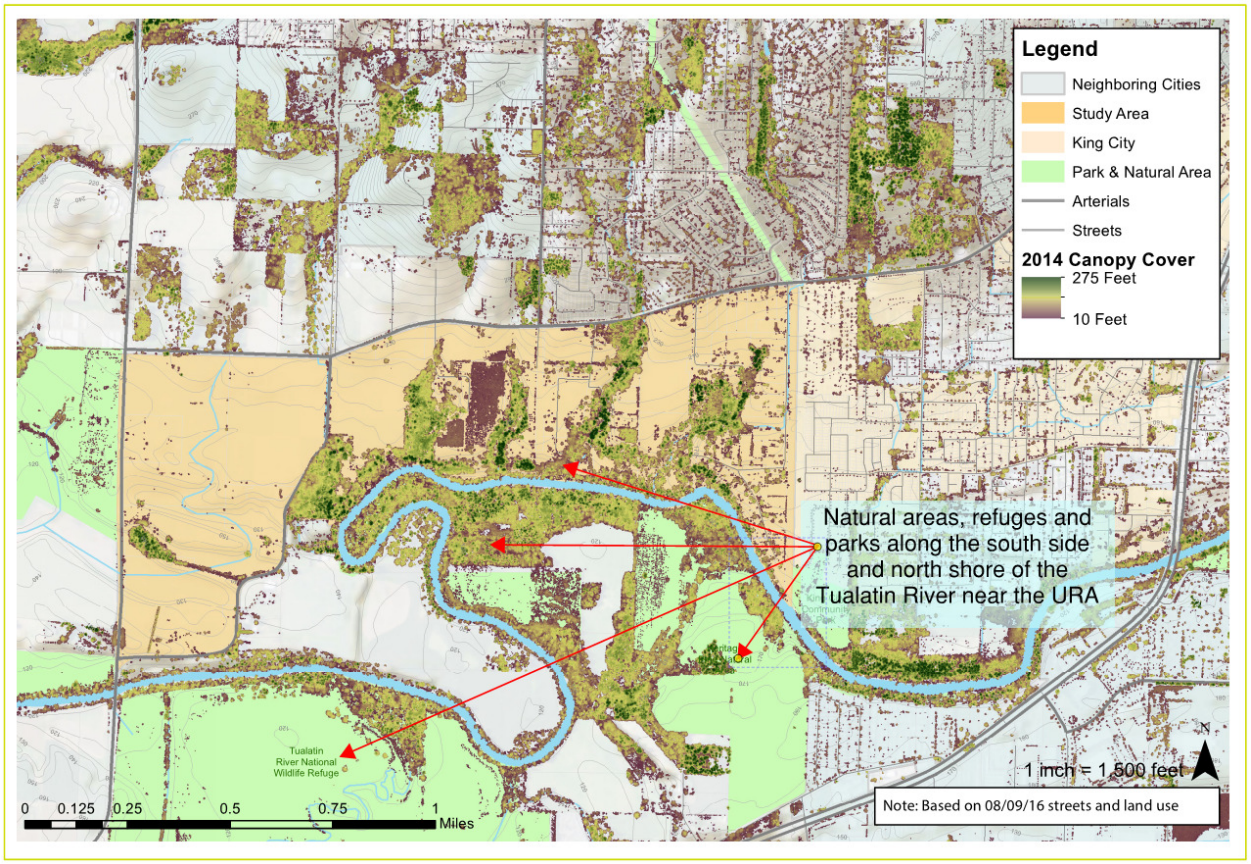

Figure 13. Naturally Vegetated Areas, Tualatin River National Wildlife Refuge, King City Community Park, Heritage Pine Natural Heritage area, and Open Space in and near King City

Information provided below is extracted from Metro's Portfolio of Natural Areas, Parks and Trails: Opportunities and Challenges: http://www.oregonmetro.gov/sites/default/files/portfolio_report.pdf. These areas are directly adjacent to or within the King City URA. Descriptions provided include the current organizations managing or planning for these nearby natural areas and preserves, providing opportunities for developing planning partnerships. For example, some sections of the Tualatin River are defined as a "water trail" system – an idea that might be adopted by King City along the naturally-vegetated section of the river south of the City.

The areas below can be linked together by trails. The nearest area, Map Location 21, is associated with the Tualatin River National Wildlife Refuge, located just across the river to the south, and connects to other areas upstream. Map location 14 is connected to the same natural areas south of the river, but is farther south, in the Chicken Creek basin, which flows into the Tualatin River through the refuge along the south side of the King City URA.

Tualatin River Washington County 400 acres | Map location 21 	The Tualatin River is home to an abundance of fish and wildlife. Washington County's only river is also important to human health – it provides drinking water to 200,000 homes and businesses. Metro's protected land includes potential river access points and property next to the Tualatin River Wildlife Refuge. At Gotter Prairie, restoration has transformed a farm field into a wetland with thousands of native trees, shrubs and plants.	**Nature parks and natural areas** While floodplain and riparian protection are critical, nature parks could be supported at five sites: Gotter, Munger, Farmington, Morand and Borland. Water access would be a key feature.	City of Tualatin Natural Resources Conservation Service Tualatin Riverkeepers U.S. Fish and Wildlife Service	Multiple sites protect Tualatin River water quality and wildlife through riparian, floodplain, forest and prairie restoration and provide potential river access. Metro Council directed natural areas staff to identify a river access site that will facilitate a water trail; additional acquisitions may present opportunities to expand on this project.
Lower Tualatin River headwaters Washington County 210 acres | Map location 14 	Flowing from the Chehalem Mountains, headwaters of the Tualatin River provide significant wildlife habitat and safeguard water quality. Though it traverses urban areas of Sherwood, Cedar Creek supports many fish. Chicken Creek provides wetland, riparian and upland habitat for migratory birds, endangered fish and other wildlife. And, nestled in forests of fir, maple, alder and cedar trees, Baker Creek is home to sensitive wildlife such as Northern red-legged frogs.	**Habitat preserves** Public access is not compatible with the goal of improving water quality in this target area.	Tualatin Riverkeepers U.S. Fish and Wildlife	This target area includes the headwaters of streams that feed the Tualatin River at the Tualatin River Wildlife Refuge. Acquisition is in early stages; future opportunities will depend on what land Metro can protect.
Tualatin River Water Trail **Tualatin River Greenway Trail** Tualatin, Durham, King City, Hillsboro, West Linn 	Someday, people will be able to explore the Tualatin River by boat, bike or foot on two sister trails: a greenway trail along the banks and a water trail in the river itself. Metro has acquired five sites along the river that could serve both trails, but none has been developed yet. Partners have built sections of the six-mile greenway trail in Browns Ferry Park and Cook Park, and developed nine launch sites for the 40-mile water trail.	310,000 trips in 2010 Metro Council directed natural areas staff to identify a river access site that will facilitate a water trail; additional acquisitions may present opportunities to expand on this project. Existing launch sites are at Rood Bridge Park, Eagle Landing, 99W Bridge, Jurgens Park, Cook Park, Tualatin Community Park, Browns Ferry Park and River Grove Boat Ramp.	Cities of Tualatin, West Linn, Tigard and Hillsboro Tualatin Riverkeepers Washington County	The water trail and the greenway trail will connect to the future Westside Trail and Tonquin Trail, where those two trails meet at the Tualatin River. The greenway trail will provide access to Brown's Ferry Park, Tualatin Community Park, Cook Park, Durham Park, Jurgens Park and the Tualatin River National Wildlife Refuge.

4.9 CULTURAL AREA RESOURCES

A search of the Oregon Historic Sites database indicates that only one property within the boundaries of the King City URA is listed on the National Register of Historic Places, the Gustave Plieth House at 16170 SW Beef Bend Road (Figure 13). The house was built in 1890, and a direct descendent of Mr. Plieth still owns the house. The historical record (Resource number 48387, Resource number 115/409) indicates that in addition to the house, there are several outbuildings that were constructed between the 1890s and 1940s: "*A small, older log framed barn is situated directly behind the residence. It has vertical plank siding and shed attachments. A pole barn, probably the oldest on the property, is to the east of the plank barn. A gambrel roof barn, lean-to, outhouse, shop, and storage building are other outbuildings on the property*."

Mr. Plieth was married to Ulrike Hildgendorf of West Point, Nebraska in 1889, after which they moved to Oregon and settled on this property – which was called the Hikland Land Claim. They had three children before Ulrike passed away in 1901. Gustav remarried to Anna Zwerer – a neighbor's daughter. They had one child – Fred, who still owns the property and lives nearby.

"*This farm complex is significant as an example of historical settlement in the county during the post frontier era. The number of outbuildings that remain intact adds support to the architectural merit of this resource*."

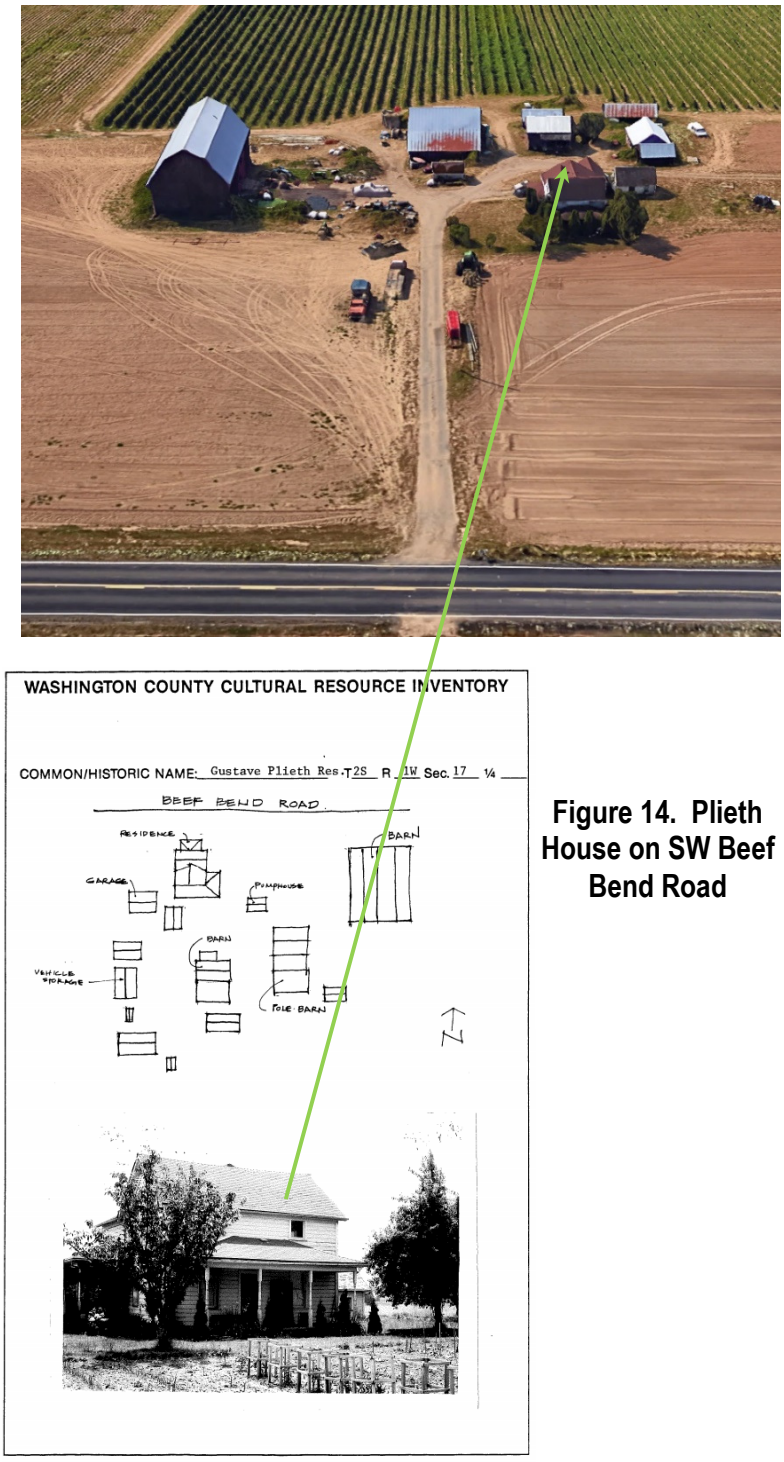

Figure 14. Plieth House on SW Beef Bend Road

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5. OPPORTUNITIES

5.1 WETLAND MAPPING

There is no current wetland inventory for the URA. However, soil maps indicate potential for wetlands in the URA, as well as redirected stream channels that may provide opportunities for mitigation or enhancement. A wetland inventory will help with planning and development, in that areas with problems due to shallow groundwater or regulatory challenges will be identified in advance.

5.2 SOIL MAPPING

The NRCS Soil Survey of the area is relatively high quality. However, more detailed, targeted mapping at key locations – such as at stream crossings, or in ditched and drained farmlands -- will help define areas with shallow groundwater and other limiting soil and hydrology characteristics that must be properly managed before detailed planning is carried out. This will also decrease the potential for later problems from erosion or poor sediment control.

5.3 POTENTIAL ECOLOGICAL PROTECTION & ENHANCEMENT OPPORTUNITIES WITHIN PLANNING AREA

This review of project area resources helps in development of a list of potential opportunities to protect and improve natural resource conditions in the project planning area.

Potential Ecological Protection and Enhancement Opportunities in the URA include:

- The edge of the Tualatin River and several of the north to south drainage ravines within the URA are already naturally forested with some trees almost 300 feet tall. These areas provide opportunities for a public trail system as well as improved wildlife habitat and water quality treatment.
- Per recent reports, some of the drainages in the URA are damaged and incised from excessive runoff emanating from densely developed areas offsite to the north. Stream restoration projects planned in cooperation with regional stormwater management plans currently in the works would improve water quality in the Tualatin River, and would improve habitat functions within the URA.
- Maintaining and improving deep-rooted native vegetation in areas with steep slopes (such as the drainage ravines) will minimize or avoid erosion and sediment problems. Steep slopes near sensitive areas that are not currently vegetated can be replanted with deep-rooted native vegetation to reduce erosion problems and provide for habitat connections.
- Provision and protection of a fully vegetated buffer area ranging from 125 to 200 feet wide (dependent on the slope of uplands) adjacent to the Tualatin River will greatly enhance river habitat functions and water quality.
- Development of the Plieth Historic Home site into a new park or special events facility will provide a connection to the history of the King City area.
- Promoting voluntary conservation measures and integration of built and natural systems to enhance habitat will integrate citizens into the plan to protect water quality and sensitive areas in the URA.

5.3.1 General Opportunities

- Provide for a Wetland and Stream Inventory using current definitions and mapping processes.
- Blend storm water management with natural systems (using constructed wetlands or planted buffers adjacent to natural systems to improve water quality and wildlife habitat opportunities).
- Remove invasive plants throughout City riparian and wetland areas to minimize invasive growth, reduce stream bank erosion and improve wildlife habitat.

6. REFERENCES

City of King City website (http://www.ci.king-city.or.us/) for additional information on regulations, parks, and related plans.

City of Tigard Water Quality Report: http://www.tigard-or.gov/city_hall/departments/PublicWorks/Water/water_quality_report.pdf

Clean Water Services: (https://www.cleanwaterservices.org/); https://www.cleanwaterservices.org/media/1225/durham-at-a-glance.pdf

National Wetland Inventory Mapper (http://www.fws.gov/wetlands/data/mapper.HTML)

NRCS Soil Survey of Washington County: https://casoilresource.lawr.ucdavis.edu/gmap/ ; http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Oregon State Department of Environmental Quality, Drinking Water Program, which provides information on the King City water supply system, served through the City of Tigard: (http://www.tigard-or.gov/city_hall/departments/PublicWorks/Water/water_quality_report.pdf)

Oregon Department of Land Conservation and Development GOAL 5 regulations (OAR 660-015-0000(5) and guidelines were reviewed to ensure that this report provided adequate discussion on GOAL 5 resource assessment requirements. http://www.oregon.gov/LCD/docs/goals/goal5.pdf

Oregon Dept. of Fish & Wildlife (http://www.dfw.state.or.us/)

Oregon Plan for Salmon & Watersheds (http://www.oregon.gov/OPSW/pages/index.aspx)

Title 13 Inventory, Portland Metro Region, Oregon: https://databasin.org/datasets/afdbf390255549418f26855af59b2f79

Tualatin Basin Water Supply Project: http://www.tualatinbasinwatersupply.org/about/)

Tualatin River Watershed Council website provides several resource maps as well as excellent description of the Tualatin Basin watershed (http://trwc.org/tualatin-basin-information/)

Tualatin River Watershed Council map gallery: http://trwc.org/tualatin-basin-information/

Washington County NRCS Soil Survey (online version: WEB Soil Survey (http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx)

Google Earth historic timeline aerial photos of the project areas

Washington County Watermaster information about King City water supply: http://www.co.washington.or.us/Watermaster/GroundWater/GroundWaterManagementAreas/cooper-bull-mountain.cfm

Metro Regional Trail Planning:
http://www.oregonmetro.gov/sites/default/files/2014%20Regional%20Trails%20and%20Greenways%20publication_print.pdf;

Metro's Portfolio of Natural Areas, Parks and Trails: Opportunities and Challenges:
http://www.oregonmetro.gov/sites/default/files/portfolio_report.pdf

Transportation Baseline Report

King City URA 6D Concept Plan
King City, Oregon



FINAL
March 2017

SCJ ALLIANCE
CONSULTING SERVICES

Final Transportation Baseline Report

Project Information

Project:	**King City URA 6D Concept Plan**
Prepared for:	**Urbsworks** 3845 SW Condor Avenue Portland, Oregon 97239

Reviewing Agency

Jurisdiction:	King City City Hall 15300 SW 116th Avenue King City, Oregon 97224

Project Representative

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Project Reference:	SCJ 1854.01 Path: N:\Projects\1854 Urbsworks\1854.01 King City Concept Plan\Task 02 - Base Conditions Research\03-Transp\2017-03 Final\Final King City Transp Baseline.docx

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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 131st 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

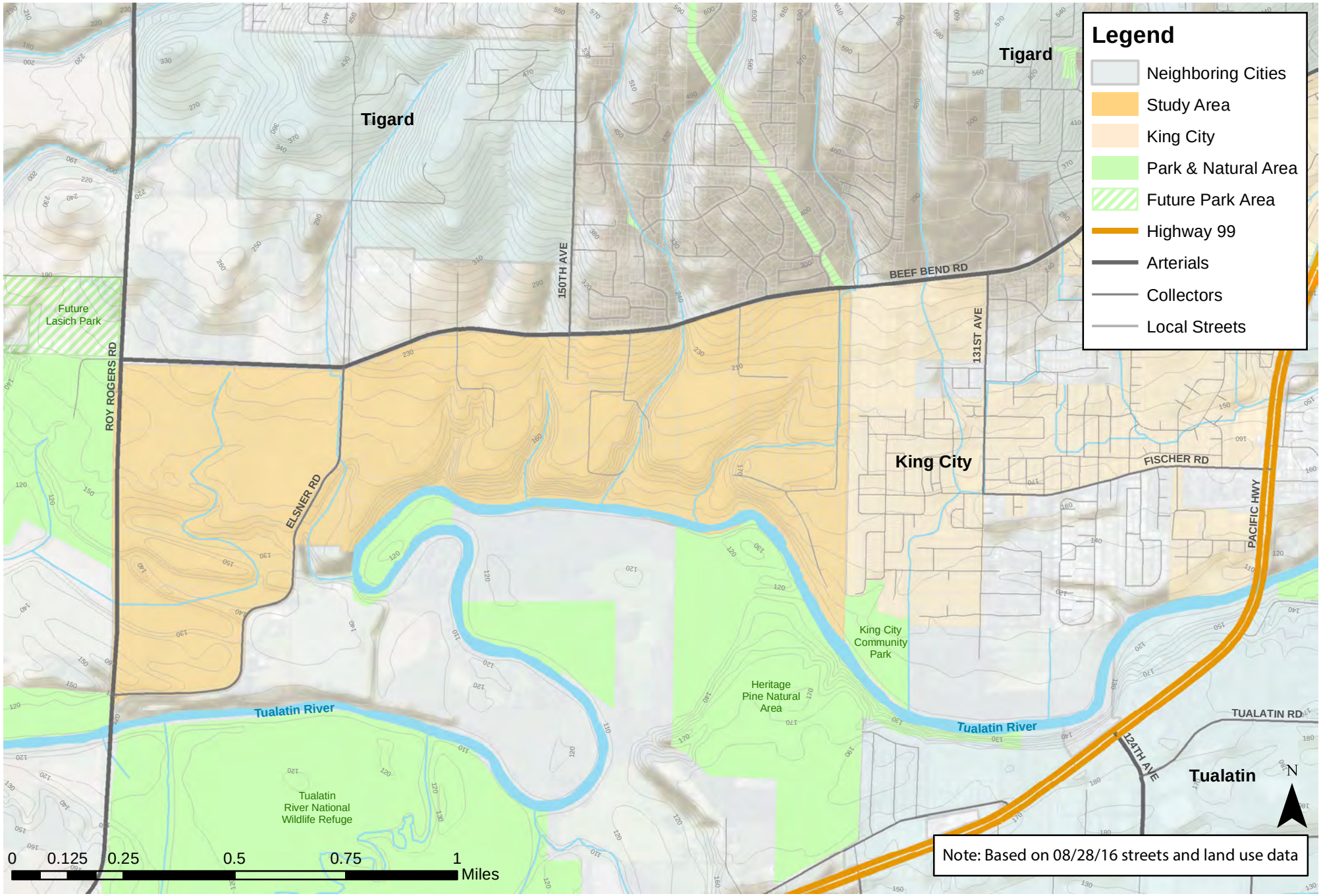

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Figure 1-1

King City Urban Reserve Area & Vicinity

King City URA Concept Plan

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.

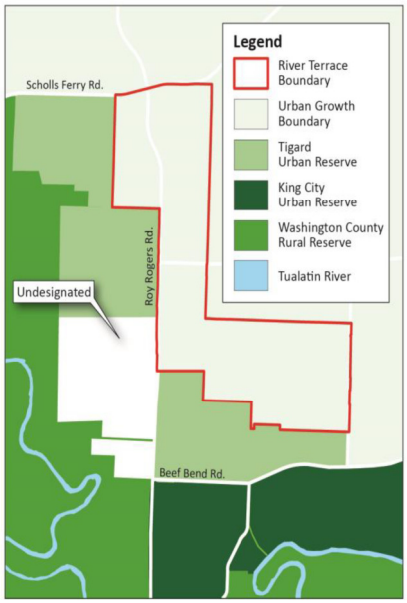
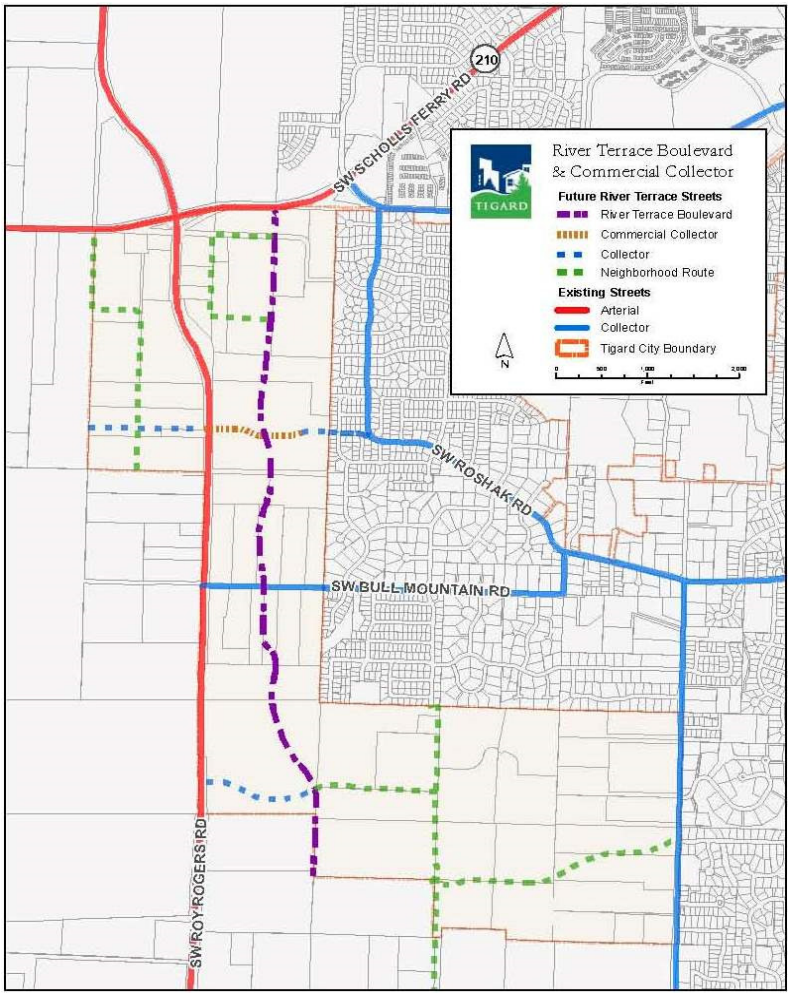


Figure 2-1. River Terrace Boundary

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**.

Figure 2-2. River Terrace Proposed Street System



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.

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.

Goal 1:	***Safety - Provide a safe transportation system for all users.***

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 neighbor-hood 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, 131st Avenue on the east, the Tualatin River on the south, and the BPA power alignment east of 137th 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.

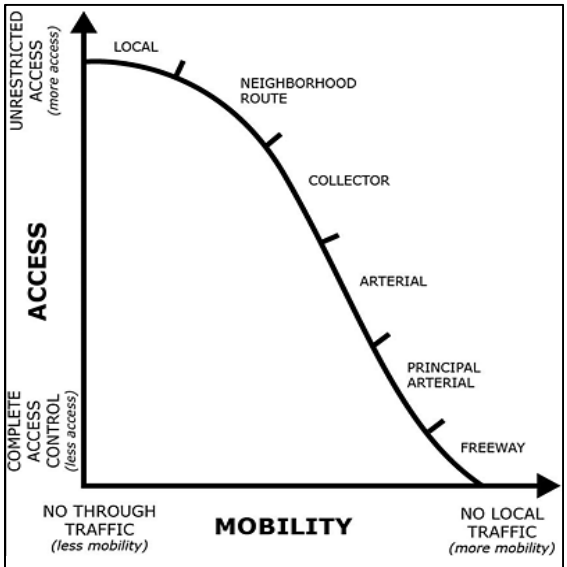


Figure 4-1. Relationship between Functional Classification, Mobility and Access

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
150th Avenue	--	Collector	2
146th Avenue	--	N'hood Route	2
131st Avenue north of Fischer Road	Collector	Collector	2
131st Avenue south of Fischer Road	Collector	N'hood Route	2
Fischer Road east of 131st 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
150th Avenue	Washington County	Other
146th Avenue	Washington County	Other
131st 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
150th Avenue	2	Yes	74 feet	50 feet
146th Avenue	2	No	60 feet	36 feet
131st Avenue north of Fischer Road	2	Yes	74 feet	50 feet
131st Avenue south of Fischer Road	2	No	60 feet	36 feet
Fischer Road east of 131st 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.

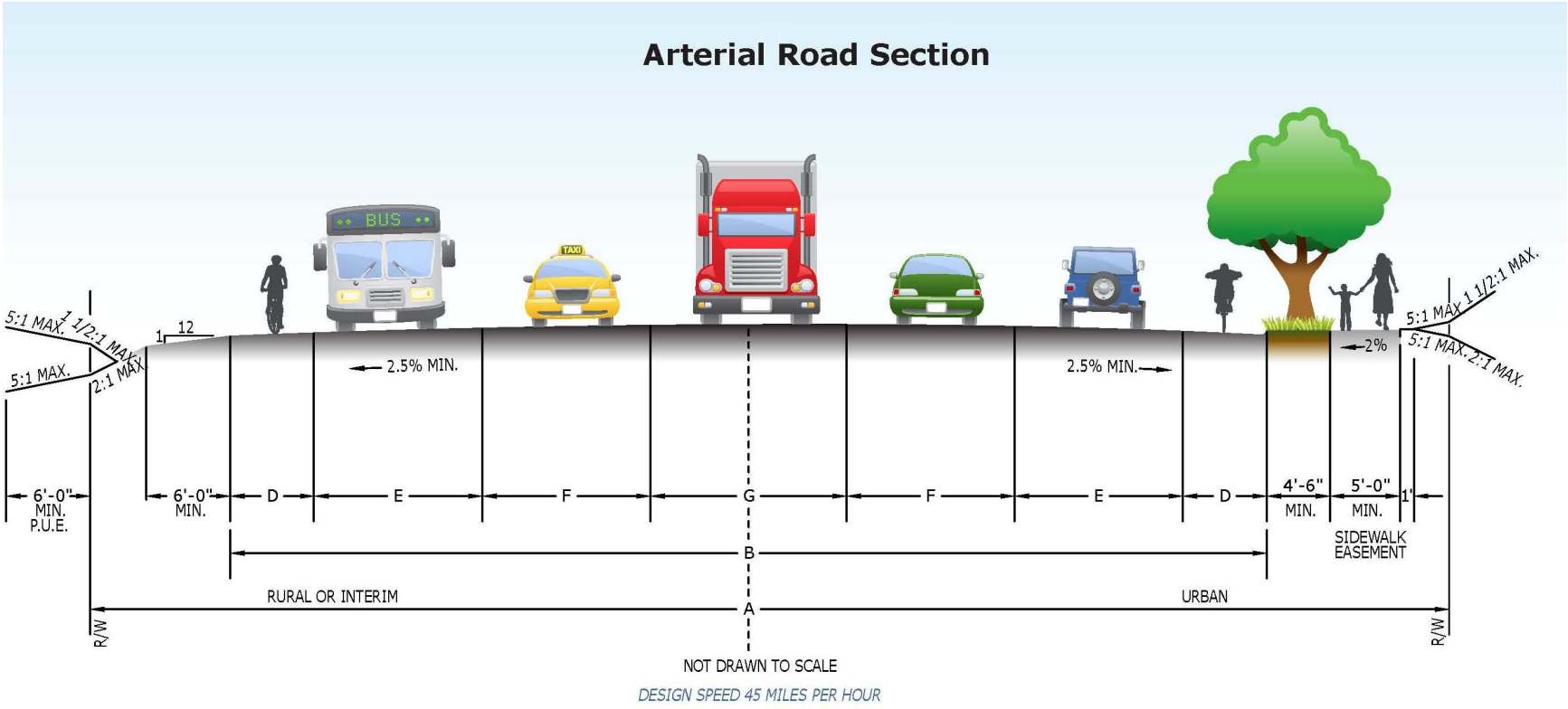
4.3.2 Local Street Connectivity

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 124th Avenue), El Dorado Drive/126th Avenue, and 131st 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 131st 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

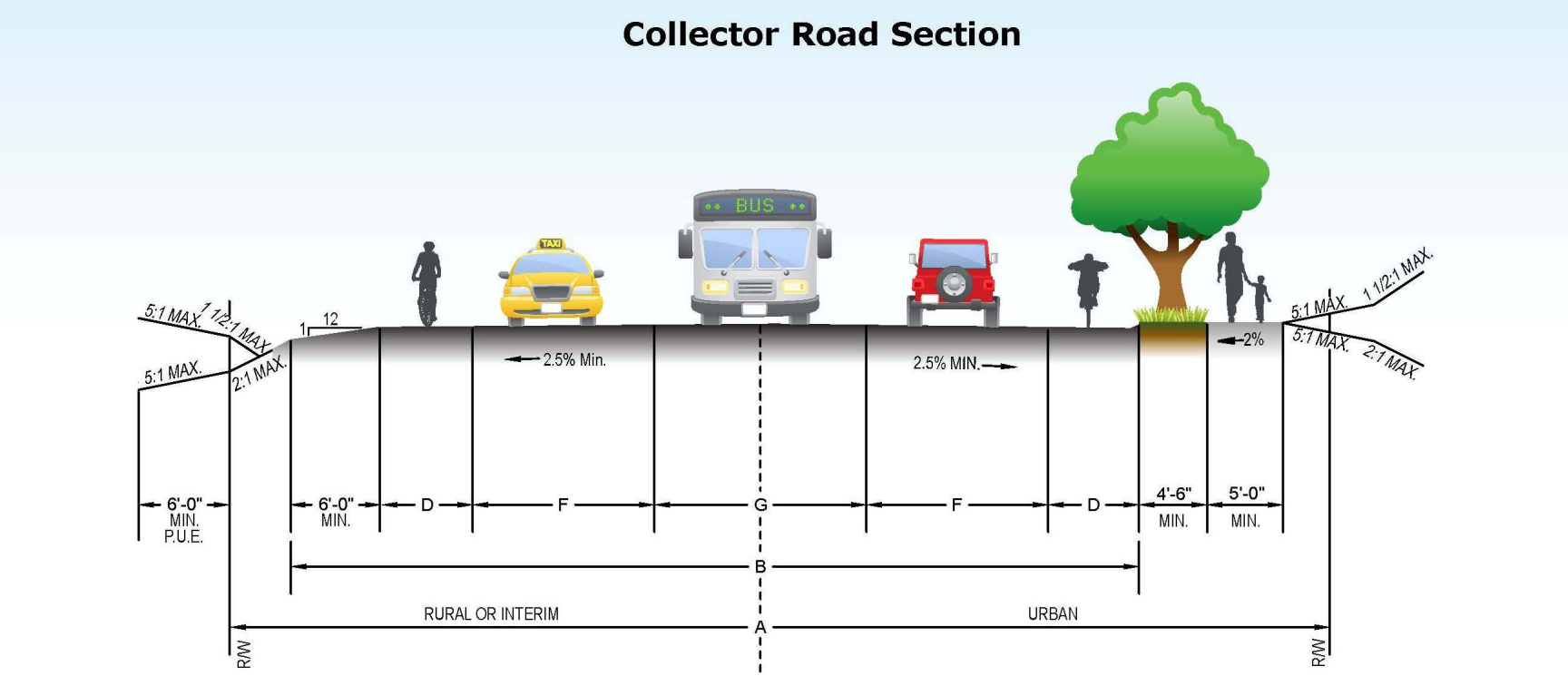


Road Classification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Number of Lanes	Bike Lane / Paved Shoulder	Curb Travel Lane	Travel Lane(s)	Center Turn Lane	Parking Allowed
		A	B		D	E	F	G	
Arterials	A-1	122	98	7	6	12 + 12	12	14	NONE
	A-2	98	74	5	6	12	12	14	NONE
	A-3	90	60 *‡	4	6	12	12	0	NONE
	A-4	90	50 *	3	6	0	12	14	NONE

*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

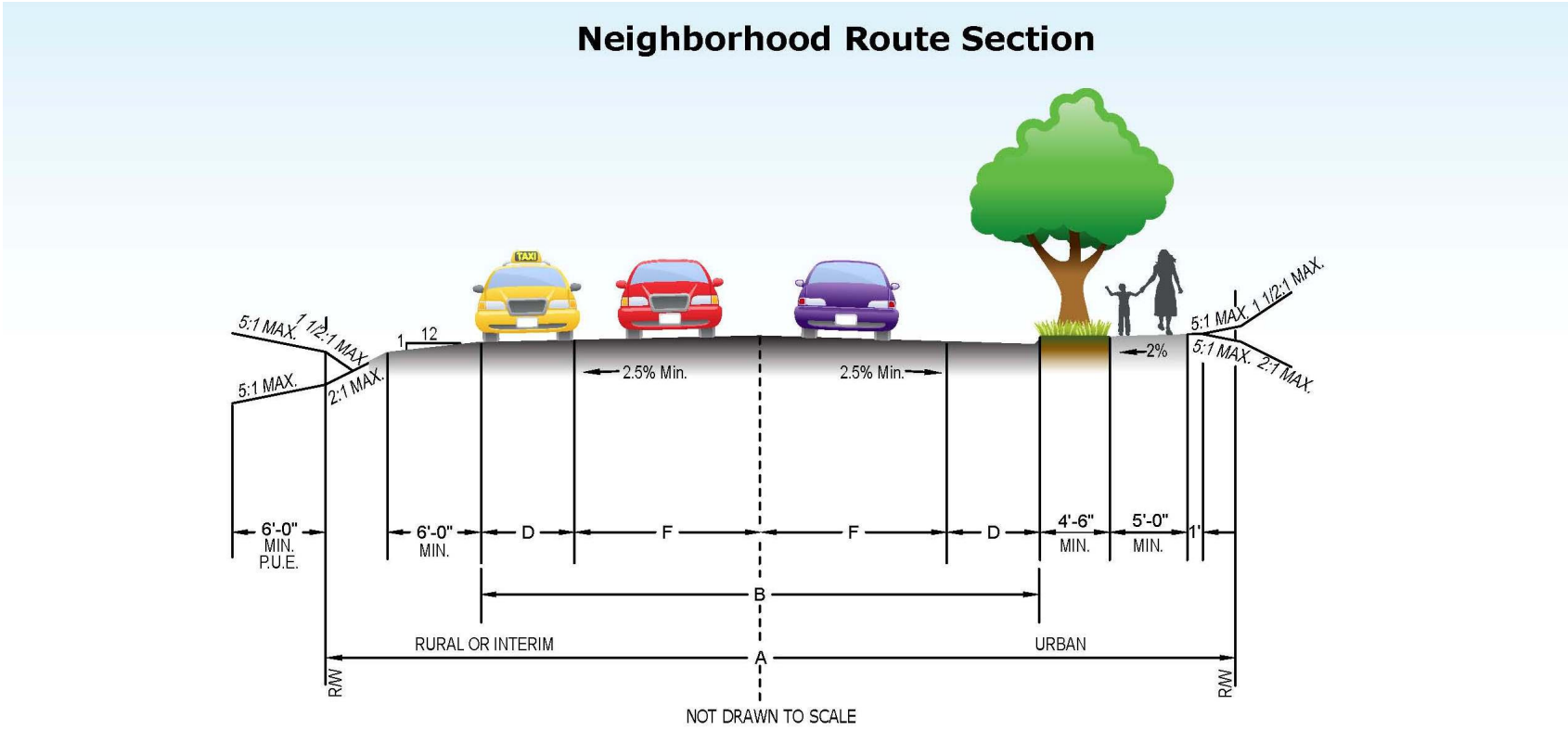


Road Classification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Number of Lanes	Bike Lane/ Paved Shoulder	Travel Lane	Center Turn Lane	Parking Allowed
		A	B		D	F	G	
Collectors	C-1	74	50	3	6	12	14	NONE
	C-2	**	36 *‡	2	6	12	0	NONE

*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

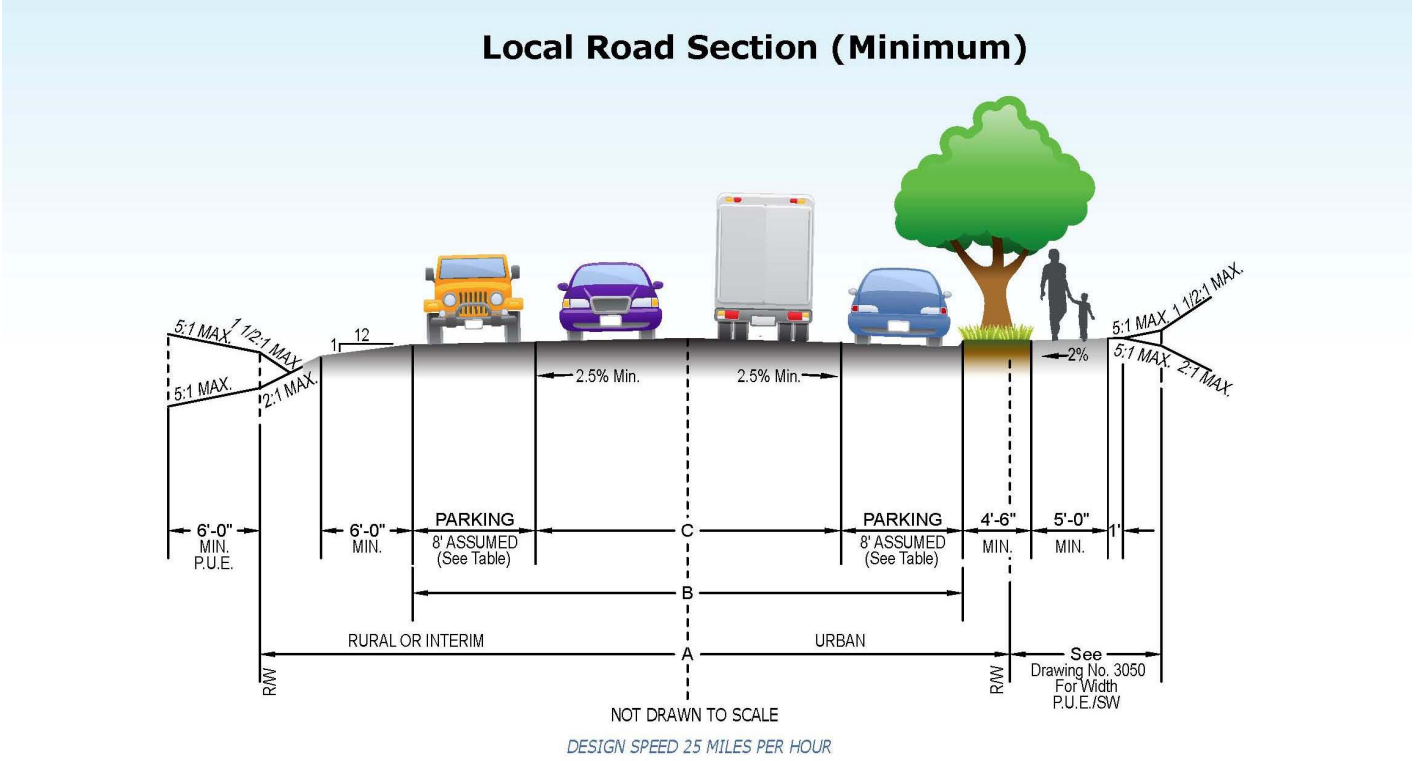


Road Clasification	Washington County Designation	Right of Way (Feet)	Paved Width (Feet)	Number of Lanes	Bike Lane	Parking Lane	Travel Lane(s)	Parking Allowed
		A	B		D	D	F	
Neighborhood Routes	NR-1	60	28*‡~	2	0	0	14	NONE
	NR-2	60	32*‡~	2	0	8	12	ONE SIDE
	NR-3	60	36	2	0	8	10	BOTH SIDES
	NR-4	60	36	2	6	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
		A	B	C	
Local Roads(Standard)	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)[1]	L-5	26	20	20	NONE

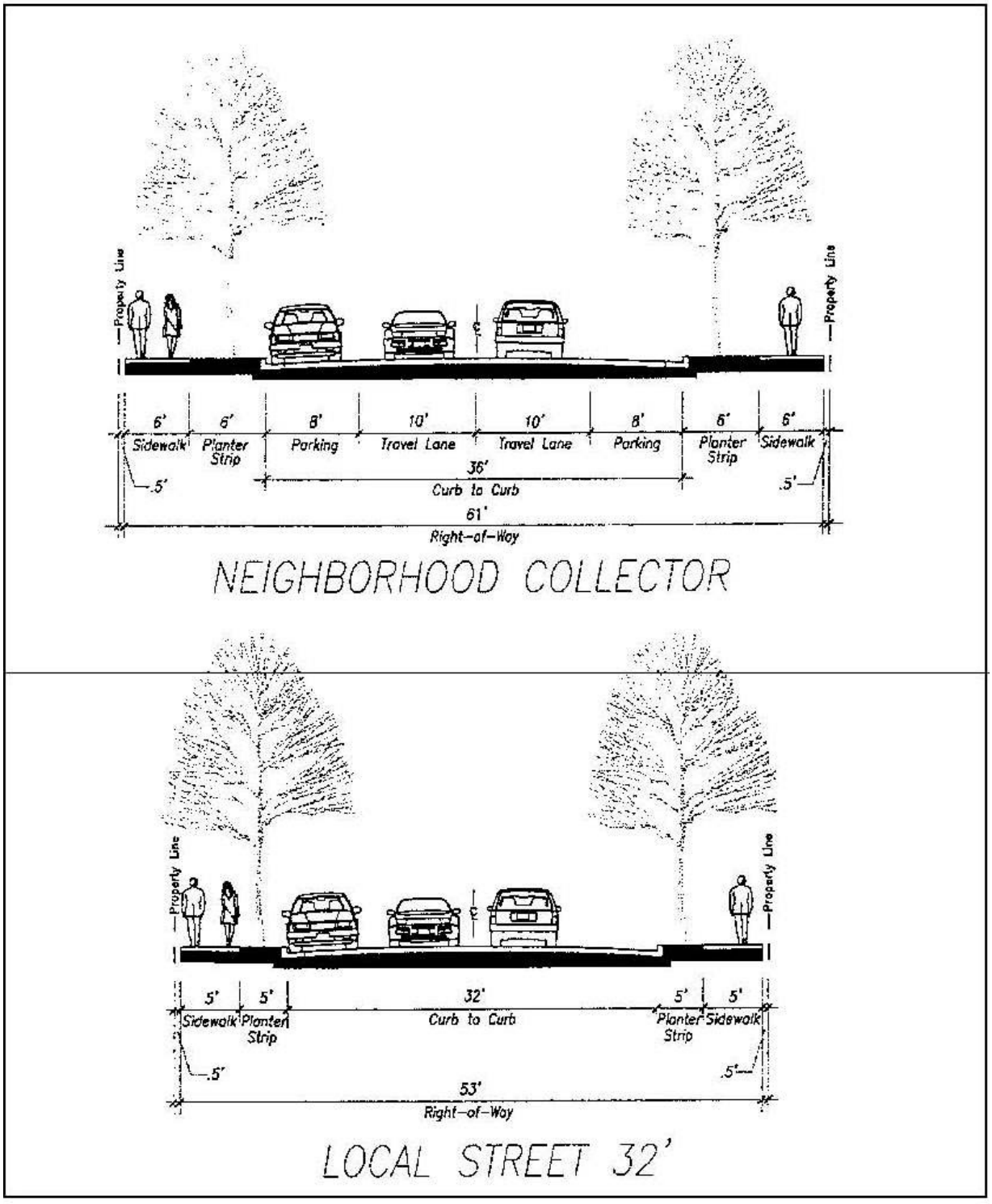
* GRAVEL SHOULDERS AND DITCHES ALLOWED FOR THESE WIDTHS ONLY. STANDARD INTERIM SECTION.

*** 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.

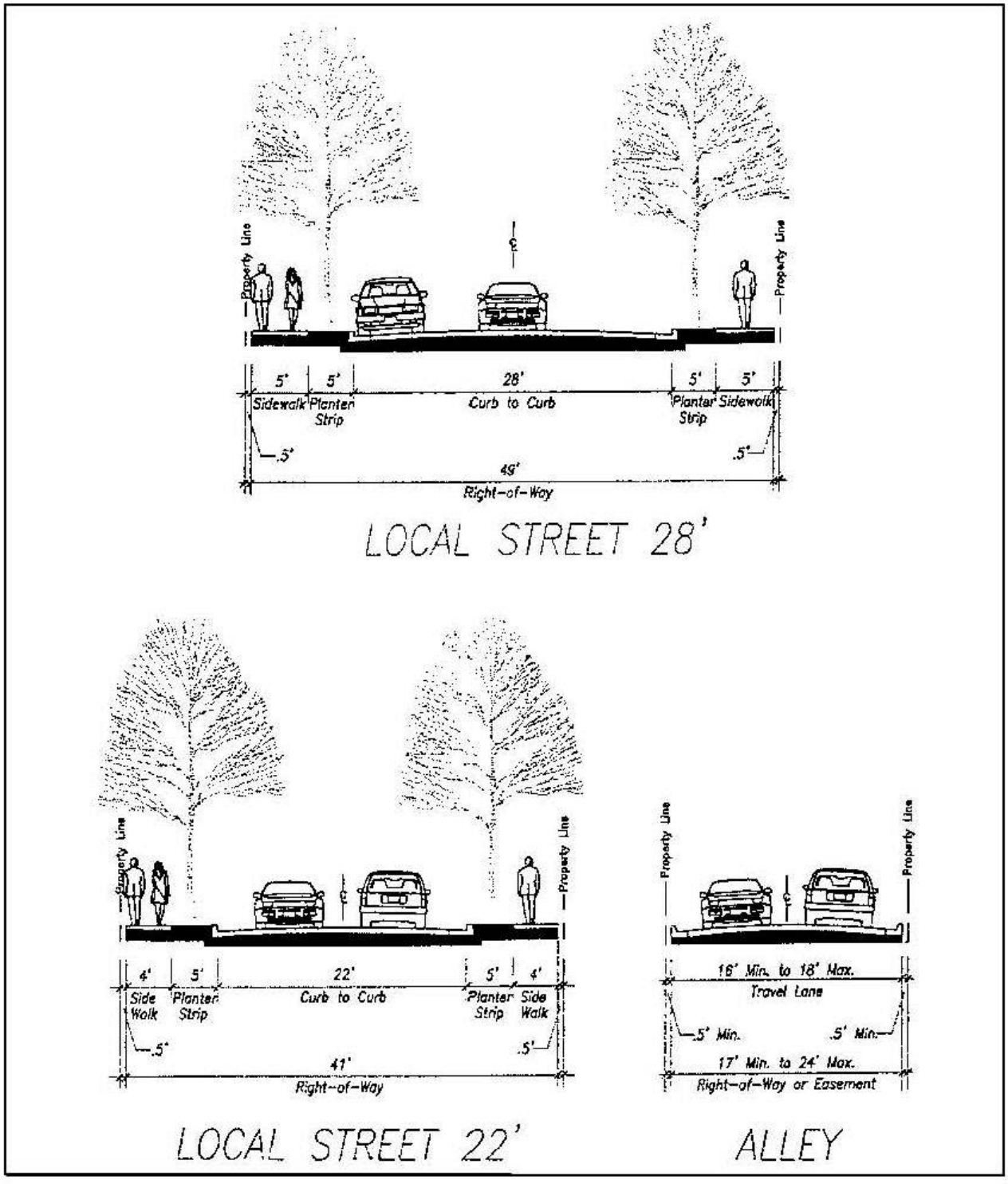
Figure 4-6. King City Neighborhood Collector and Local Street Cross-Sections



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 131st Avenue as the primary access route connecting the planning area to the remainder of the city. East of 131st 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 137th 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 137th 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 150th Avenue. There are sidewalks along the south side for portions of this road between 150th and east of 137th 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 131st 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.

150th 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, 150th 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.

137th 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 137th Avenue which creates a barrier between the existing King City limits and the URA. 137th 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:[1]

- *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).

[1] 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 131st 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 131st Avenue	67	Fair
	131st 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
- 150th Avenue – 40 mph north of Beef Bend Road, unposted to the south
- 137th Avenue – 25 mph south of Beef Bend Road
- 131st 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 124th Avenue, and 35 mph from 124th 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.[2] 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

[2] 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).[3] 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 131st Avenue
- OR 99W at Beef Bend Road, Durham Road, Fischer Road, 124th 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.

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

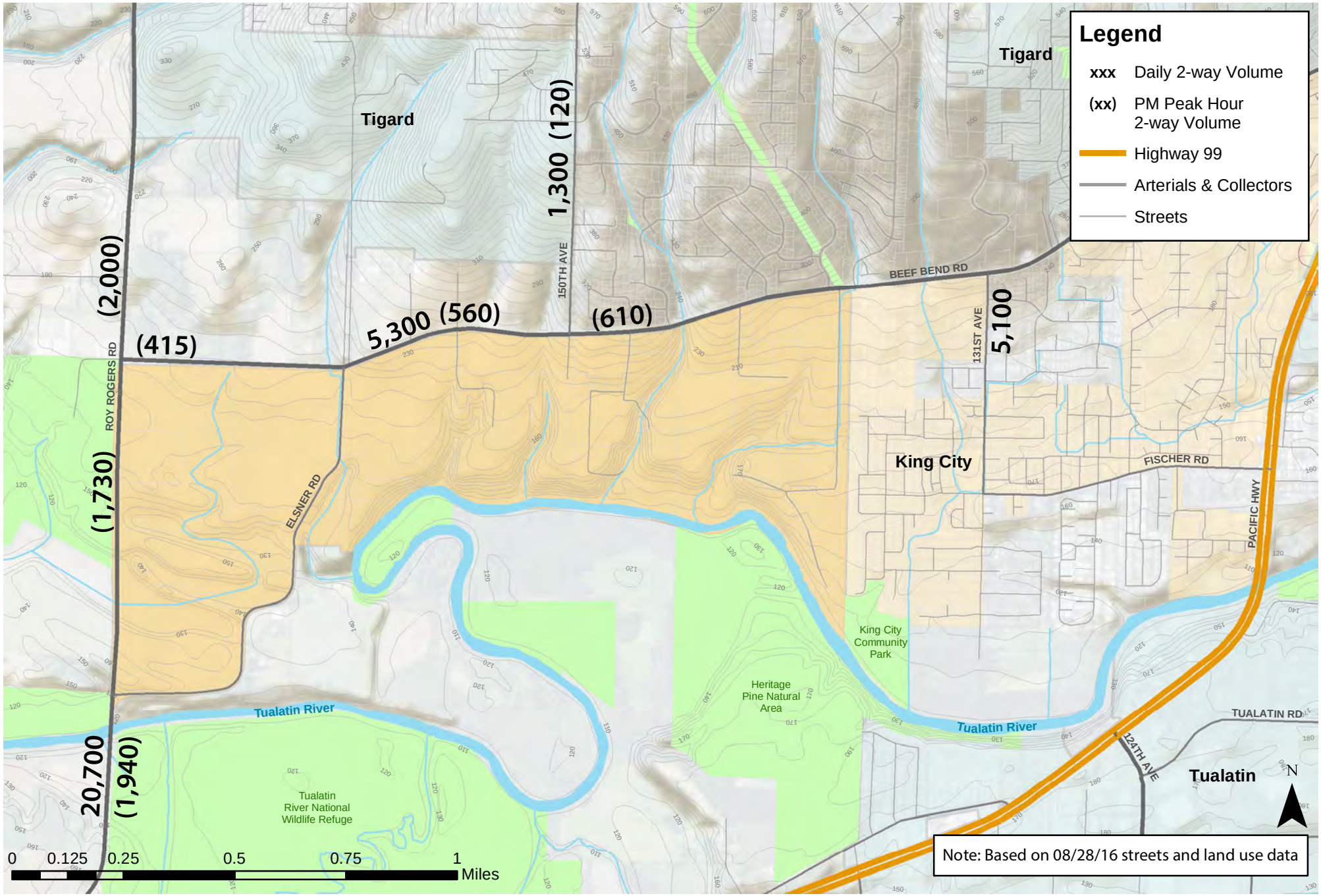


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Figure 4-8
Existing Traffic Volumes
King City URA Concept Plan

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

		PM Peak Hour		
Intersection	**Mobility Target**	**Volume/ Capacity**	**Avg Delay (sec.)**	**Level of Service**
Beef Bend Road @ Roy Rogers Road (signalized)[1]	v/c 0.90	0.78	17.5	B
Beef Bend Road @ Elsner Road (unsignalized)[2]	v/c 0.99	0.03	11.4	B
Beef Bend Road @ 150th Avenue (unsignalized)[2]	v/c 0.99	0.10	13.6	B
Highway 99 @ Beef Bend Road (signalized)[2]	v/c 0.99	0.85	27.2	C
Highway 99 @ Durham Road (signalized)[2]	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 147th 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

		Type of Crash						
Road	**Segment**	**Angle**	**Turn**	**Rear End**	**Side-swipe**	**Fixed Object**	**Other**	**Total Crashes**
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

		Severity of Crash			Total
Road	**Segment**	**Fatal**	**Injury**	**PDO**	**Crashes**
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, 150th 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 @ 150th Avenue	1	0.07	Turn
Beef Bend Road @ 147th Avenue	4	--	Turns
Beef Bend Road @ 146th 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 @ 124th 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 129th 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 137th Avenue and 150th 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.

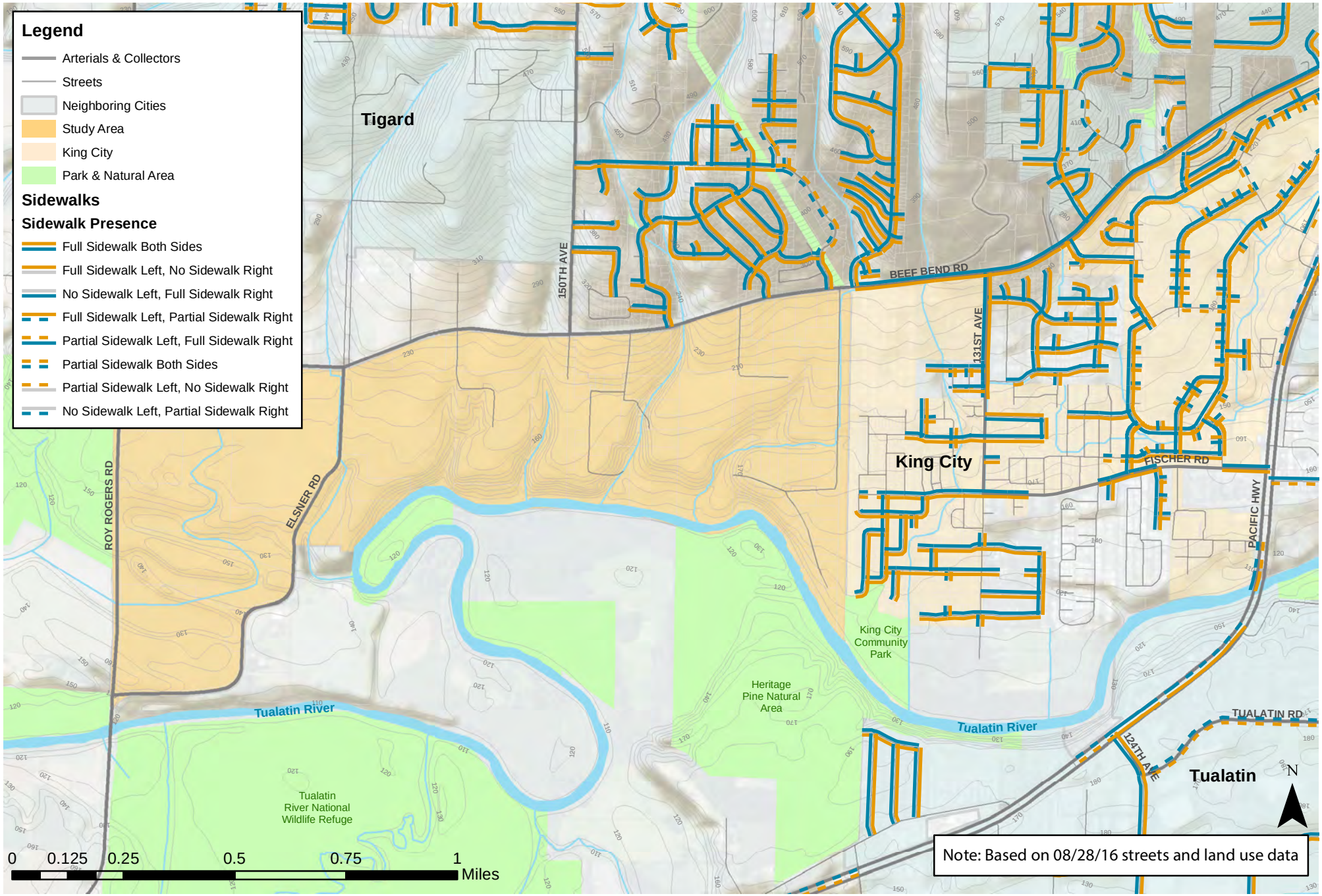

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Figure 5-1
Existing Sidewalks
King City URA Concept Plan

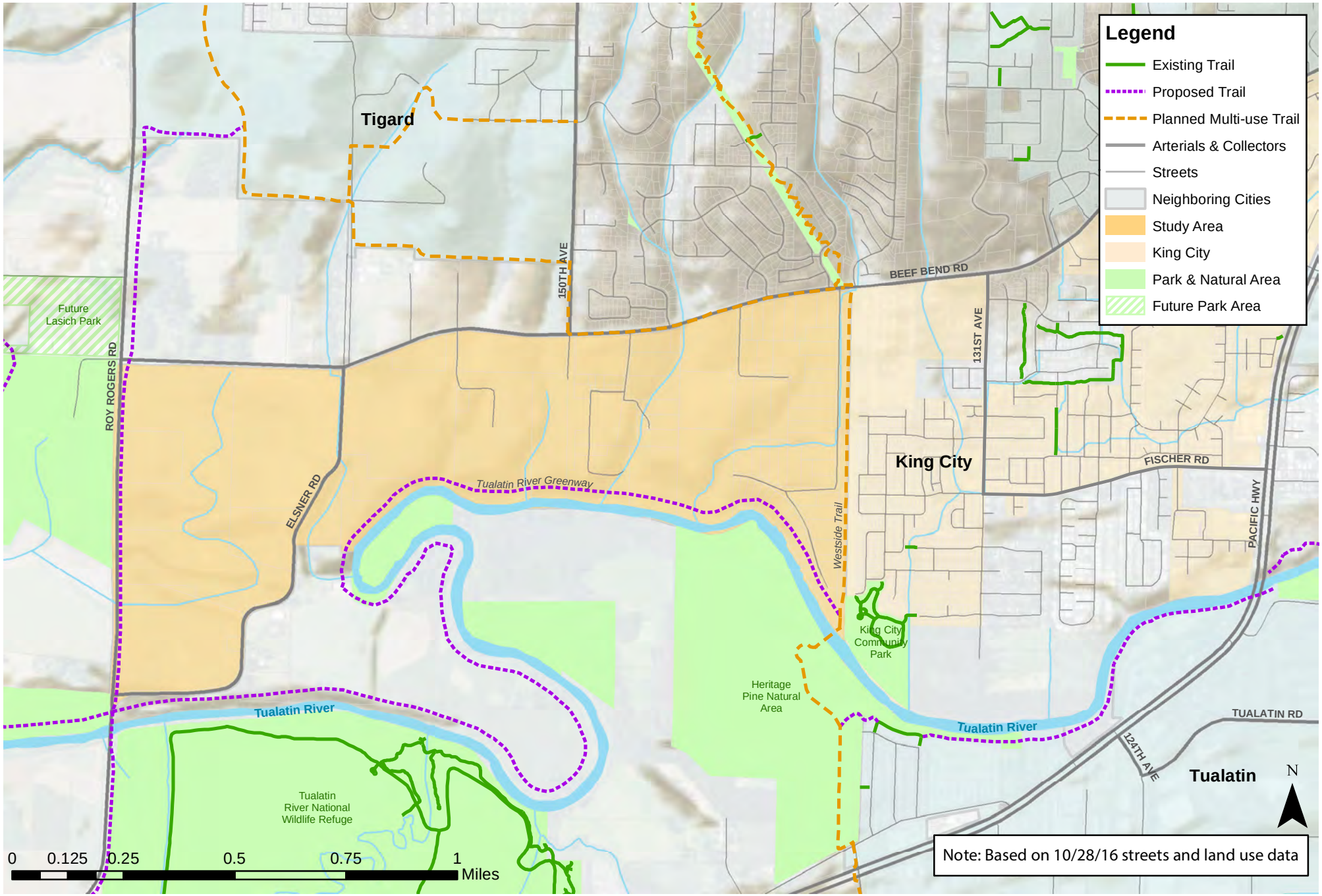

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Figure 5-2
Existing & Proposed Trails
King City URA Concept Plan

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

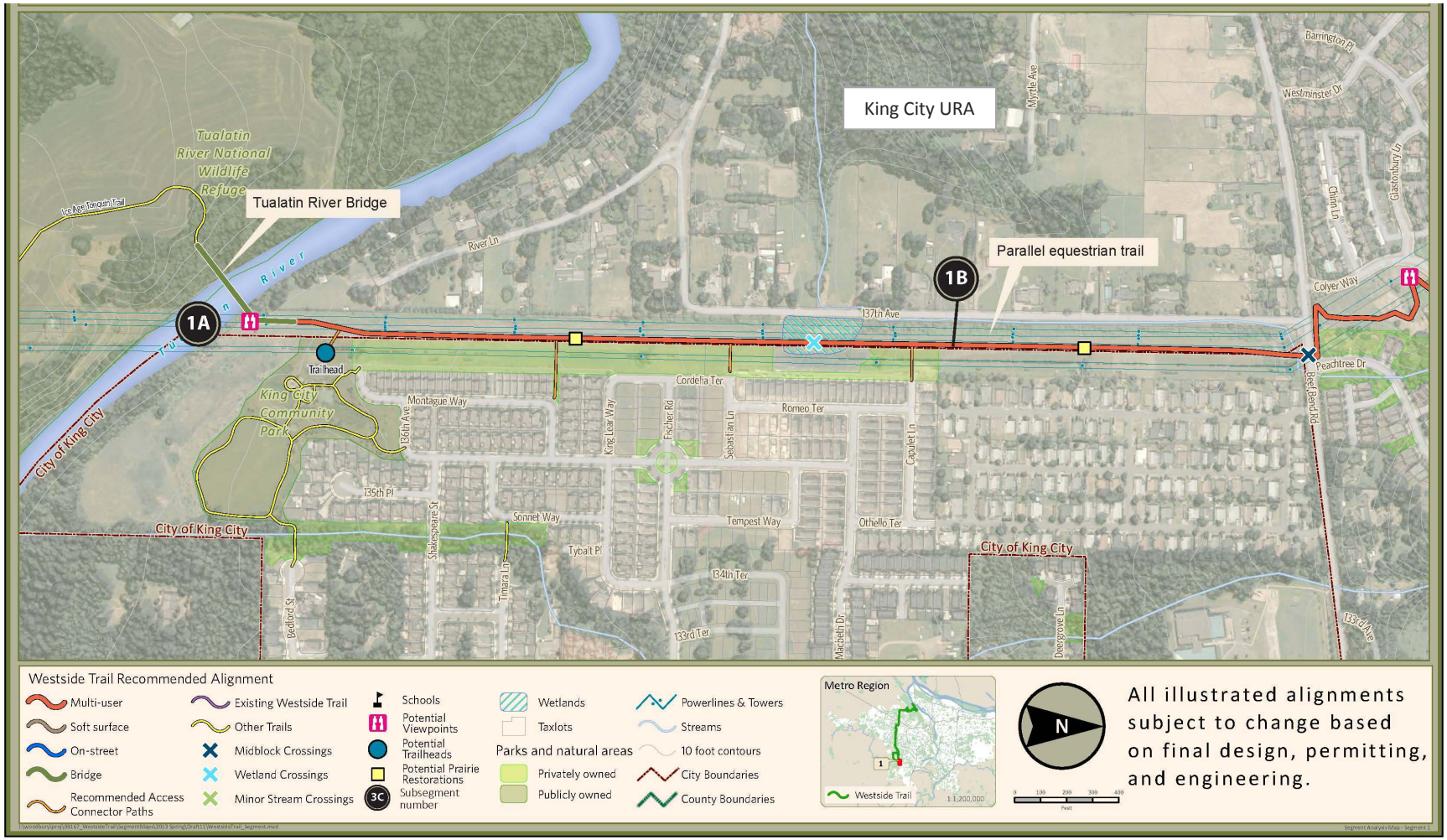

Figure 5-4. Westside Trail Segment 2 – Beef Bend Road to Tigard City Limits

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 Tonquin 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

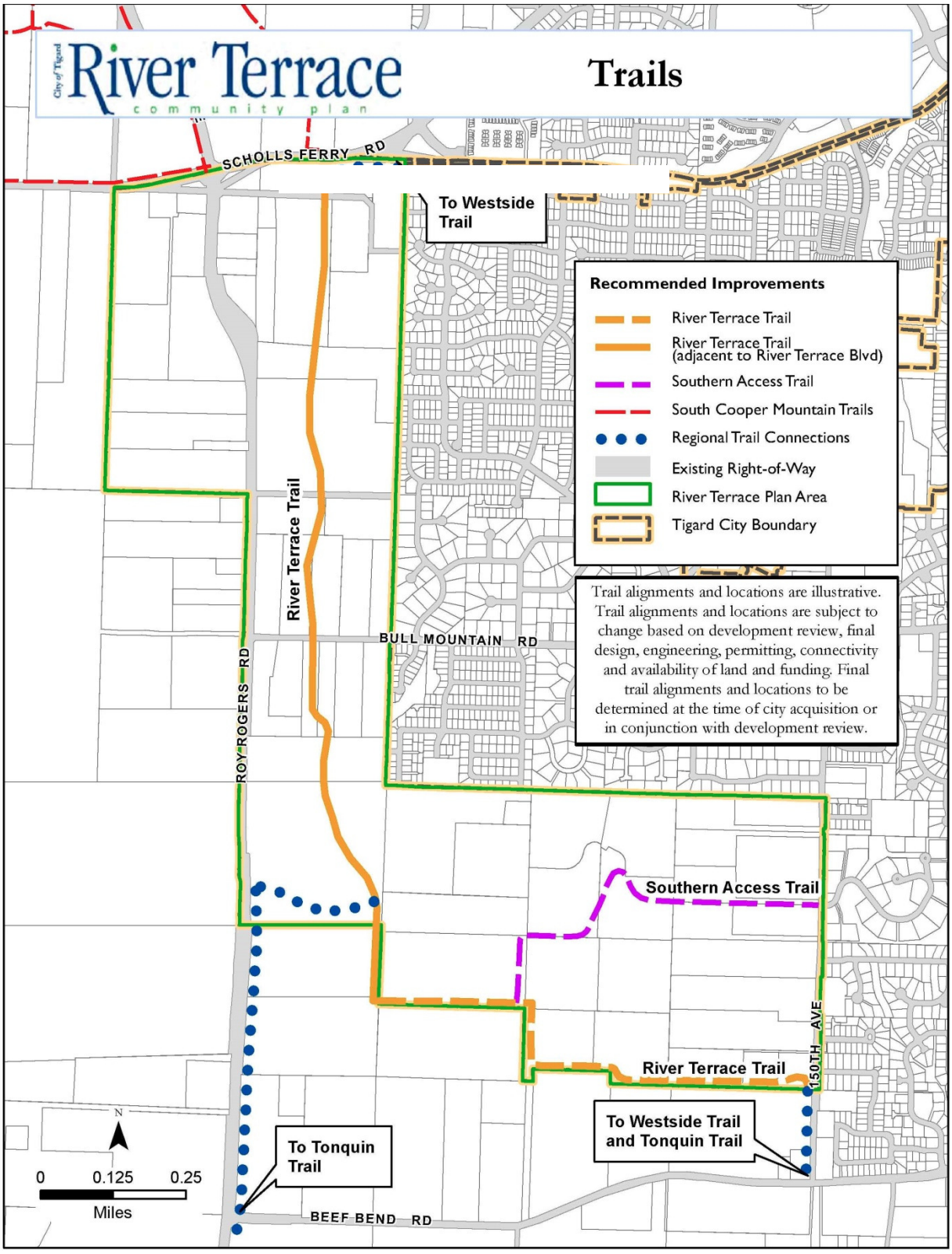

Table 5-1. Pedestrian Improvement Projects in Vicinity of King City URA

Project	Segment	Description	Implementing Agency	Timing
Highway 99W (Pacific Highway)	Beef Bend Road to Durham Road	Construct sidewalk on west side of highway	ODOT	2016-2018
SW Fischer Road	131st Avenue to Pacific Highway	Construct sidewalks and bike lanes, painted crosswalks at SW 126th and SW 131st 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 150th Avenue are all identified as "Ride with Caution" due to the narrow roadway cross-section, lack of shoulders and relatively high vehicle speed. 131st 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 131st 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

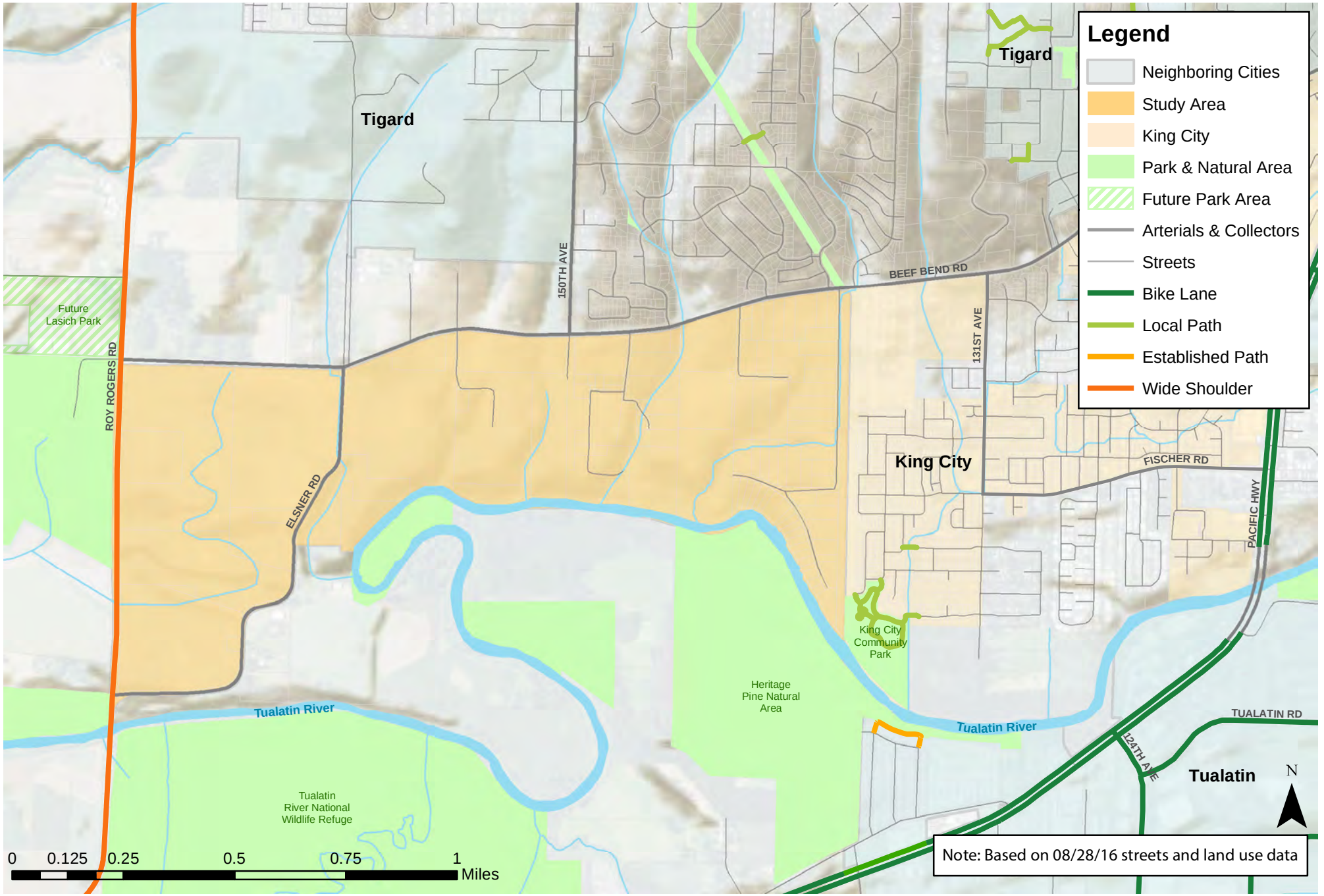

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Figure 6-1
Existing Bicycle Facilities
King City URA Concept Plan

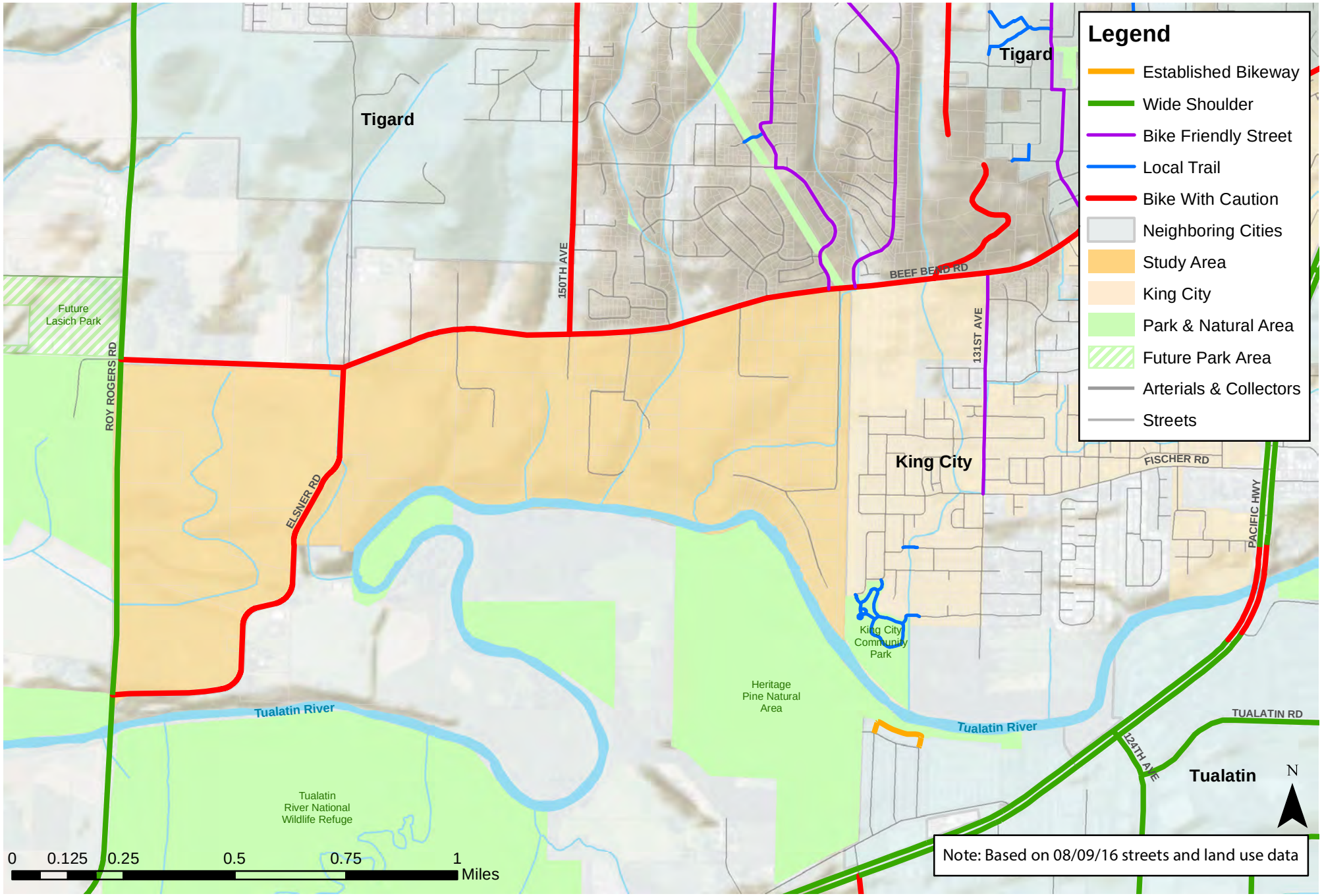

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Figure 6-2
Existing Bicycling Conditions
King City URA Concept Plan

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 exiting 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 [1]	131st Avenue	Pacific Highway	6,916

Source: *Washington County Transportation System Plan*, 2015.
1 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	131st Avenue to Pacific Highway	Construct sidewalks and bike lanes, painted crosswalks at SW 126th and SW 131st 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

	Service Hours and Frequency (Average)		
Route/Service Area	**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

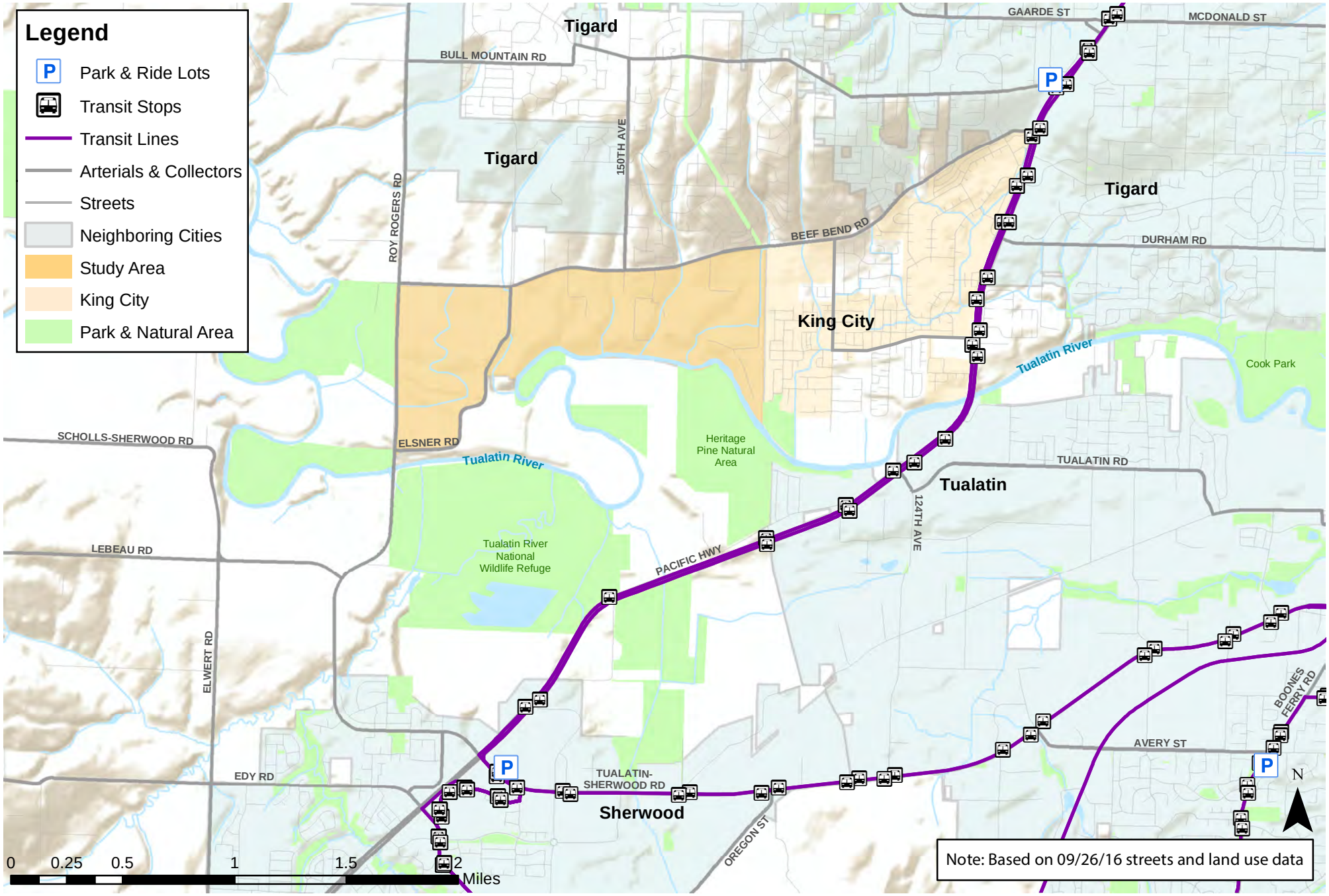

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Figure 7-1

Existing Transit Service & Park-and-Ride Lots

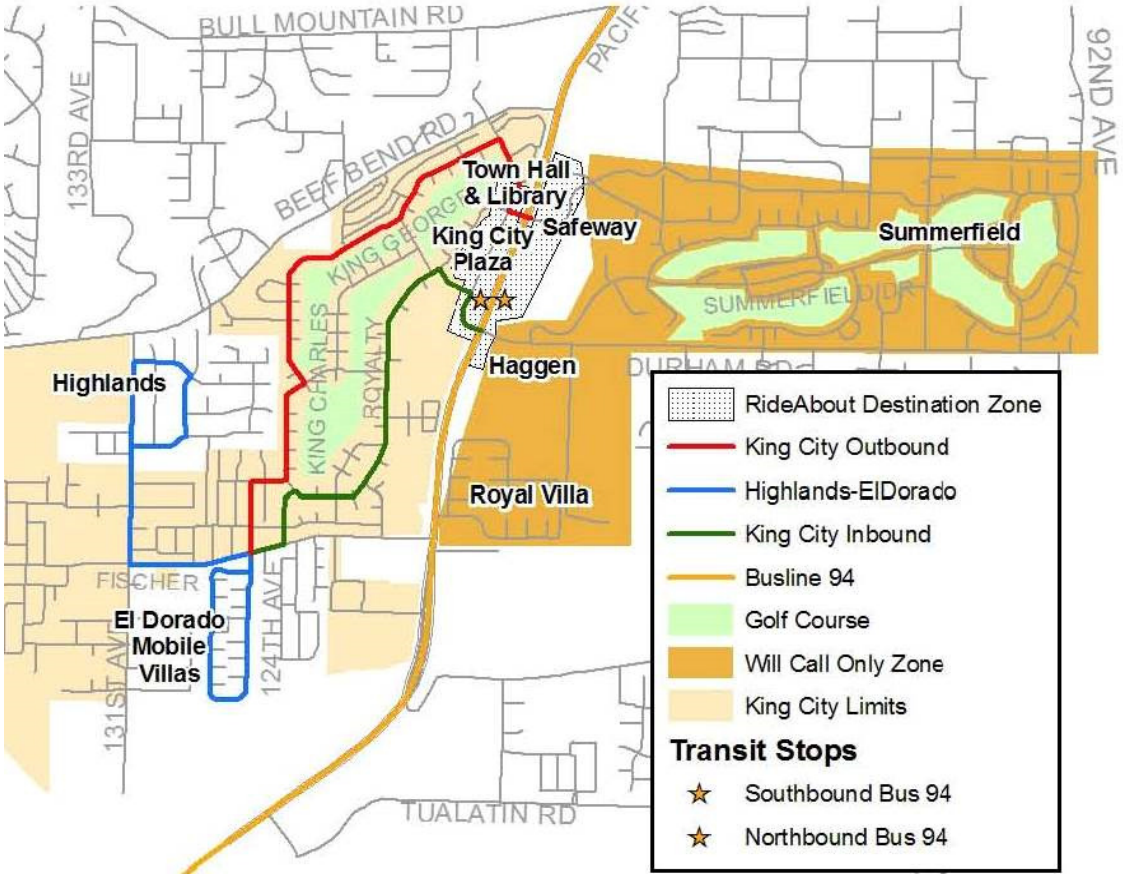
King City URA Concept Plan

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 131st 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

		Existing[1]		2035 River Terrace[2]	
Intersection	**Mobility Target**	**V/ C**	**LOS**	**V/ C**	**LOS**
Beef Bend Road @ Roy Rogers Road (signalized)	v/c 0.90	0.78	B	**0.93**	D
Beef Bend Road @ Elsner Road (unsignalized)	v/c 0.99	0.03	B	0.65	E
Beef Bend Road @ 150th 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	**1.15**	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.

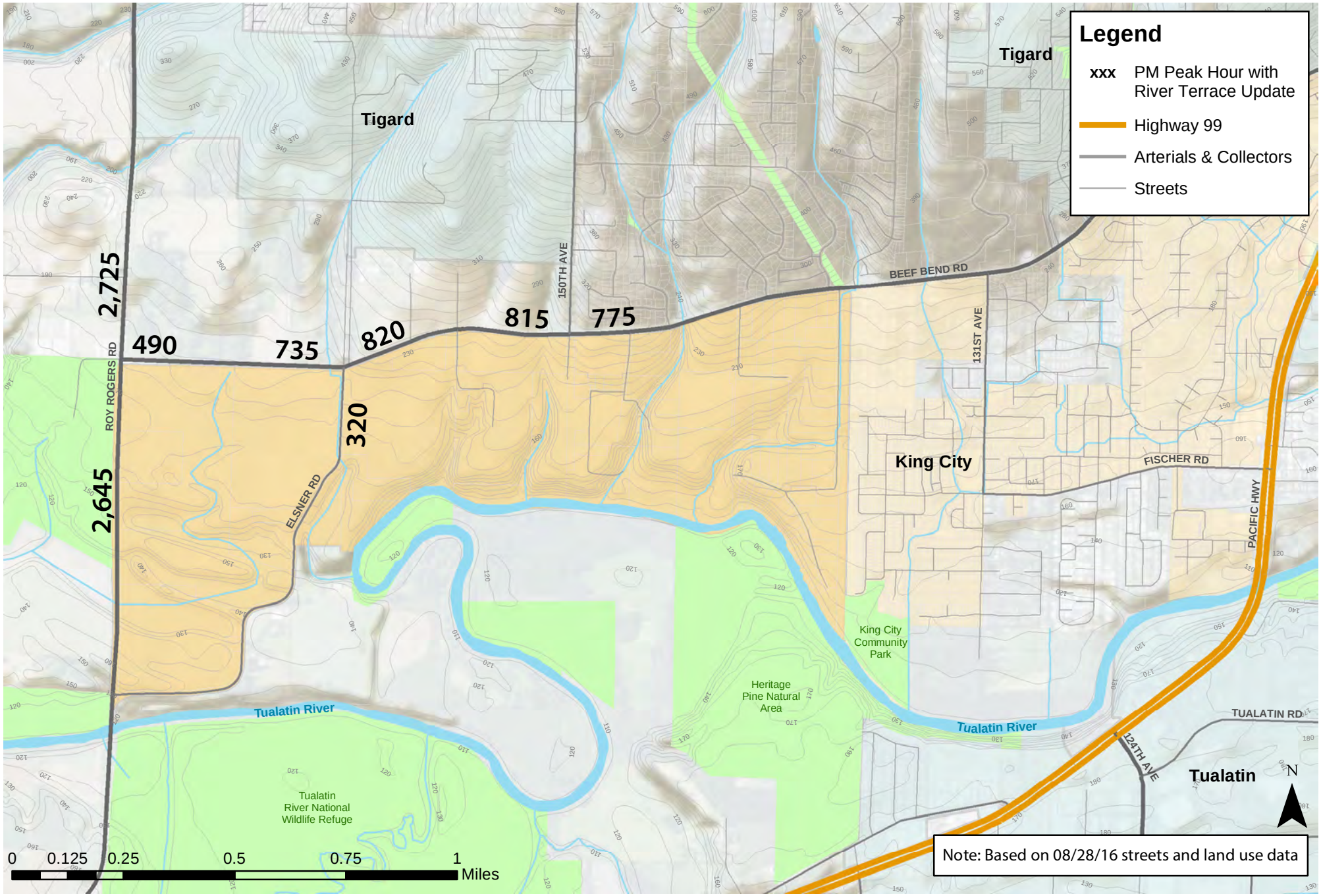


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Figure 8-1

2035 PM Peak Hour Traffic Volumes

King City URA Concept Plan

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** (131st 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** (150th 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 150th Avenue which is designated as a collector street. The other is a future neighborhood route that aligns with 161st Avenue and could intersect Beef Bend Road at Elsner Road.

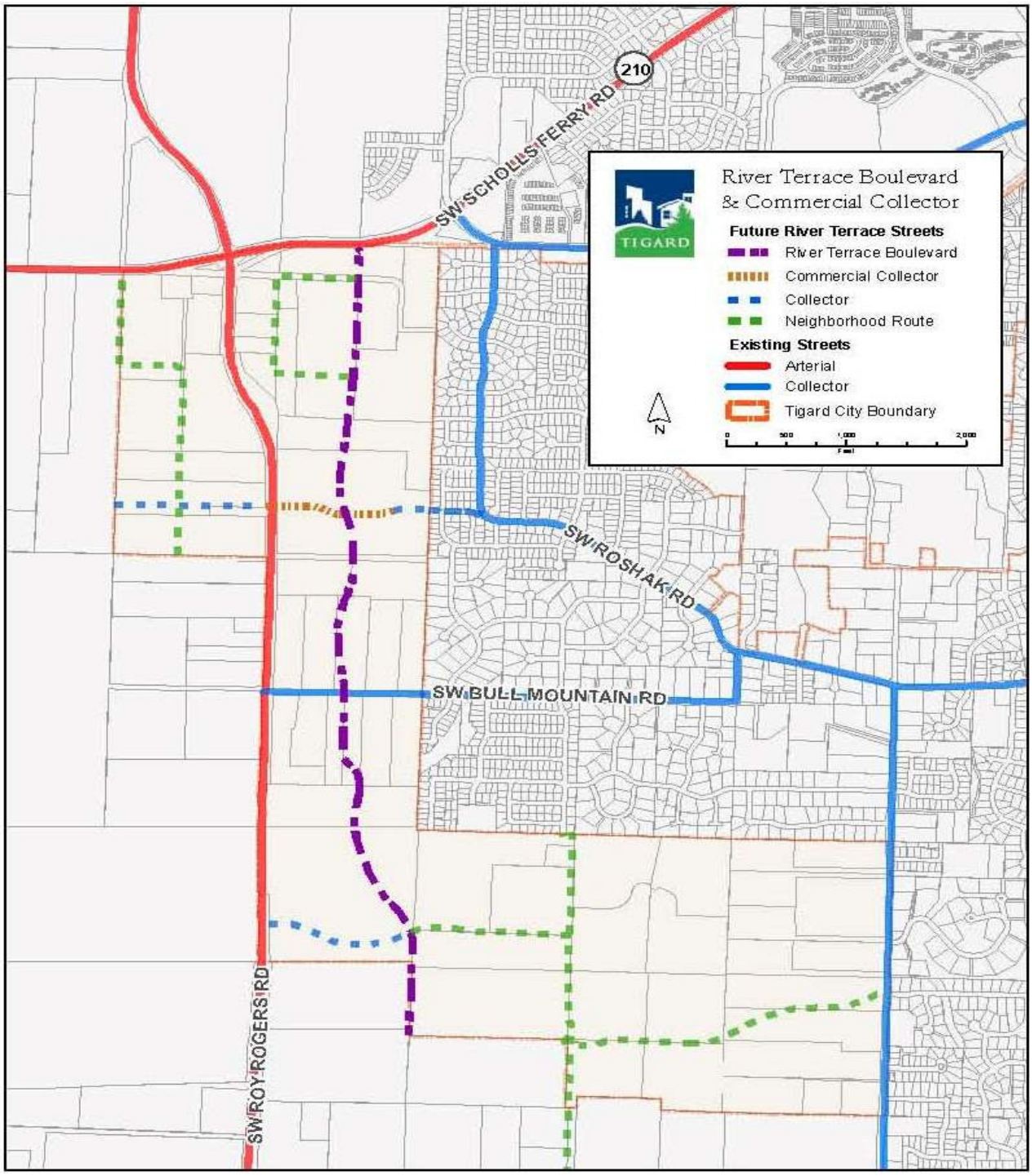
8.3.2 Roadway Plan Project List

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



LELAND CONSULTING GROUP

Memorandum

Date	7 March 2017
To	Marcy McInelly, Urbsworks
From	Ted Kamp and Chris Zahas, Leland Consulting Group
Study area	Market Opportunities Assessment DRAFT
Project	King City Concept Plan

King City Market Analysis

EXECUTIVE SUMMARY

Primary competition for residential development will come from Tigard/Tualatin/King City/Sherwood (including nearby unincorporated areas likely to enter the UGB).

Ample market support for suburban development in the study area location

- Robust household growth projections (double the national rate)
- Strong income demographics (though surprisingly income-diverse in immediate area)

Millennials (now aged 19-35) emerging from a period of delayed household formation

- Should begin driving starter home demand
- With enough residual apartment demand to sustain that booming segment for a few more years

Boomers (now aged 52-70) are large enough to span several housing segments

- Leading edge, approaching 80 over the next decade, will drive rental market for active senior and assisted living housing
- Many homeowners will age in place (hopefully sans Millennial kids); others will downsize for less maintenance and more flexibility (some off size for an upgrade in location

Hottest residential markets (especially in metro Portland) are in-town neighborhoods

- Cultural amenities, proximity to jobs and urban walkability are key draws.
- Gen X arguably fueled the urban resurgence (and still abound in Portland), but Boomers and Millennials have voiced similar preference.
- Neighborhoods with urban-style amenities in a suburban location is proving to be a viable alternative for those priced out of central Portland (or just averse to raising kids in the city)

The 4-city market area will add just over 5,500 new housing units over 10 years to accommodate projected growth

The study area is well positioned to absorb 500-950 units, drawing from that decade of demand

- Assuming a broad offering of price points and approximately 1/5 to 1/3 multifamily

A 40,000 to 60,000 square foot neighborhood retail center on the study area should have enough rooftop and traffic support sometime in year 5-10

- Large enough for a smaller-format grocer with surrounding dining & shops
- Likely location is near corner of Roy Rogers & Beef Bend

An additional non-residential component, based on a "gateway to wine country" positioning could add another 40-60,000 square feet

- Enough for a 70-room lodge, wedding/event space and signature restaurant
- Could also leverage difficult-to-develop riverfront land with outdoor amenities such as educational vineyard, organic culinary garden, etc.

Main caveats for development potential include

- Natural challenges (wetlands, slopes etc.)
- Fragmented low-density residential ownership could slow or prevent assembly needed for certain planning/phasing approaches, depending on willingness to sell/develop

BACKGROUND

Project/Task:

As part of a broader planning effort led by Urbsworks and the City of King City, Leland Consulting Group was retained to provide input on the market, economic and real estate considerations important to the successful development of an approximately 525-acre study area which is eligible for inclusion into the Metro Urban Growth Boundary (UGB).

The specific role of this analysis is to establish a realistic program of housing (including senior), neighborhood commercial and employment development for the study area, consistent with market preferences, demographic trends and prevailing conditions for supply and demand across those land use categories. Analysis is intended be high-level, but sufficiently detailed to support preliminary recommendations as to housing type, size, price segmentation and density/land area requirements.

Method/Inputs:

Research draws on a variety of quantitative and qualitative inputs, including:

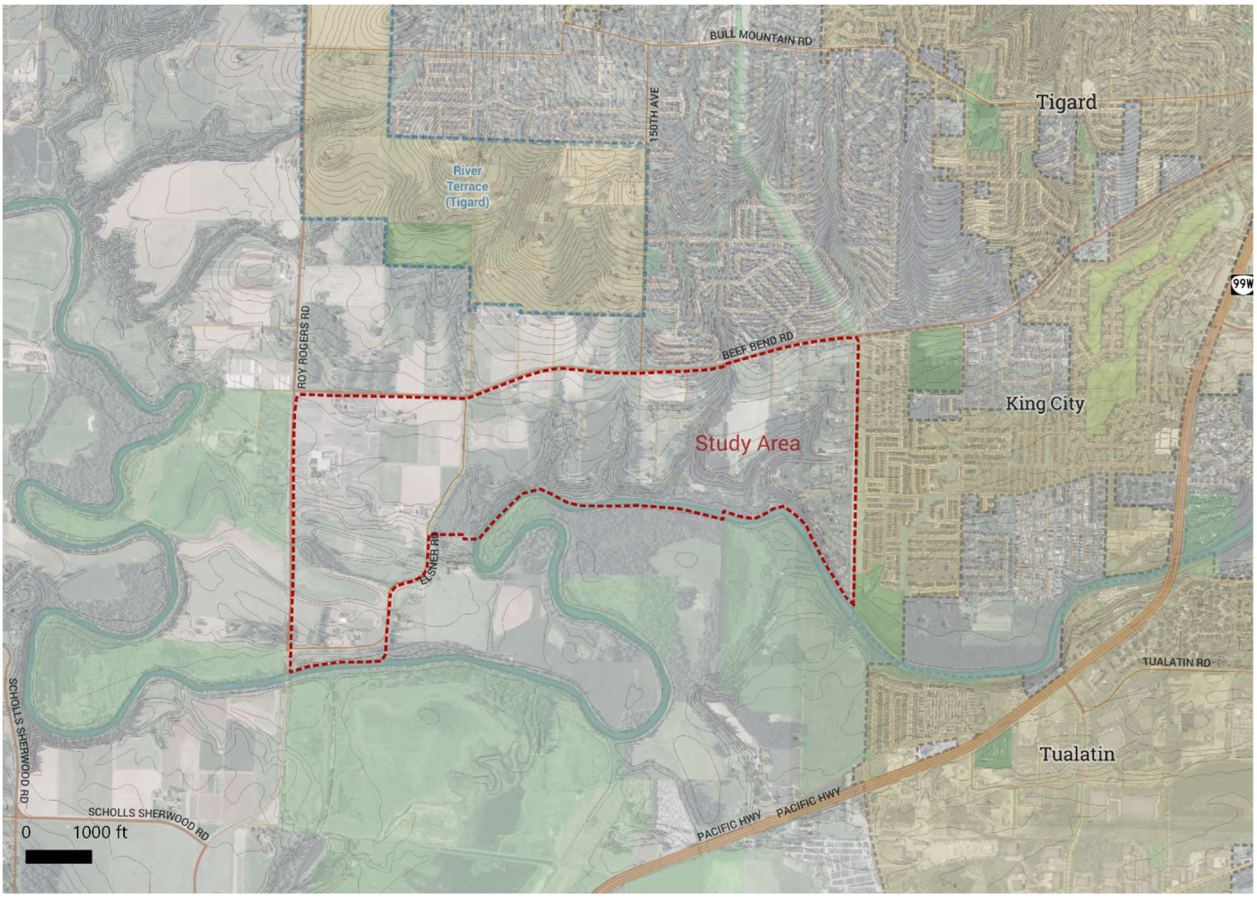
- Analysis of existing (and likely future) site conditions
- City staff and leadership comments from September 2016 kickoff meeting
- Relevant economic and demographic indicators and trends
- Residential and commercial development trends and pipeline activity (including pricing, absorption, occupancy, sales volume, etc., as available) for considered land use categories

- Special consideration of generational demographic changes and their relation to housing demand
- Special consideration of opportunities for commercial and/or tourism development in the study area (e.g. wine-county related attractions)

Study Area:

The study area boundary is illustrated in the map below:

Figure 1: Study Area



MARKET-BASED SITE ANALYSIS

The ability of the study area to attract redevelopment investment and support successful new land uses will depend in large part on how favorably that property compares to potentially competitive sites in the region. A range of *site-specific* attributes combine to determine a property's potential for market competitiveness, with differing levels of importance typically found across major development types.

Because of the large study area size, many of the attributes considered may vary significantly across the overall site. This internal variety can inform site planning decisions such as phasing and the configuration of different land uses and densities.

Table 1: Site Analysis/Market Competitiveness Summary

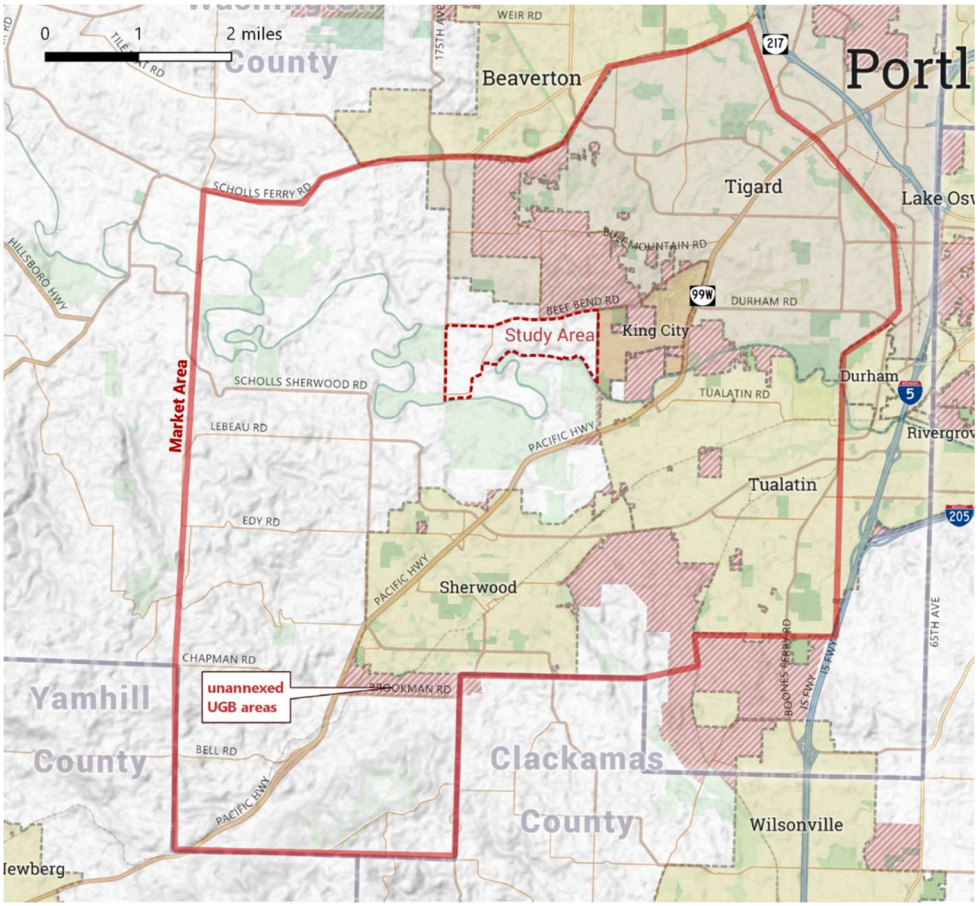
Attribute	Site Notes
Proximity to Employment	While a morning commute may be one hour to downtown Portland and over 30 minutes to downtown Beaverton, the site is very convenient to smaller, but significant employment concentrations in Tualatin, Tigard and in Wilsonville to the south. Lack of nearby office employment will make new office development on the site highly unlikely during the buildout period.
Proximity to (Other) Households	When built, the study area will be near other residential development to the east (existing King City, Tualatin) and north (Tigard, including major new development at River Terrace). Development to the west is likely to remain rural and sparsely populated due to the urban growth boundary. This will constrain the retail development possibilities for commercial considered along Roy Rogers Rd., despite increased traffic on that street.
Proximity to Shopping, Dining, Schools	An aging but functional cluster of neighborhood & community scale retail lies at the eastern edge King City, beyond walking distance but convenient by car. Regional retail is reasonably convenient by car, four miles east at Bridgeport Village and five miles north at Washington Square in far-north Tigard. Local schools perform well.
Visibility	Visibility is primarily important for any retail (and related commercial uses). Businesses located along Roy Rogers Rd. would be visible easily from that road. Beef Bend Rd. is elevated relative to the site and would afford superior views of properties to the south.
Access	Roy Rogers Rd. provides convenient northbound access, allowing some bypassing of I-5, at least until cutting over at Scholl's Ferry. East-west access would be dependent on Beef Bend Rd. until another east-west street can be built between the river and Beef Bend. Ped/bike access and amenities are currently poor in King City, but could improve with investments in trails.
Traffic Volume	Site-adjacent traffic is highest along Roy Rogers Rd. at approximately 20,000 vehicles per day (5,000 per day on Beef Bend). This balance of traffic flows makes Roy Rogers frontage (or at least strong signage and access) a likely prerequisite for retail development on the study area.

Neighboring Land Uses	Currently sparsely populated due to the urban growth boundary and predominant Rural Reserve designation to the west of Roy Rogers Rd. To the north and east, existing low- and even medium-density development in King City and Tigard should be generally compatible with residential and modest commercial development considered here.
Site Aesthetics	The site in general has very good to excellent visual attributes, with classic semi-rural Pacific Northwest appeal. Scenic vistas to the south and west are best from the northernmost parcels on the site, with as much as 100 feet in elevation difference relative to riverfront land on the south side of the study area. Depending on design possibilities relative to riparian land, properties along the southern site could compensate for restricted vistas by adding value through direct riverfront appeal.

MARKET AREA DEFINITION

Here we define a regional market area likely to compete with study area across key development types. In the case of neighborhood retail, this market area should also encompass likely sources of household spending support. The *study area* (will capture some portion of the growth likely to take place across this broader *market area* geography, shown below.

Figure 2: Market Area for Competing Development and Retail Support



MARKET AREA DEMOGRAPHIC PROFILE

This section discusses demographics and market conditions within the market area as compared to Washington County, the Portland metro, and the nation.

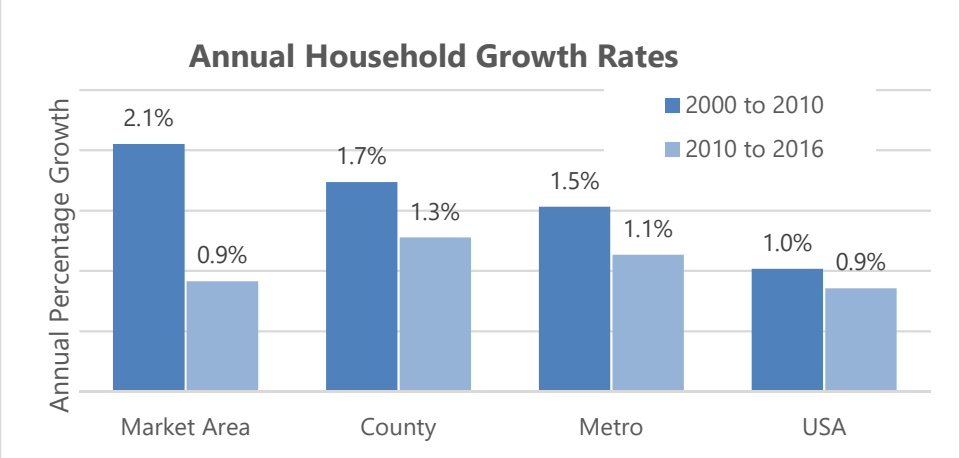
Table 2: Population, Households and Historical Growth Comparisons

	Market Area	County	Metro	USA
Population - 2016 est.	97,095	569,215	2,372,802	323,580,626
Households - 2000	28,891	169,165	745,531	105,480,101
Households - 2010	35,391	200,934	867,794	116,716,292
Households - 2016 est.	37,034	214,088	918,063	121,786,233
2000 to 2010	2.1%	1.7%	1.5%	1.0%
2010 to 2016	0.9%	1.3%	1.1%	0.9%

Source: ESRI (based on U.S. Census data) and Leland Consulting Group

As shown in Table 2, the market area has approximately 97,000 residents living in just over 37,000 households. From 2000 to 2010, market area household growth was faster than the county or metro area, at more than double the national annual rate. Since 2010, market area growth has slowed to match the national average, while county and metro growth have tempered to a lesser degree.

Figure 3: Household Growth Rate, Market Area and Comparisons



Source: ESRI (based on U.S. Census data) and Leland Consulting Group

Table 3: Household Estimates and Projections for Market Area TAZs

Households			
	2010	**2035**	**CAGR 2010-35**
Market Area Total	**36,443**	**54,992**	**1.66%**

Source: Metro Council "gamma series" projections, and Leland Consulting Group
**CAGR=compounded annual growth rate*

Table 3 shows Metro household estimates and projections for traffic analysis zones (TAZs) lying within the defined market area boundary. The overall growth rate between 2010 and 2035 is expected in this model to average 1.7% annually. For the residential and retail demand projections later in this report, we apply this 1.7 percent rate, as it appears supported by both Metro projections and recent (2000 to 2016) historical growth.

Table 4: Housing Characteristics (HH size, home ownership, family orientation)

	Market Area	County	Metro	USA
Average Household Size (2016)	2.61	2.63	2.54	2.59
"Traditional" Families *(two parents + related children)*	28%	26%	22%	22%
Single-person Households	25%	25%	27%	27%
Renter Households (2016)	32%	40%	39%	33%

Source: ESRI (based on U.S. Census data) and Leland Consulting Group

Table 5: Households by Size, Market Area vs. Comparisons (2010)

	Market Area	County	Metro	USA
1-person	25%	25%	27%	27%
2-person	33%	33%	34%	33%
3-person	17%	17%	16%	16%
4-person	16%	15%	13%	13%
5+ person	9%	11%	10%	11%

Source: ESRI (from US Census Data) and Leland Consulting Group

As Table 4 shows, household sizes in the market area are generally comparable to the county as a whole. Both the county and market area skew towards having fewer one-person households and more four-person households, proportionally, versus metro or national figures.

Table 6: Population by Age Group, Market Area and Comparisons

Age in 2016	Market Area	County	Metro	USA
0 - 4	6%	7%	6%	6%
5 - 9	7%	7%	6%	6%
10 - 14	7%	7%	6%	7%
15 - 24	12%	13%	13%	14%
25 - 34	12%	15%	15%	14%
35 - 44	15%	15%	14%	13%
45 - 54	14%	13%	13%	13%
55 - 64	13%	12%	13%	13%
65 - 74	8%	7%	8%	9%
75 - 84	4%	3%	4%	4%
85 +	2%	2%	2%	2%

Source: ESRI (based on U.S. Census data) and Leland Consulting Group

Residents of the market area generally follow county and national age distributions, but with slightly lower proportions of teens and young adults aged 15 to 34.

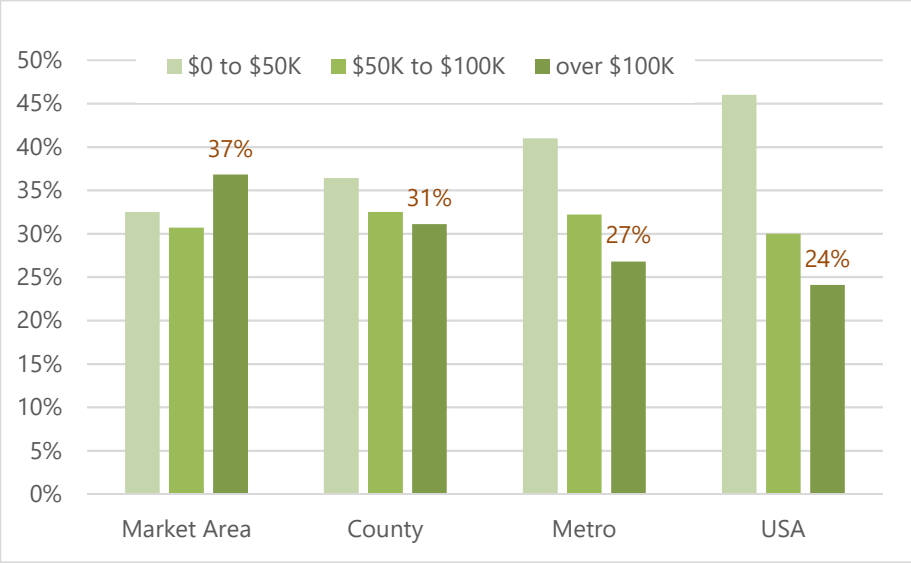
Table 7. Income and Education Characteristics, Market Area vs. Comparisons (2016)

	Market Area	County	Metro	USA
Median Household Income	$76,459	$67,221	$60,063	$54,149
Average Household Income	$96,299	$87,768	$81,160	$77,008
Incomes above $150K	15.9%	13.3%	11.1%	10.7%
Average Income as Percent of Median Income	126%	131%	135%	142%
Incomes below $25K	14%	15%	19%	23%
top 10% Household Income	$189,000	$185,000	$179,000	$176,500
Percent with Bachelor's Degree (age 25+)	44%	41%	36%	30%

Source: ESRI (based on U.S. Census data) and Leland Consulting Group

The market area is comparatively affluent, with median, average and per capita incomes well above national and county figures. As shown in Table 7 and Figure 4, the market area has a considerably higher share of households earning over $100,000 per year (37%) than all comparison geographies.

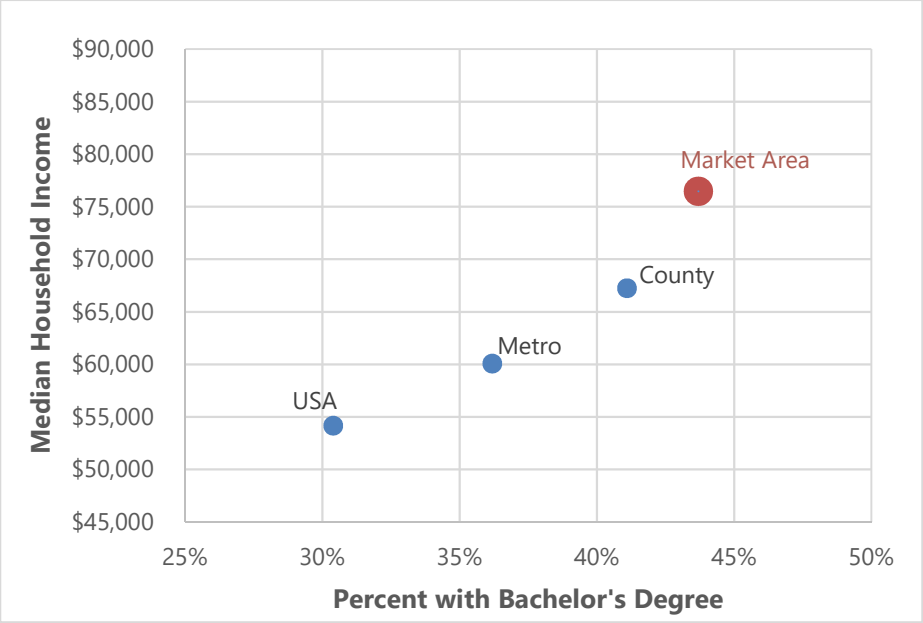
Figure 4: Distribution of Household Incomes, Market Area vs. Comparisons (2016)



Source: ESRI (based on U.S. Census data) and Leland Consulting Group

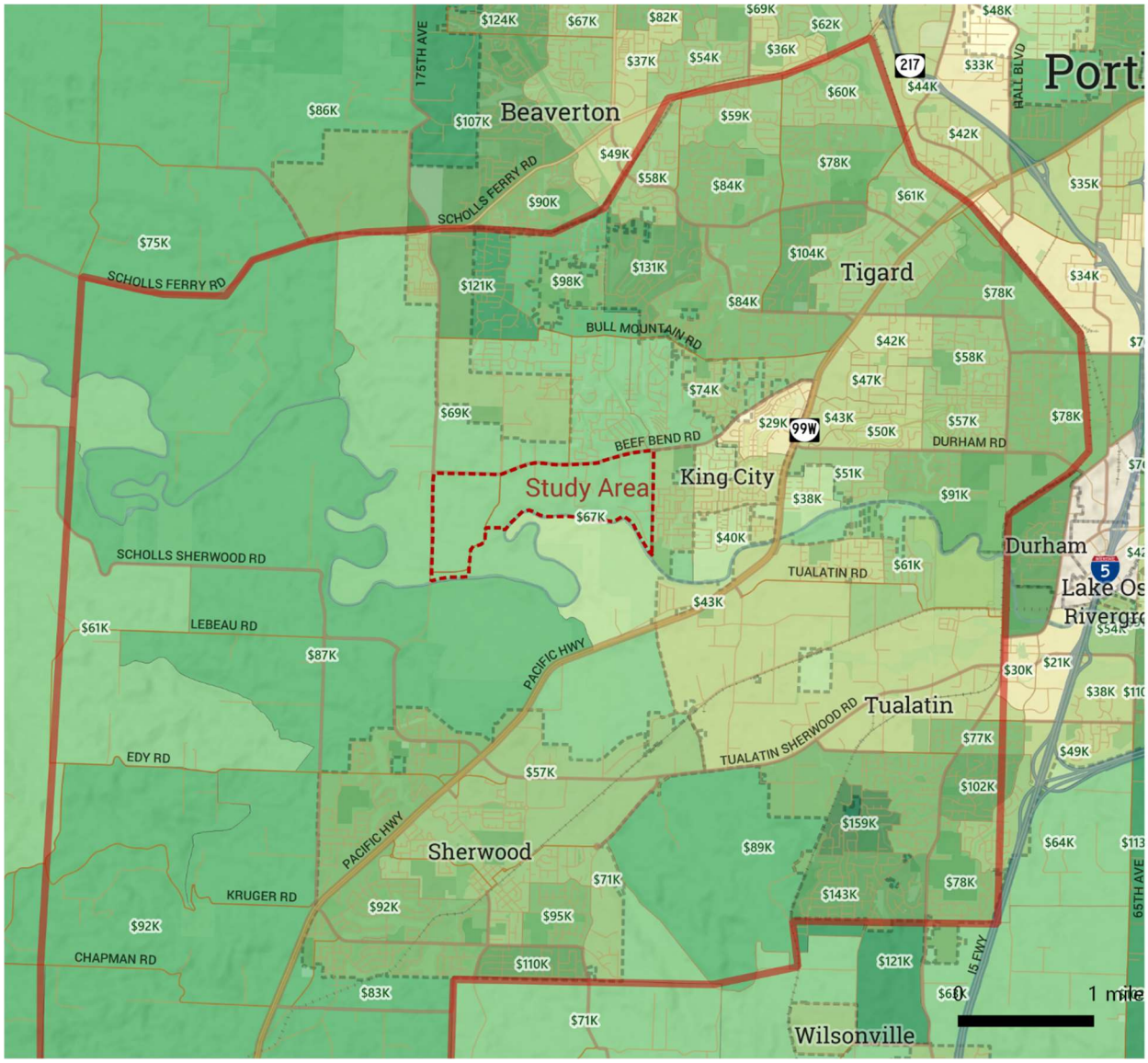
Figure 5 shows educational attainment paired with median incomes, with the market area leading in both categories.

Figure 5: Income by Educational Attainment



Source: ESRI (based on U.S. Census data) and Leland Consulting Group

Figure 6: Median Household Income by Census Block Group, 2014



Source: US Census/ACS 2014, and Leland Consulting Group

Lifestyle/Psychographic Segments

Psychographics is a term used to describe characteristics of people and neighborhoods which, instead of being purely demographic, measure their attitudes, interests, opinions, and lifestyles. ESRI, a commercial provider of demographic and geographic data, has developed a widely-used proprietary system, Tapestry™, for categorizing U.S. neighborhoods into 65 different market segments based on demographic, lifestyle, and consumer traits.

The market area is more diverse than many suburbs, especially in terms of income and lifestage influences, with seven different Tapestry segments needed to represent less than three-quarters of area households.

Table 8: Market Area Households by Tapestry Segment, Showing Comparison to US

Tapestry Segment	Market Area	US	
			Index to US
Soccer Moms	22.4%	2.8%	8.0x
Bright Young Professionals	12.1%	2.2%	5.5x
Professional Pride	10.7%	1.6%	6.7x
Savvy Suburbanites	8.7%	3.0%	2.9x
The Elders	7.1%	0.7%	10.1x
Middleburg	6.5%	2.8%	2.3x
Boomburbs	6.1%	1.5%	4.1x
Subtotal	73.6%	14.6%	

Source: ESRI and Leland Consulting Group

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Excerpts of Tapestry™ Segment Profiles

Soccer Moms

WHO ARE WE?

Soccer Moms is an affluent, family-oriented market with a country flavor. Residents are partial to new housing away from the bustle of the city but close enough to commute to professional job centers. Life in this suburban wilderness offsets the hectic pace of two working parents with growing children. They favor time-saving devices, like banking online or housekeeping services, and family-oriented pursuits.

OUR NEIGHBORHOOD

- *Soccer Moms* residents prefer the suburban periphery of metropolitan areas.
- Predominantly single family, homes are in newer neighborhoods, 36% built in the 1990s (Index 253), 31% built since 2000.
- Owner-occupied homes have high rate of mortgages at 74% (Index 163), and low rate vacancy at 5%.
- Median home value is $226,000.
- Most households are married couples with children; average household size is 2.96.
- Most households have 2 or 3 vehicles; long travel time to work including a disproportionate number commuting from a different county (Index 133).

SOCIOECONOMIC TRAITS

- Education: 37.7% college graduates; more than 70% with some college education.
- Low unemployment at 5.9%; high labor force participation rate at 72%; 2 out of 3 households include 2+ workers (Index 124).
- Connected, with a host of wireless devices from iPods to tablets—anything that enables convenience, like banking, paying bills, or even shopping online.
- Well insured and invested in a range of funds, from savings accounts or bonds to stocks.
- Carry a higher level of debt, including first (Index 159) and second mortgages (Index 154) and auto loans (Index 151).

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

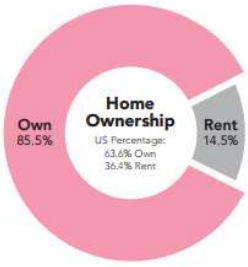
- Most households own at least 2 vehicles; the most popular types are minivans and SUVs.
- Family-oriented purchases and activities dominate, like 4+ televisions (Index 165), movie purchases or rentals, children's apparel and toys, and visits to theme parks or zoos.
- Outdoor activities and sports are characteristic of life in the suburban periphery, like bicycling, jogging, golfing, boating, and target shooting.
- Home maintenance services are frequently contracted, but these families also like their gardens and own the tools for minor upkeep, like riding mowers and tillers.

HOUSING

Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.

Typical Housing:
Single Family

Median Value:
$226,000
US Median: $177,000



Bright Young Professionals

WHO ARE WE?

Bright Young Professionals is a large market, primarily located in urban outskirts of large metropolitan areas. These communities are home to young, educated, working professionals. One out of three householders is under the age of 35. Slightly more diverse couples dominate this market, with more renters than homeowners. More than two-fifths of the households live in single-family homes; over a third live in 5+ unit buildings. Labor force participation is high, generally white-collar work, with a mix of food service and part-time jobs (among the college students). Median household income, median home value, and average rent are close to the US values. Residents of this segment are physically active and up on the latest technology.

OUR NEIGHBORHOOD

- Approximately 56% of the households rent; 44% own their homes.
- Household type is primarily couples, married (or unmarried), with above average concentrations of both single-parent (Index 125) and single-person (Index 115) households.
- Multiunit buildings or row housing make up 55% of the housing stock (row housing (Index 182), buildings with 5–19 units (Index 277)); 44% built 1980–99.
- Average rent is slightly higher than the US (Index 102).
- Lower vacancy rate is at 8.9%.

SOCIOECONOMIC TRAITS

- Education completed: 36% with some college or an associate's degree, 30% with a bachelor's degree or higher. Education in progress is 10% (Index 127).
- Unemployment rate is lower at 7.1%, and labor force participation rate of 73% is higher than the US rate.
- These consumers are up on the latest technology.
- They get most of their information from the Internet.
- Concern about the environment, impacts their purchasing decisions.

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Own US savings bonds.
- Own newer computers (desktop, laptop, or both), iPods, and 2+ TVs.
- Go online to do banking, access YouTube or Facebook, visit blogs, and play games.
- Use cell phones to text, redeem mobile coupons, listen to music, and check for news and financial information.
- Find leisure going to bars/clubs, attending concerts, going to the zoo, and renting DVDs from Redbox or Netflix.
- Read sports magazines and participate in a variety of sports, including backpacking, basketball, football, bowling, Pilates, weight lifting, and yoga.
- Eat out often at fast-food and family restaurants.

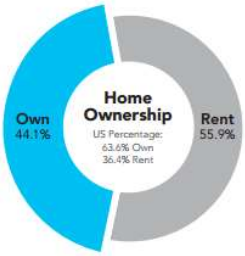
HOUSING

Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.

Typical Housing:
Single Family;
Multiunits

Average Rent:
$1,000

US Average: $990



The Elders

WHO ARE WE?

With a median age of 71.8 years, this is Tapestry Segmentation's oldest market. *The Elders* residents favor communities designed for senior or assisted living, primarily in warmer climates with seasonal populations. Most of these householders are homeowners, although their housing varies from mobile homes to single-family residences to high-rise apartments. These seniors are informed, independent, and involved.

OUR NEIGHBORHOOD

- Suburban periphery of metropolitan areas, primarily in the warmer climates of Florida or Arizona.
- 44% married couples without children; 44% single households; average household size, 1.67.
- Owner-occupied housing units; median home value of $153,000 (Index 86).
- Housing mix of single-family homes (43%), town homes, and high-density apartment buildings in neighborhoods built from 1970 through 1989.

SOCIOECONOMIC TRAITS

- Predominantly retirees, *The Elders* has a low labor force participation rate of 21.3%.
- Those who are still in the labor force tend to be self-employed or part-timers, commonly in real estate or the arts.
- Their income derives primarily from Social Security (80% of the households), retirement, or investments (almost half of the households). Less than 30% of the households draw wage/salary income.
- Median household income is lower than the US (Index 68), but median net worth is much higher (Index 273).

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

- Vehicles are just a means of transportation, but their first choice is luxury sedans. Most of their cars are older (5+ years).
- They are connected via modems (cable or dial-up) on older PCs or notebooks. However, banking is commonly done in person; shopping is by phone or in person.
- Shopping includes apparel and exercise equipment.
- They are avid readers, with audio books and e-readers. Newspapers and magazines are staples for news and entertainment. Cable TV is also a must, primarily watching news or movie channels, but also golf, travel, and history channels.
- Residents are sociable seniors, partial to a variety of clubs and organizations and generous with their time and support.

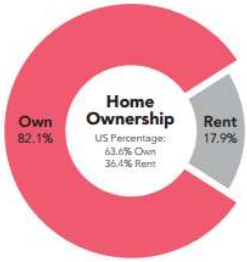
HOUSING

Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.

Typical Housing:
Single Family, High-Rises, Mobile Homes/Seasonal

Median Value:
$153,000

US Median: $177,000



LELAND CONSULTING GROUP

Middleburg

WHO ARE WE?

Middleburg neighborhoods transformed from the easy pace of country living to semirural subdivisions in the last decade, when the housing boom reached out. Residents are conservative, family-oriented consumers. Still more country than rock and roll, they are thrifty but willing to carry some debt and are already investing in their futures. They rely on their smartphones and mobile devices to stay in touch and pride themselves on their expertise. They prefer to buy American and travel in the US. This market is younger but growing in size and assets.

OUR NEIGHBORHOOD

- Semirural locales within metropolitan areas.
- Neighborhoods changed rapidly in the previous decade with the addition of new single-family homes.
- Include a number of mobile homes (Index 152).
- Affordable housing, median value of $158,000 (Index 89) with a low vacancy rate.
- Young couples, many with children; average household size is 2.73.

SOCIOECONOMIC TRAITS

- Education: 66% with a high school diploma or some college.
- Unemployment rate lower at 7.4% (Index 85).
- Labor force participation typical of a younger population at 66.7% (Index 106).
- Traditional values are the norm here—faith, country, and family.
- Prefer to buy American and for a good price.
- Comfortable with the latest in technology, for convenience (online banking or saving money on landlines) and entertainment.

MARKET PROFILE (Consumer preferences are estimated from data by GfK MRI)

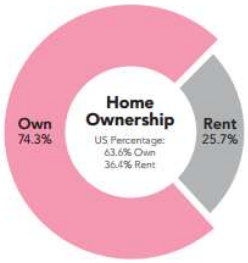
- Residents are partial to trucks, SUVs, and occasionally, convertibles, or motorcycles.
- Entertainment is primarily family-oriented, TV and movie rentals or theme parks and family restaurants.
- Spending priorities also focus on family (children's toys and apparel) or home DIY projects.
- Sports include hunting, target shooting, bowling, and baseball.
- TV and magazines provide entertainment and information.
- Media preferences include country and Christian channels.

HOUSING

Median home value is displayed for markets that are primarily owner occupied; average rent is shown for renter-occupied markets. Tenure and home value are estimated by Esri. Housing type and average rent are from the Census Bureau's American Community Survey.

Typical Housing:
Single Family

Median Value:
$158,000
US Median: $177,000



Source: ESRI

Age/Generational Growth and Housing Demand

Fundamental need for new housing is driven by expected growth among households of varying sizes and family arrangements (and income levels). In the past, this approach to estimating demand was a relatively straightforward exercise based on population-by-age projections. Young adults struck out from their parents' homes in their early 20s, primarily into apartments, graduating in their 30s to starter homes suitable for small families, then in their 40s and 50s (incomes allowing) into larger and/or costlier "move-up" homes. Upon retirement, newly empty nesters would either remain in place or move into smaller, lower-maintenance downsized options.

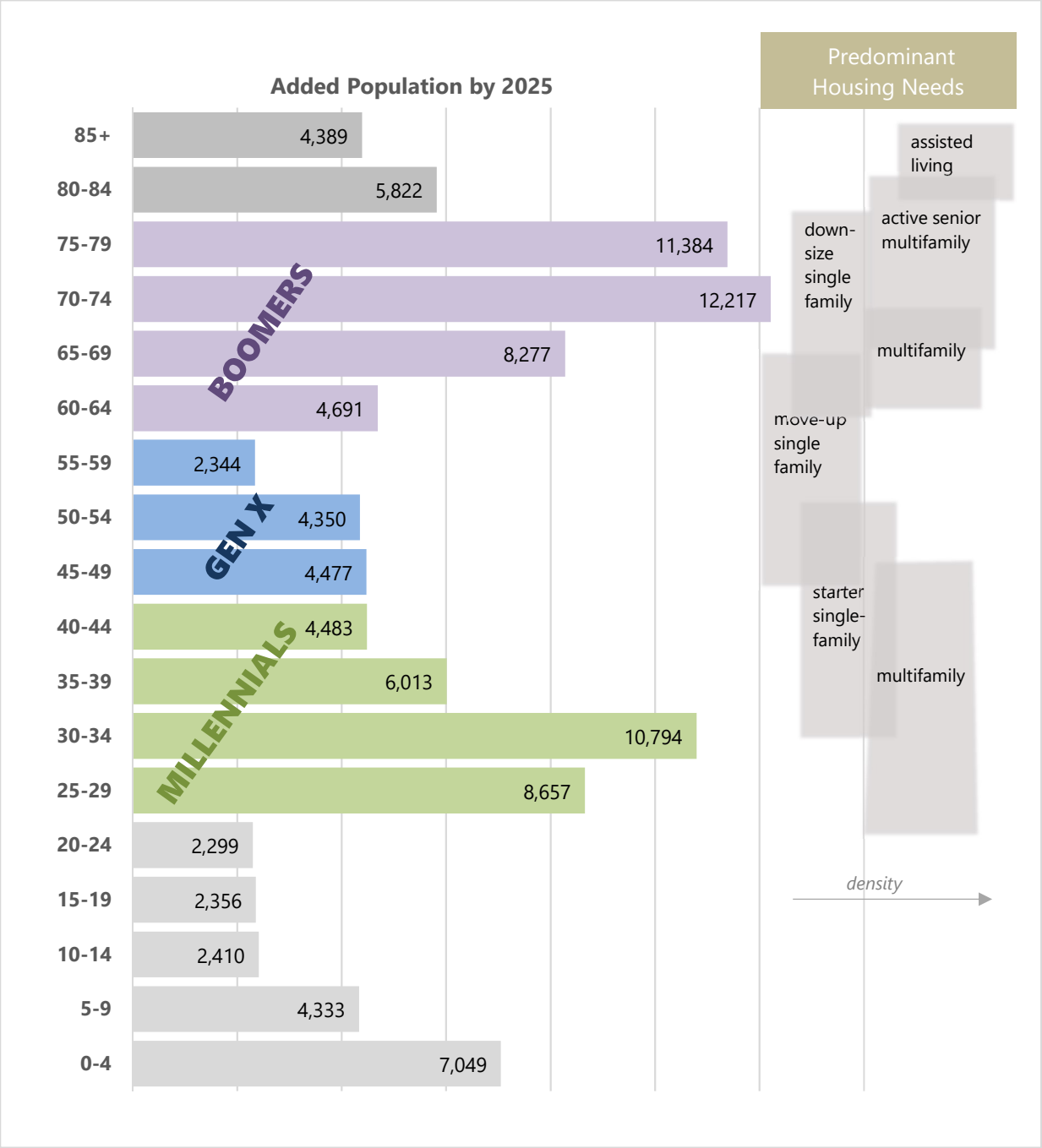
Current trends, however, are resulting in housing patterns that are less easily predictable. What *is* certain is that both nationwide and locally, the coming decade will see a surge in retirement-age householders (Baby Boomers) and in the population aged 25-45 (Millennials), with relatively stagnant growth among Gen X'ers[1] in between. However, the housing needs and wants of the two surging groups is thus far deviating from the usual age-based expectations.

[1] The Portland metro area actually skews higher than the nation on Gen X residents, and as such, will not see as pronounced stagnation as most other markets in the nation.

Table 9: Millennials and Baby Boomers Housing Comparison

Millennials	Baby Boomers
Current age 19-35 2026 age: 29-45	Current age 52-70 2026 age: 62 to 80
• Typically, strong growth in 30-somethings would be a major boost to starter-home demand to accommodate young families. • However, in the aftermath of the Great Recession, several factors have changed the equation. • Financial difficulties (for both kids and parents) made it more difficult for young adults to strike out and enter the housing market, even as renters. • Many Millennials postponed this first rung on the housing life-stage progression to remain "in the nest" • Rising debt from student loans and steadily climbing housing costs keep Millennials from accruing savings for potential home-buying, especially in the face of stricter lending. • Those who now rent often have larger households due to rent sharing and are caught up in a cycle of rent escalation, low vacancy/choice, and out-of-reach ownership housing prices. • Housing in diverse, walkable urban environments has proven popular among Millennials – but experts are divided on how much that is driven by age, versus actual generational difference in preference • Emerging consensus is that Millennials will still enter the home-buying market, but much more slowly than expected given the above market realities • Gallup polling shows very strong family-starting intentions among this group, but delayed marriages, delayed childbirth and learned market wariness are shifting that event • Desires for walkable environments with urban amenities is expected to continue – but likely with more openness to suburban locale	• Forecasters have long predicted a need in downsizing housing options for aging Boomers – smaller, low-maintenance apartments and attached ownership options like condos, townhomes, rowhomes and the like. • This shift in product preference has not yet fully emerged, for several possible reasons: • The prolonged burden of housing Millennial children is likely stalling Boomers' ability to pursue their own residential choices. • Consistent with deferred retirement and longer lifespans due to medical advances and healthier lifestyles, the core segment of Boomers may not yet feel the need for downsizing big yards, extra bedrooms and related chores. • Rising housing costs and low vacancies, in both rental and ownership may delay a move that would otherwise happen • Even if most Boomers eventually seek downsizing option, there also appears to be an emerging segment, especially in the West and Midwest who's retirement goal is not necessarily smaller and more urban, but actually more like an "acreage," at least among those with the good health or wealth required to keep up with the maintenance.

Figure 7: Washington Co. Growth by Age Group (2015-25 proj.), Showing Housing Needs[2]



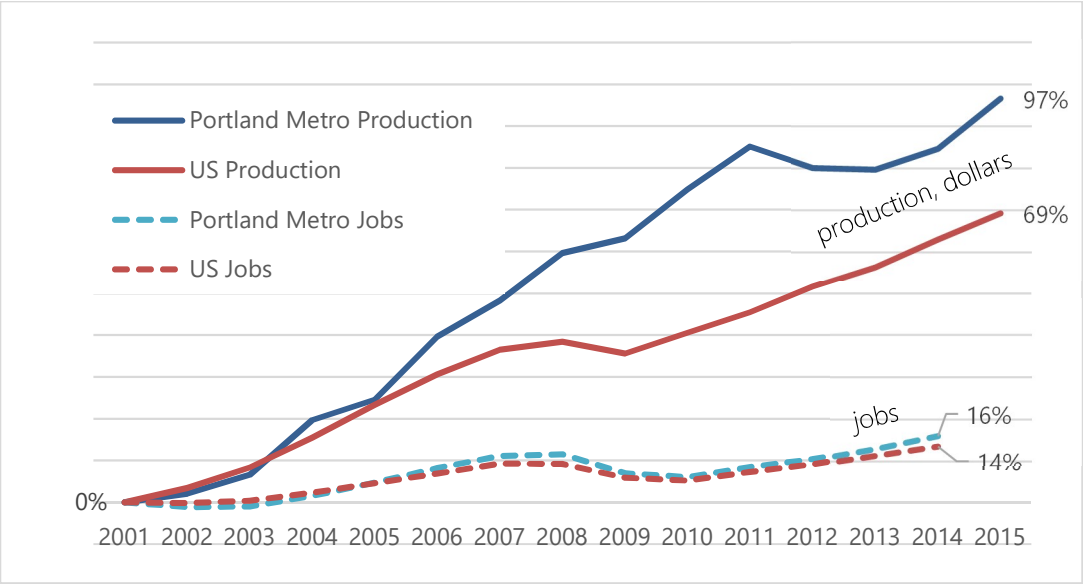
Source: State of Oregon Office of Economic Analysis, and Leland Consulting Group

[2] Shaded boxes are intended to show *predominant* housing needs only; some demand for multifamily can be found across all age segments.

ECONOMIC TRENDS

Washington County and the market area are part of a metropolitan region experiencing very robust economic growth over the past decade. As shown in Figure 8, the Portland metro area has nearly doubled its GDP since 2001 while seeing a 16 percent increase in employment, outpacing national (combined metropolitan area) growth, especially during and after the recent recession.

Figure 8: Overall Economic Growth (GDP and Employment), Portland Metro



Source: BEA and Leland Consulting Group

- Regional economic growth has been especially strong in the manufacturing sector, buoyed by high tech firms, with local GDP growth in that industry of 200 percent since 2001 (down from a peak of 279 percent in 2011).
- That increase, however, has been driven by rising productivity (output per employee), rather than net job growth. Even in the Portland metro, where manufacturing activity has gained national attention for its encouraging performance, industry jobs counts have in fact declined 10 percent since 2001[3].

[3] This has been a mixed economic blessing for many areas with strong industrial sectors like the market area, where rising automation-era industrial sales and new factories can lead to disappointing upward movement in employment and wages.

Table 10: Projected Employment Growth, Market Area TAZs

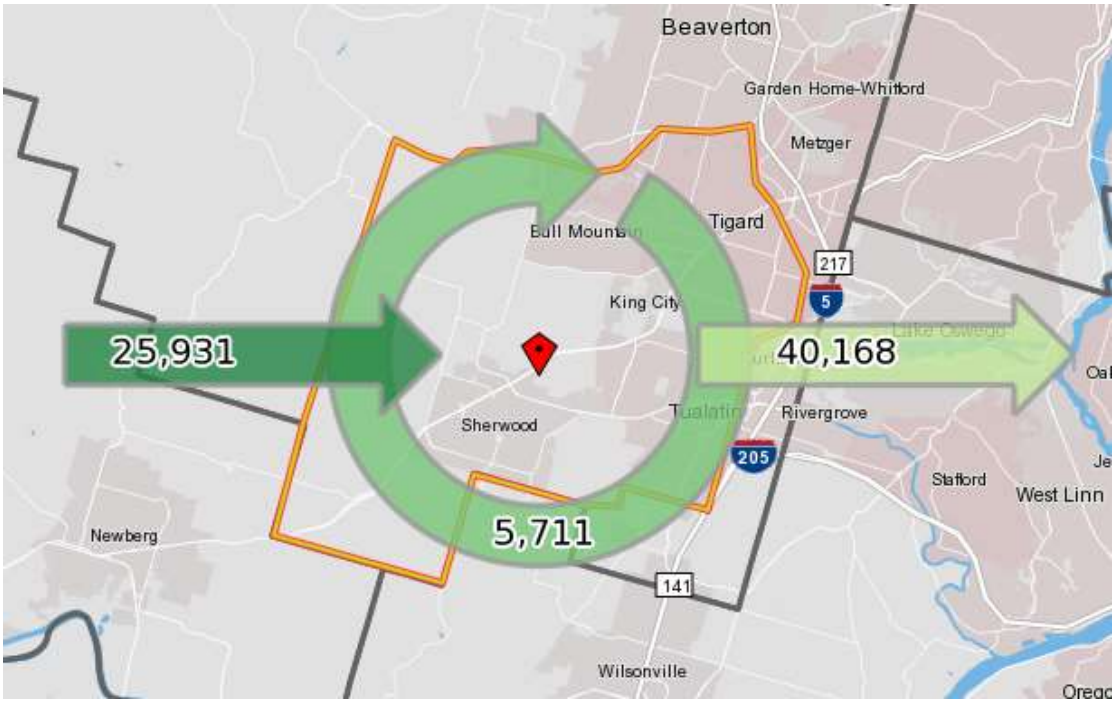
	Employment		
	2010	2035	CAGR 2010-35
Market Area Total	**26,226**	**48,007**	**2.45%**

Source: Metro, gamma series projections

Metro Council projections show an average annual growth rate of 2.5 percent for total employment in market area forecast zones. This robust pace of job growth provides support for continued household (and thus residential) expansion in the market area.

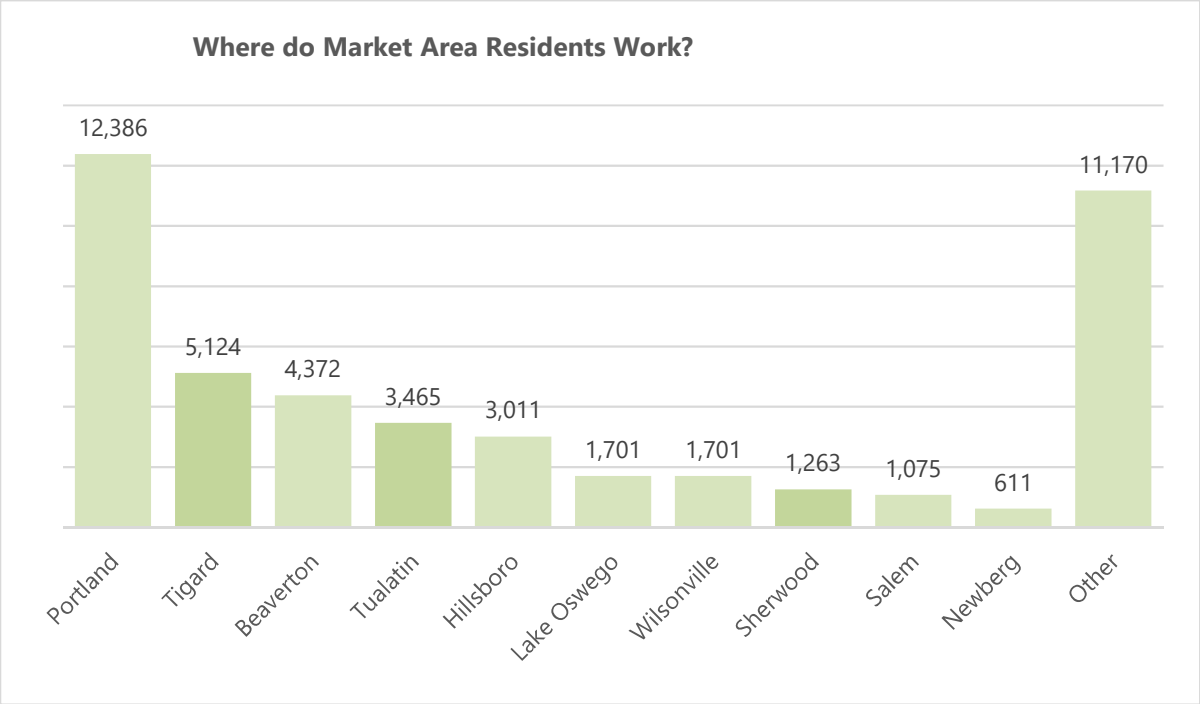
Figure 9 and Figure 10 show commuting patterns for market area employment in 2014. Each day, some 26,000 workers commute into the market area for work, while over 40,000 commute from homes in the market area to workplaces outside. Approximately 5,700 market area residents have relatively easy commutes, with jobs also inside the market area.

Figure 9: Market Area In-Commuting, Work-In-Place, and Out-Commuting (2014)



Source: U.S. Census Longitudinal Employment-Household Dynamics (LEHD), and Leland Consulting Group

Figure 10: Out-Commute Destinations for Market Area Residents (2014)

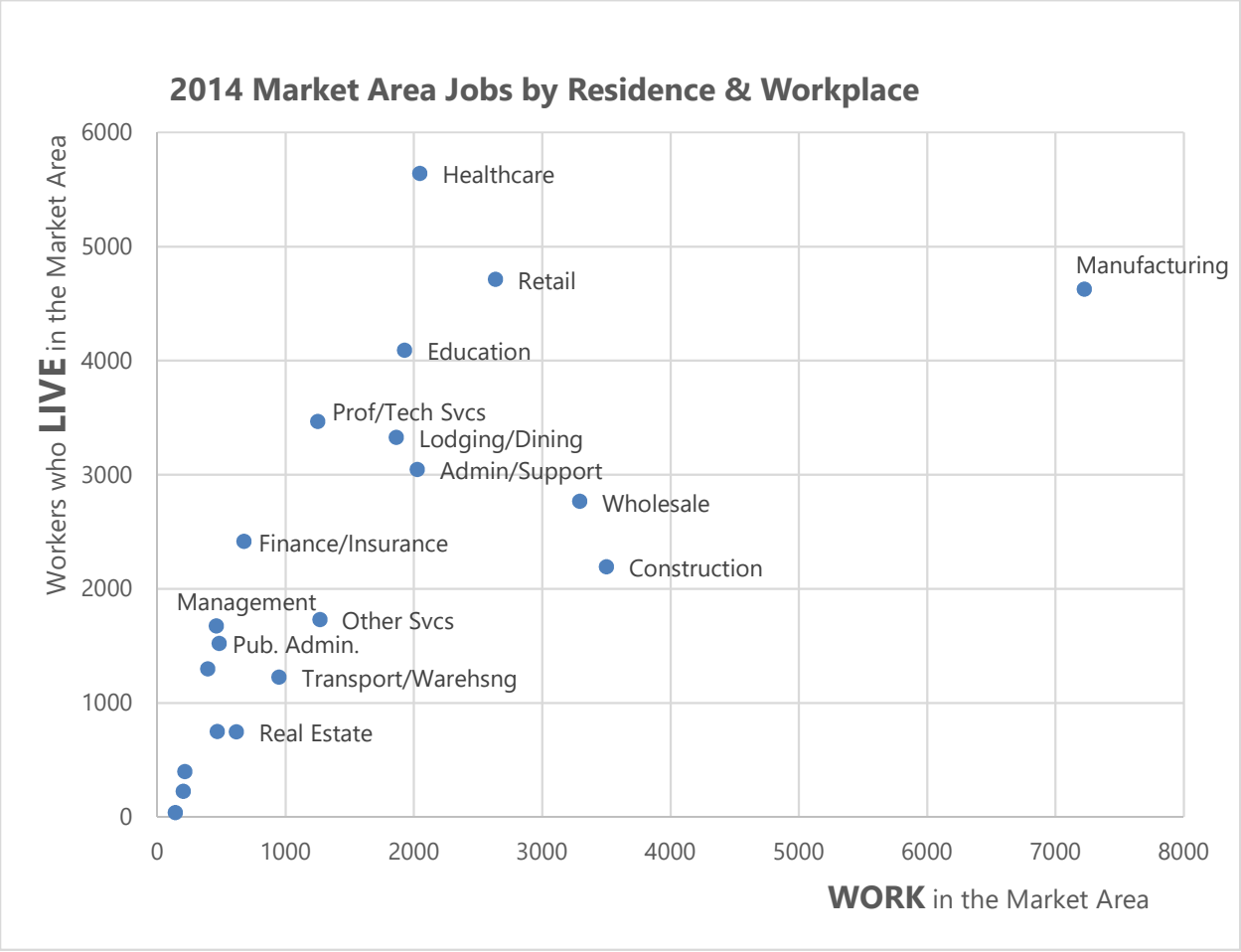


Source: U.S. Census Longitudinal Employment-Household Dynamics (LEHD), and Leland Consulting Group

Figure 11 illustrates major industries for the market area, from both the workplace and residence perspective. Healthcare is the leading industry sector for employed residents of the market area, with over 5,500 residents working in that field. Just over 2,000 healthcare jobs take place within market area establishments.

Manufacturing is by far the top sector for market area firms, providing over 7,200 jobs in 2014. Wholesale and construction are other major employer industries, while retail, education and professional/technical services are other top sectors for area residents.

Figure 11: Market Area Industry Profile, 2014

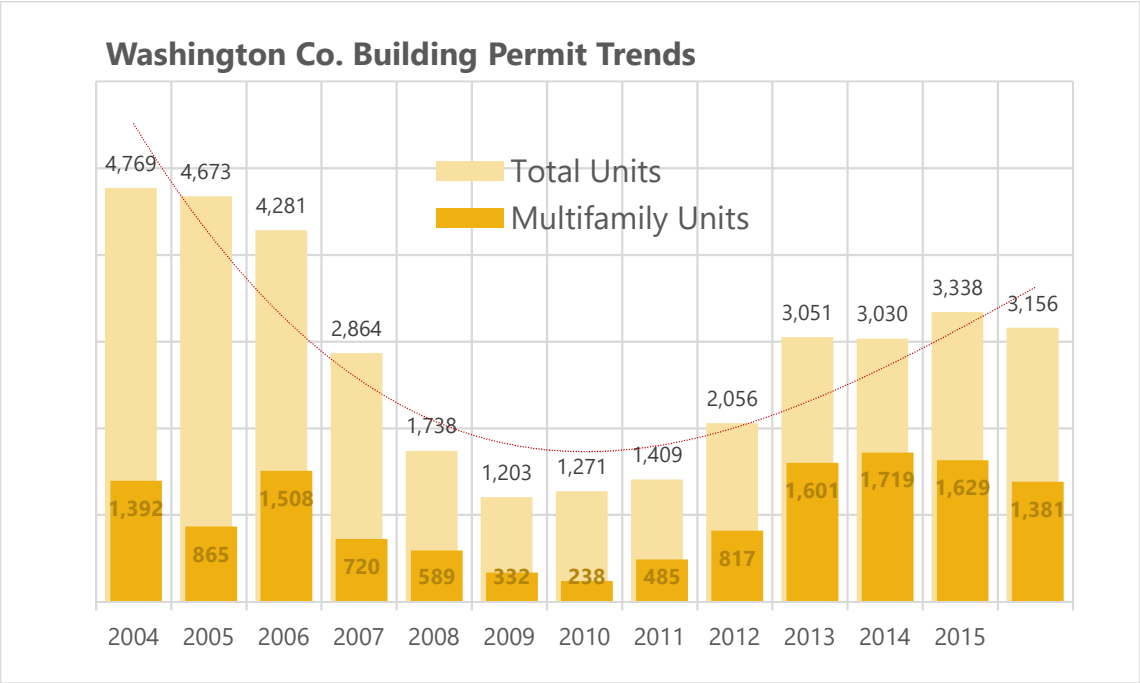


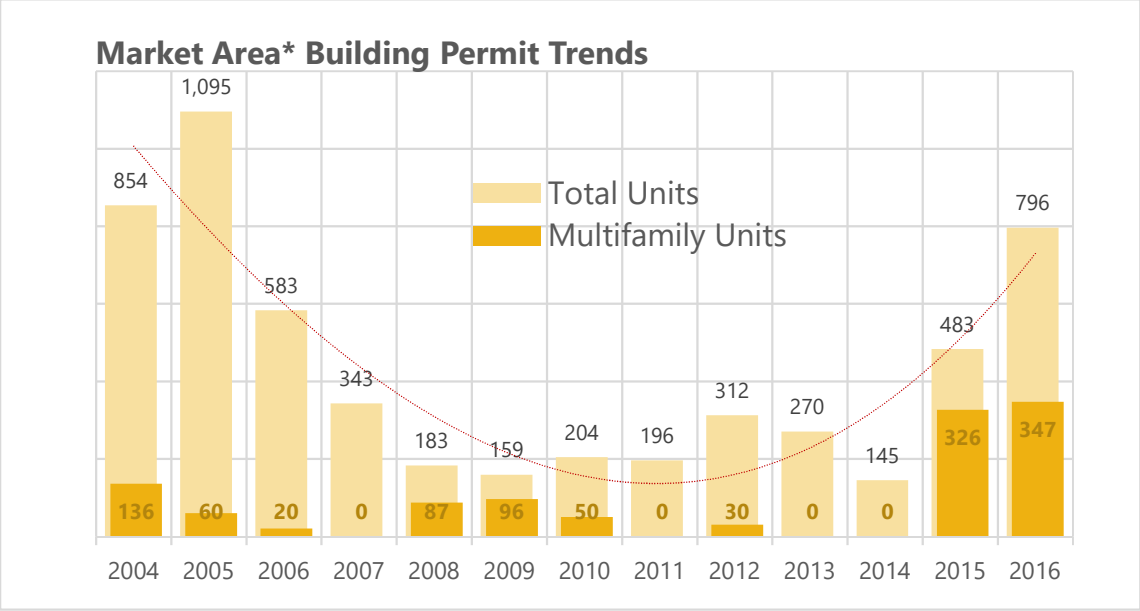
Source: U.S. Census Longitudinal Employment-Household Dynamics (LEHD), and Leland Consulting Group

RESIDENTIAL MARKET SUPPLY & DEMAND

Supply Characteristics:

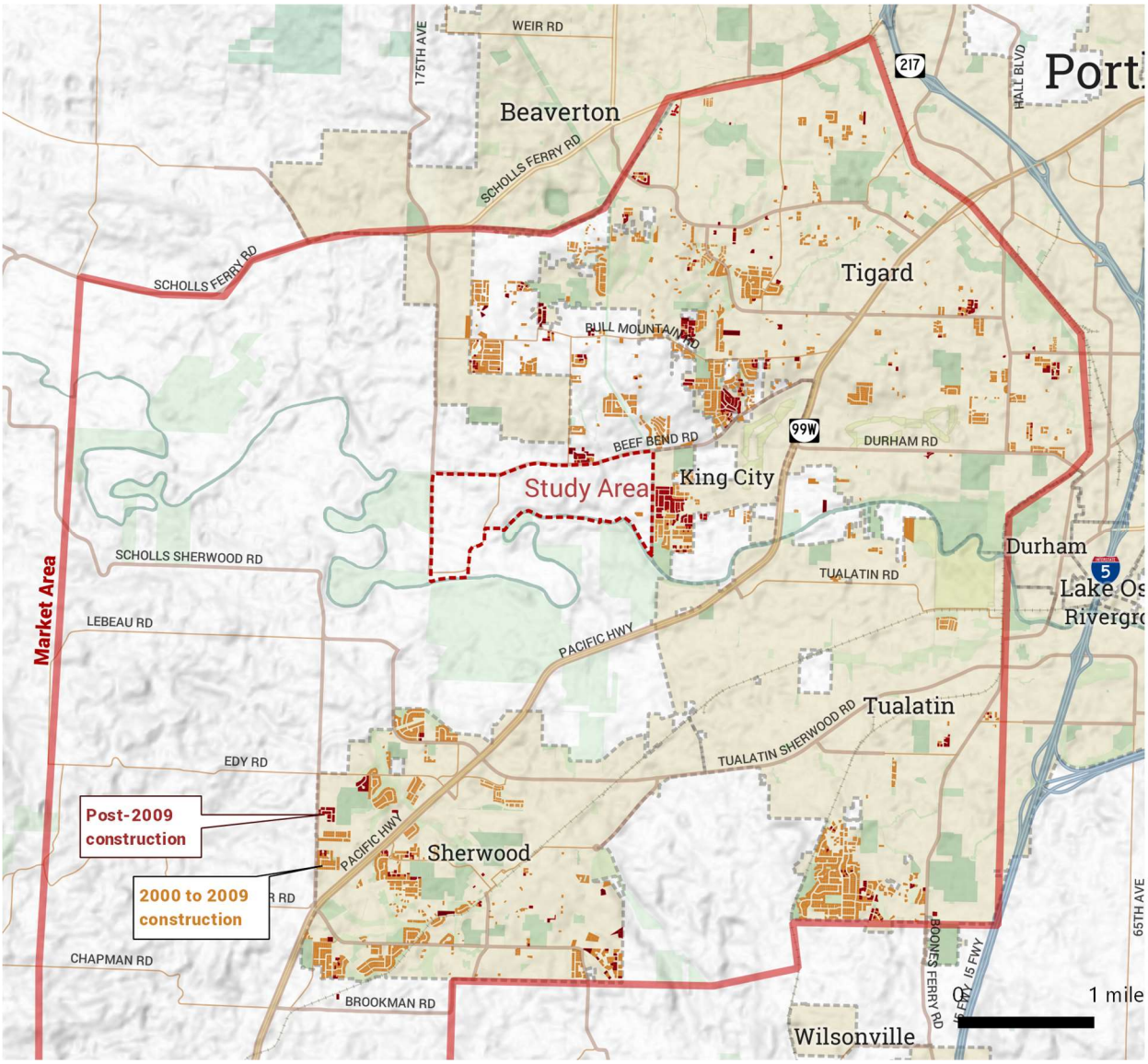
Figure 12: Building Permit Trends





Source: HUD SOCDS (based on local jurisdiction building departments; and Leland Consulting Group
**Note: Building permit data is available at the municipality level only, so this graphic likely includes some permit activity in Tigard and Tualitin taking place outside the market area.*

Figure 13: Post-2000 Market Area Single-Family Construction Activity

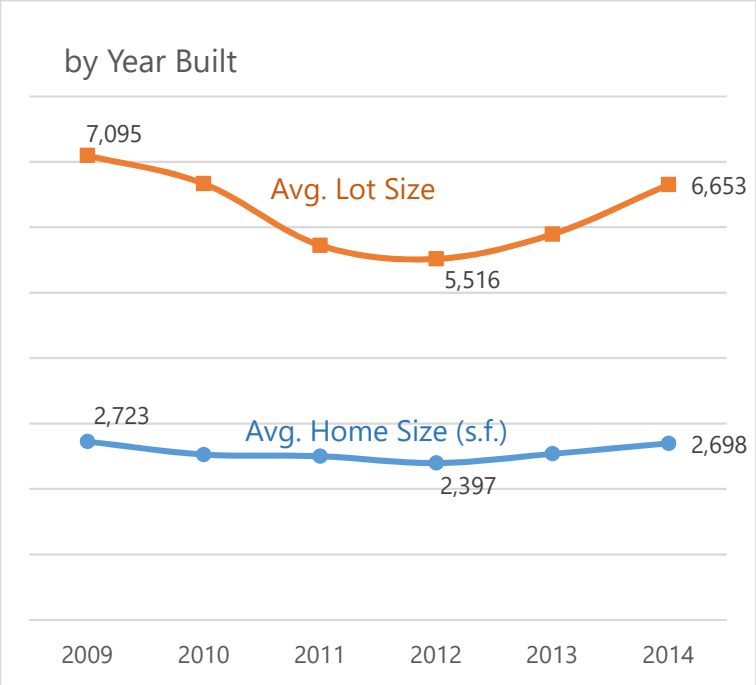


Source: Washington County Assessor (via Metro), and Leland Consulting Group

Figure 13 Shows all parcels with units built since 2000 in the market area, with post-recession activity further highlighted as dark red. Note that in the study area vicinity, King City itself has been the site of much recent construction activity. The Bull Mountain unincorporated area north of the study area saw considerable (and somewhat scattered) activity during the pre-recession period, but little since 2010. The adjacent incorporated part of southeast Tigard, has had substantial single-family development both before and after the recession.

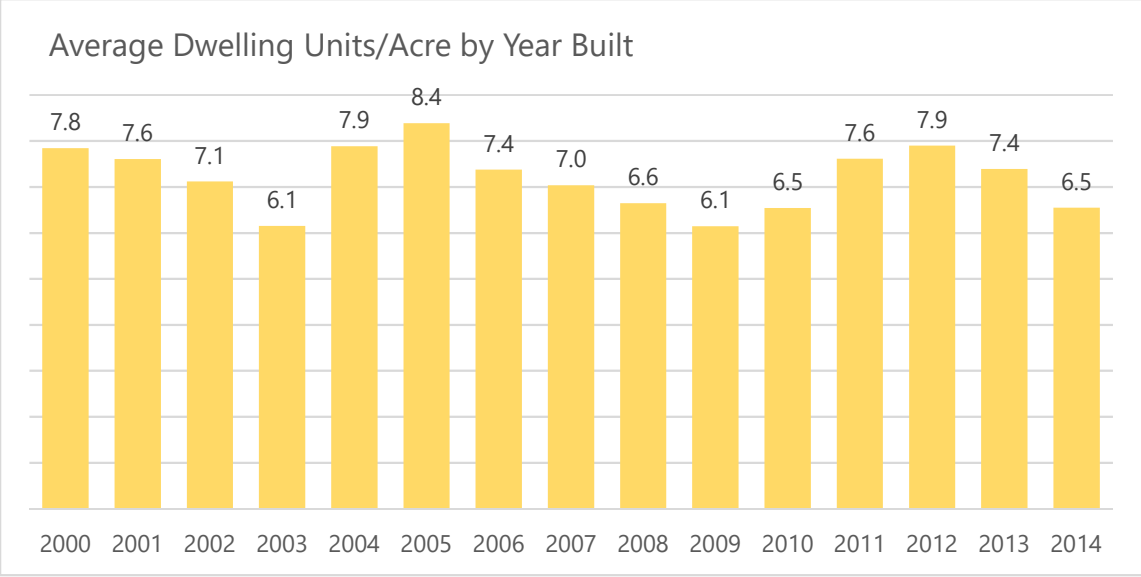
The combined southwest Tigard and unincorporated Bull Mountain area (within the market area, north of Beef Bend Rd. east of Roy Rogers, west of Pacific Hwy) has approximately 2,500 lots with homes built since 2000. Over the same period, the (much smaller) western portion of King City completed approximately 600 units. Both Sherwood and Tualatin experienced brisk single-family construction prior to the recession and recovery period construction at a reduced pace.

Figure 14: Market Area Single Family Trends for Lot Size and Home Size



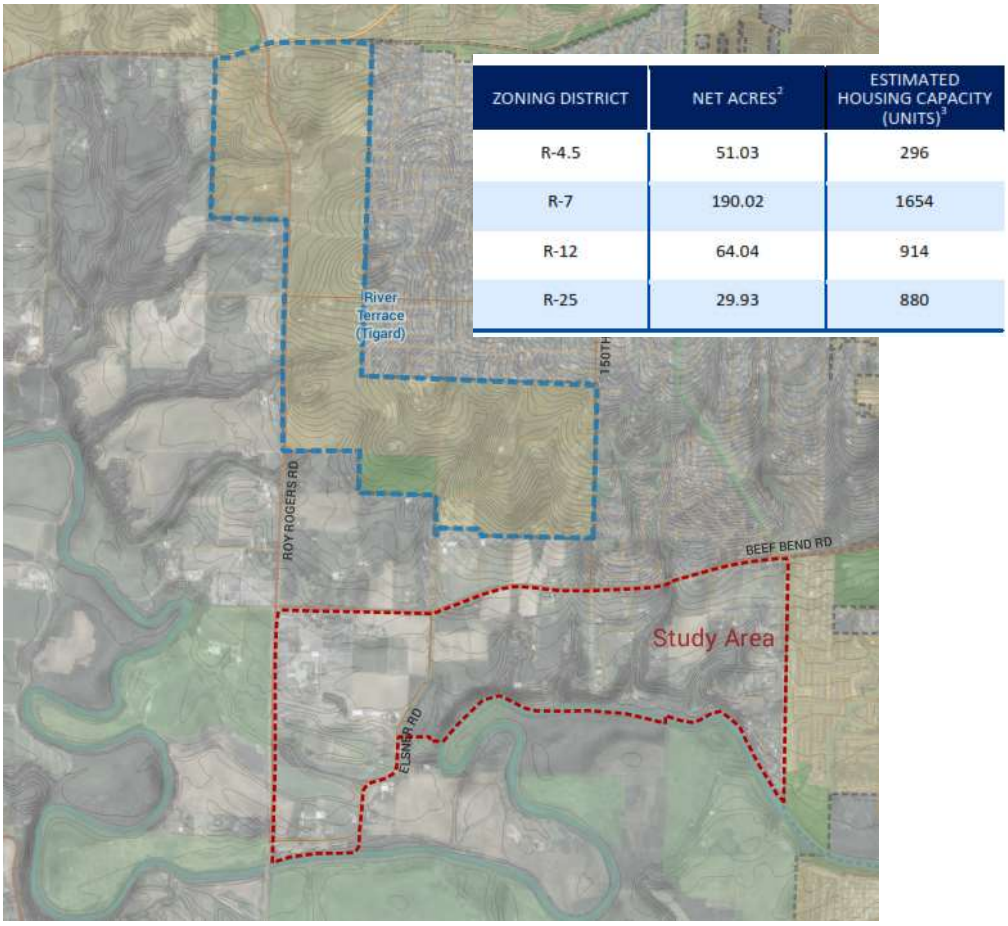
Source: Leland Consulting Group, using Washington County Assessor parcel data

Figure 15: Market Area Single Family Development Densities



Source: Leland Consulting Group, using Washington County Assessor parcel data

Figure 16: River Terrace, Tigard



Source: River Terrace Community Plan, 2014

A recently adopted UGA expansion in Tigard called River Terrace will likely serve as the primary local competition for residential development for the study area. The River Terrace Community plan, produced in 2014, states that the area's net buildable acreage would have capacity for 3,744 housing units across a range of proposed densities. Nearly half would be built at a typical SFD density of seven units per acre, but almost 900 units could be built at a 25-units per acre apartment density.

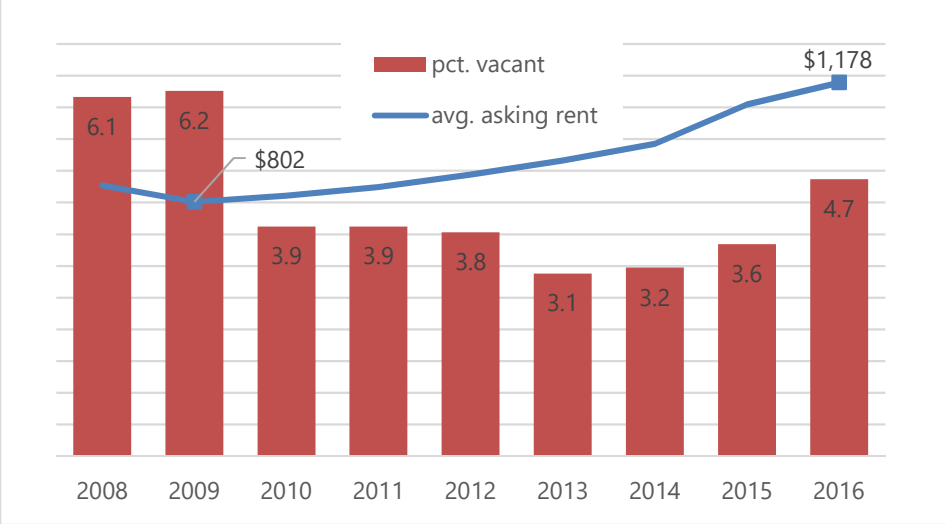
Table 11: Market Area* Apartment Supply

	Total	Built Post-2009
Properties	104	6
Unit Inventory	8,410	221
Under Construction Properties	3	
Under Construction Units	466	
Vacant Units	364	29
Vacancy Rate (%)	4.3%	13.1%

	Total	Built Post-2009
Median Asking Rent	$1,065	$1,372
Median Rent/sf	$1.25	$1.55
1-story units	687	
2-story units	5,044	
3-story units	2,648	221
20th Percentile density (units/ac)	11.5	n/a
Median density	19.0	n/a
80th Percentile density	24.5	n/a
Affordable Units	1,161	0
Senior Units (excl. assisted living)	572	0
Units by City*		
Portland	655	
King City	196	
Sherwood	851	101
Tigard	4,583	
Tualatin	2,125	120

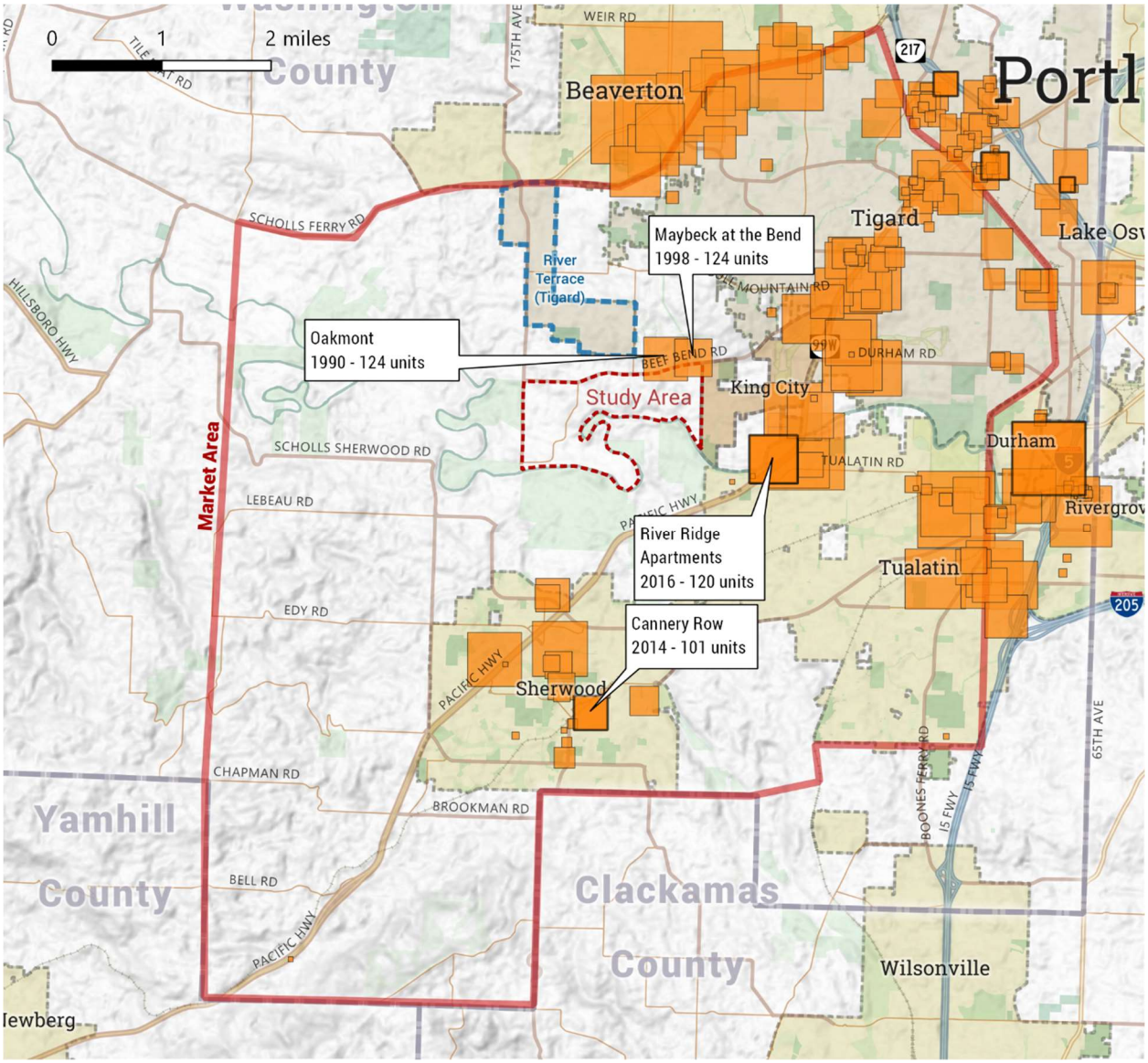
Source: Costar and Leland Consulting Group
** Note: information in this table refers to apartment properties within the overall market area; city subtotals include only those portions within that boundary.*

Figure 17: Market Area Apartment Vacancy and Rent Trends



Source: Costar, and Leland Consulting Group

Table 12: Market Area Apartments, Highlighting Recent and Nearby Projects



Source: Costar, and Leland Consulting Group

Table 13: Market Area Senior Housing Supply

Building Name	Units	Year Built	Avg. Asking Rent	Rent/sf	RentType	Vacancy Pct.	Est. DU/ac
King City Apartments	196	1968	$967	$1.15	Market, Affordable	6.1	37
Summerfield	175	1976	$1,056	$1.27	Market	3.0	61
Woodspring Apartments	172	1991	$952	$0.91	Affordable	0.0	21

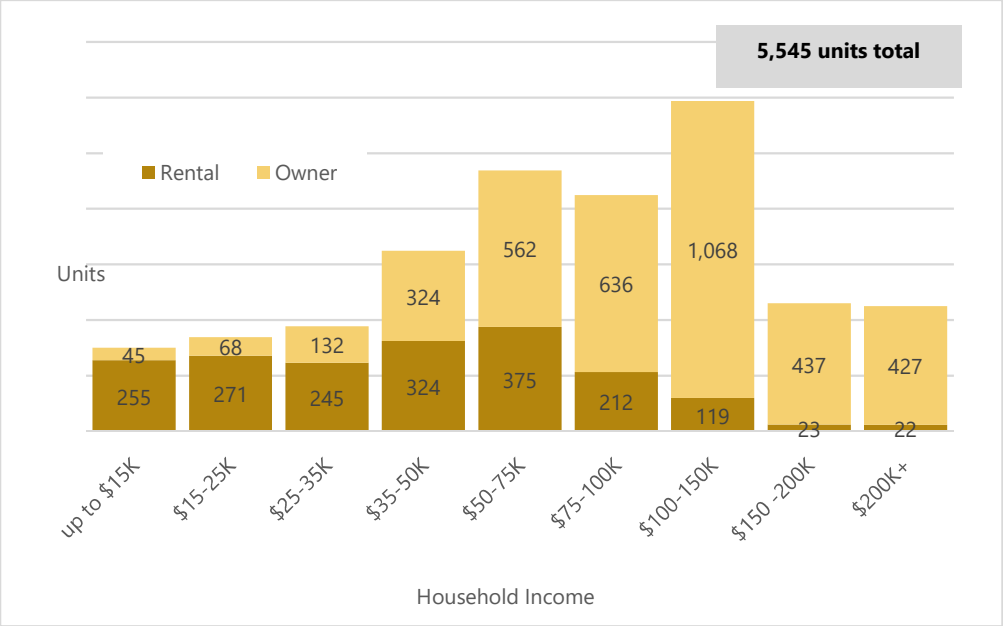
Building Name	Units	Year Built	Avg. Asking Rent	Rent/sf	RentType	Vacancy Pct.	Est. DU/ac
The Village at Forest Glen	82	1985			Market		11
The Knoll at Tigard	48	2011	$697	$1.06	Affordable	4.6	n/a
Stewart Terrace Senior Apartments	29	1983	$918	$1.38	Affordable	5.2	23

Source: Leland Consulting Group, using Costar data and on-line research

Residential Demand:

Long-term (10-year) market area forecast of unit demand, by type and approximate income range, is summarized in the figure below. Current counts for market area households by income are assumed to grow at 1.7 percent annually across the board and retail approximately the same current proportion of renter to owner households. Five percent is added to the resulting total household increase to maintaining an equilibrium occupancy level and account for a small quantity of second homes and homes replaced due to demolition. The result is ten-year demand of 5,545 units with expected rent/own split as shown below.

Figure 18: 10-year Market Area Residential Demand (units) by Household Income

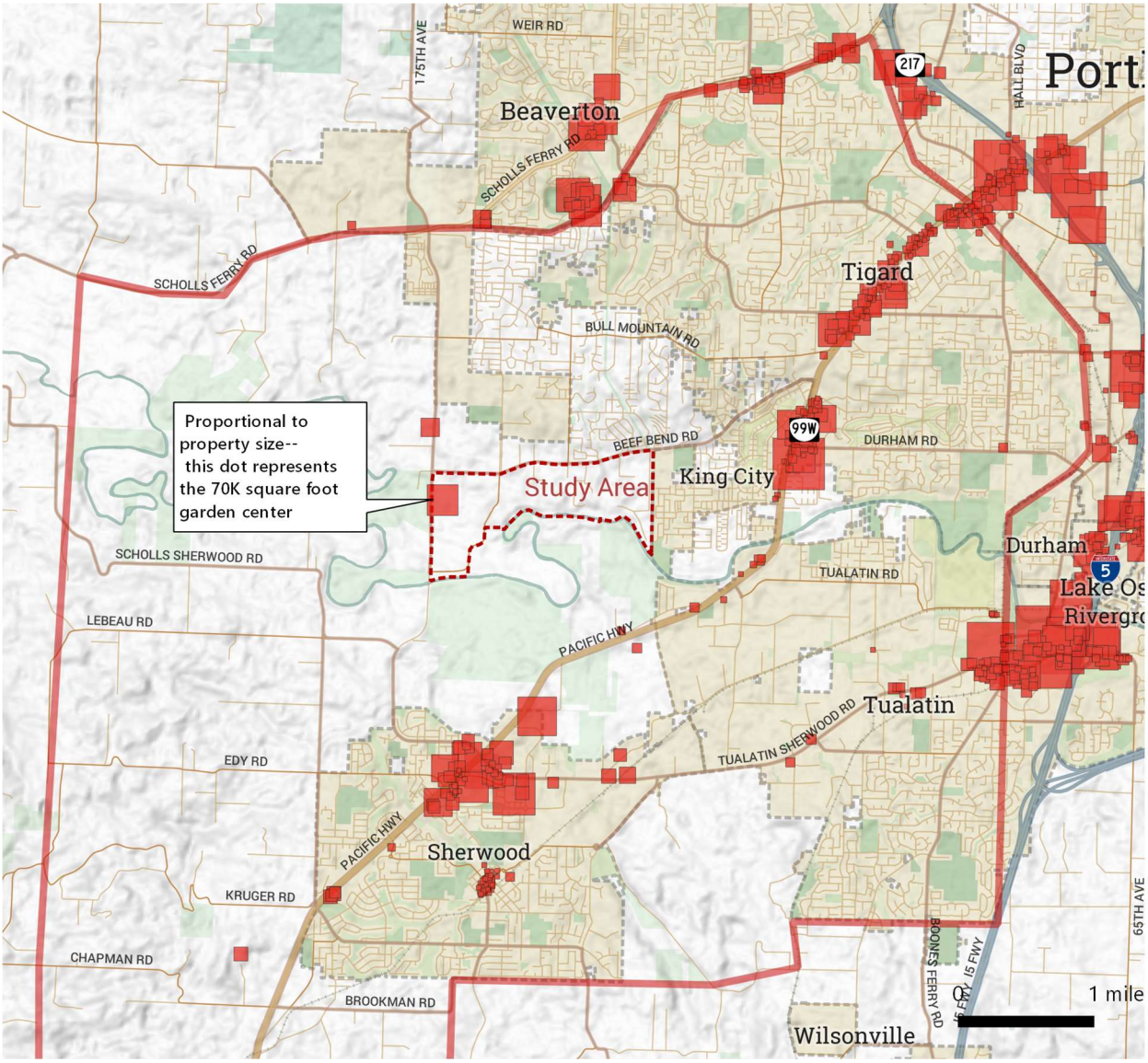


Source: Leland Consulting Group, with inputs from Census data, Metro Council projections and ESRI.

RETAIL MARKET SUPPLY & DEMAND

Supply Characteristics:

Figure 19: Market Area Retail Supply, 2017

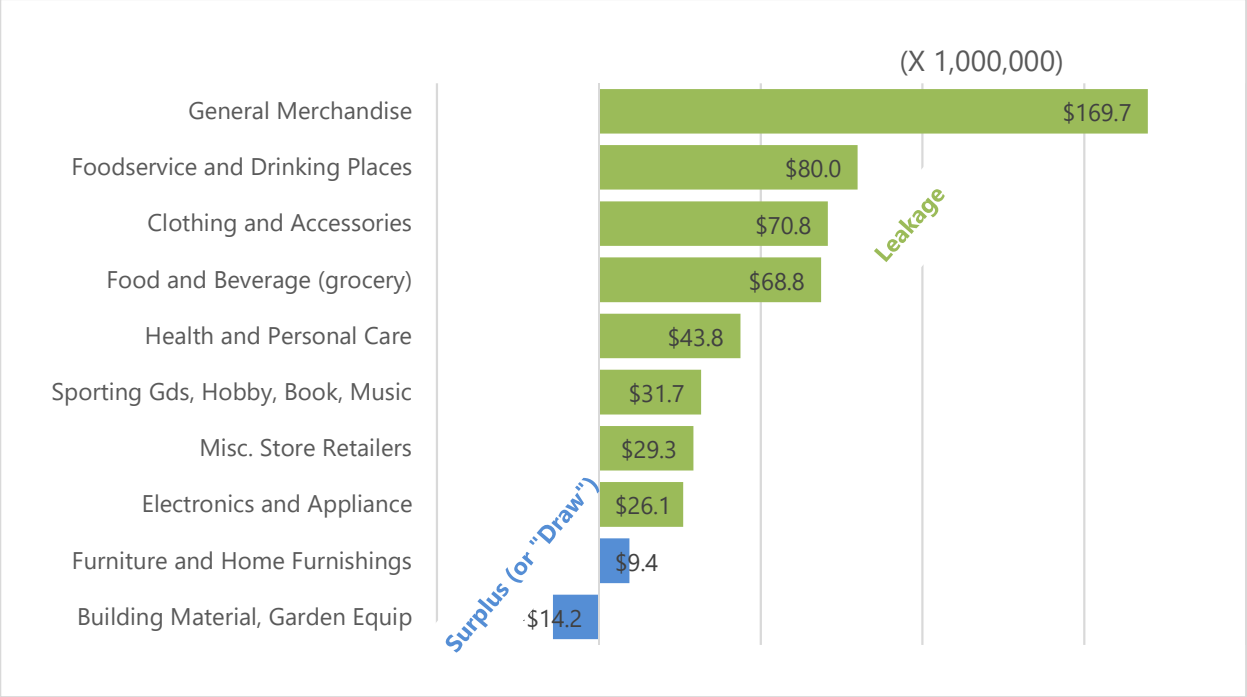


Source: Costar and Leland Consulting Group

Figure 19 illustrates the distribution of retail supply in the market area and just beyond. Market area inventory consists primarily of convenience and neighborhood scale retail development, with more regional scale projects falling just outside to the east and northeast, clustered near major I-5 interchanges. The only retail currently within the study area itself is Al's Garden Center, on Roy Rogers.

Future Demand:

Figure 20: Market Area Retail Leakage Analysis by Major Category



Source: ESRI and Leland Consulting Group

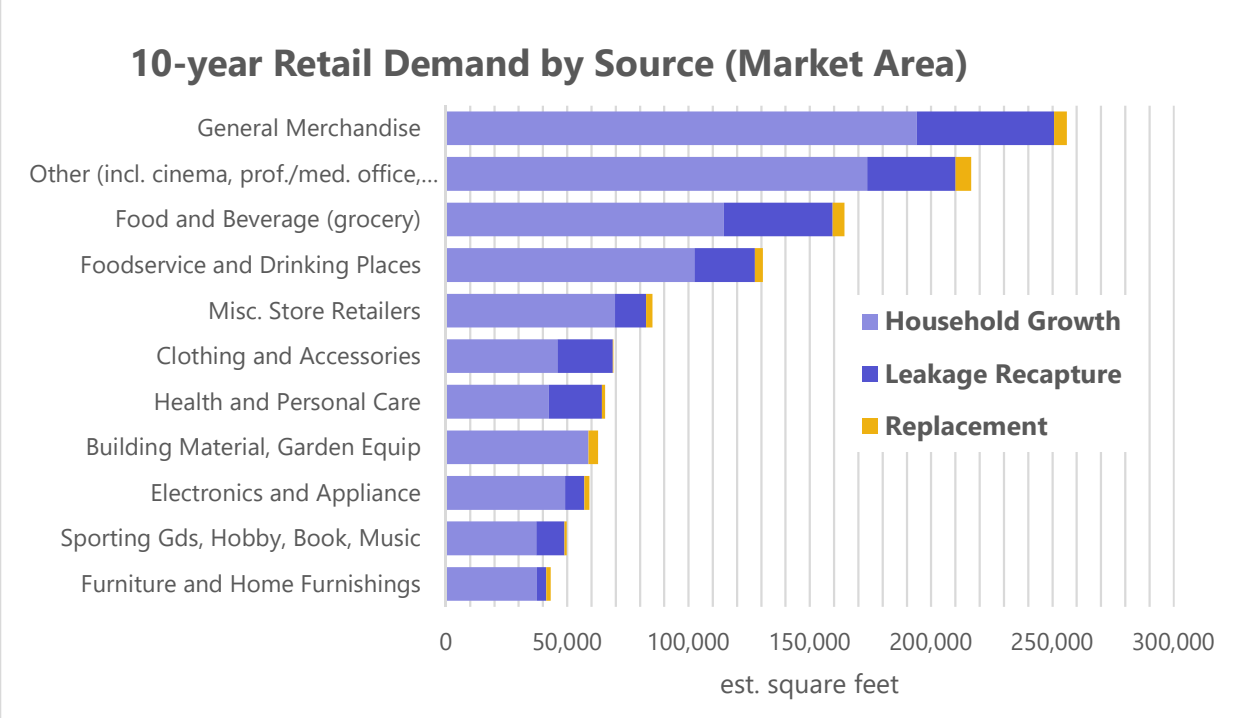
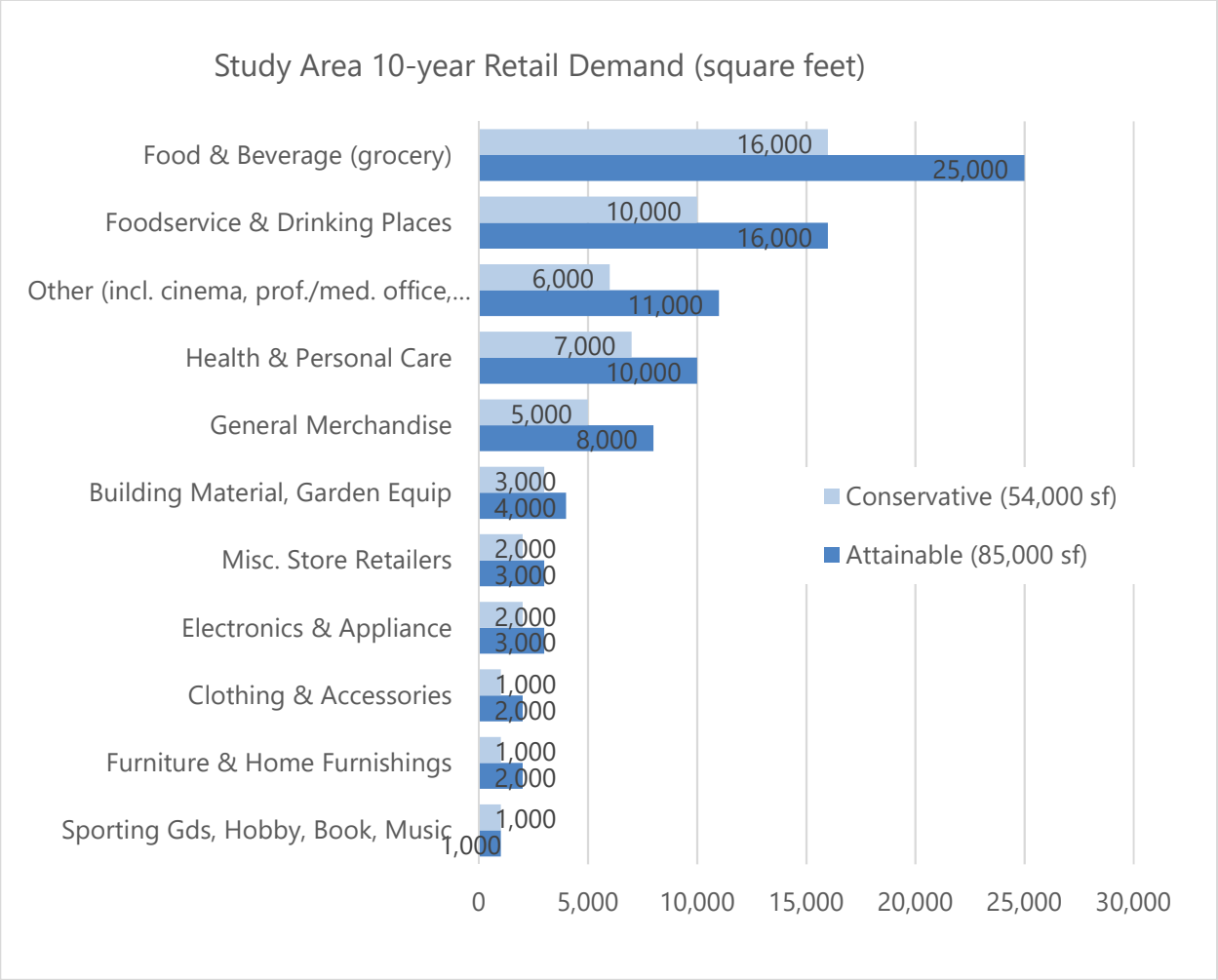


Figure 21: Study area 10-year Attainable Retail Demand



Attainable study area capture within retail is driven by opportunities for grocery and dining, resulting in adequate market support for a small- to mid-sized neighborhood center anchored by a small format (15-25,000 sf) grocer, with pad and in-line co-tenants made up of restaurants (primarily fast-casual), local personal services such as a salon, yoga or jui-jitsu studio, storefront health services (dental/chiro/clinic) and other miscellaneous shops.

RECOMMENDED NEXT STEPS

The preceding analysis quantifies and describes market support for residential development, in addition to limited commercial development, on study area land through a 2040 time horizon. Next steps include reconciling this attainable land absorption with the inventory of buildable land available for site planning. This process requires an approximation of required deductions for additional transportation rights-of-way, wetlands, floodplain, open space and other unbuildable land, to arrive at a reasonable assumption of net buildable acreage. This could potentially involve dividing the study area into two or more subarea parts (as in the example below).

Inventory of Buildable Land [example below]

Land Category	Study Area (Acres)		
	Part A	Part B	Total
Total Area	179	316	495
Unbuildable			
Committed [a]	12	90	102
Unbuildable (stream corridor/ adjacent wetland / adjacent riparian buffer/ >25% slope)	24	37	61
Buildable but challenging			
Acreage of all non-significant wetlands	18	5	23
20% of the total acreage of non-significant wetlands [b]	4	1	5
Subtotal [c]	53	124	177
Gross Buildable (Total acreage less unbuildable)	**126**	**192**	**318**
Infrastructure and Amenities			
Internal Roads [d]	23	35	57
Stormwater Management	5	3	8
Parks [e]	5	5	10
Subtotal	33	42	75
Net Buildable			
Retail/Commercial	2	5	7
Residential	91	145	236
Net Buildable	**93**	**150**	**243**

With a canvas of net buildable parcel acreage and rough placement of roads and open space, the site can then be populated with alternative versions of housing and retail types of varying densities to further refine build-out expectations.

Housing Types

In order to illustrate potential development scenarios within the Study Area, this market analysis uses five different housing types, as shown below. These are broad categories, and there can be significant variation in home design, layout, site size, and other factors within these types. These housing types are key parts of the "palette" with which stakeholders can paint the West King City area during later phases of the Concept Plan process. These housing types are based on housing recently built in the market area, housing proposed for other comparable new development areas.

Large Lot Single-Family

Medium Lot Single-Family

Small Lot Single-Family

Single-Family Attached

Multifamily

Potential Development Per Decade (PRELIMINARY example – to be revised & refined in remaining project phases)

Attainable Absorption per Decade

		Market Area Units	Capture Rate		10-year Study Area Absorption		Approx. Units Per Acre		Acreage Required	
			low	hi	low	hi	low	hi	low	hi
Single Family Detached	% of units									
small lot	30	933	10%	20%	**93**	**187**	10	15	**9.3**	**12.4**
medium lot	40	1,244	10%	20%	**124**	**249**	7	10	**17.1**	**24.9**
large lot	30	933	10%	20%	**93**	**187**	5	7	**18.2**	**25.7**
Townhome, Condo, Plex		500	10%	15%	**50**		20	25	**2.5**	**3.2**
Rental Apartments		1,600	10%	15%	**1[illegible]**	**[illegible]40**	25	30	**6.4**	**8.0**
Total Residential Units		5,210	10%	18%	**52[illegible]**	**942**	9.7	12.7	**53.6**	**74.2**
Non-Residential										
Retail					(s.f.)		(FAR)			
Neighborhood Retail (small format grocery anchor)					40,000	60,000	0.2	0.25	4.6	5.5
Wine Country Lodging/Event Space/Dining										
70-room lodge, 10K sf event,10K sf restaurant					40,000	60,000	0.2	0.25	4.6	5.5
Educational vineyard, organic culinary garden (part flood plain?)									5	10
Total Acreage (Year 10)									**121**	**169**

Murray, Smith & Associates, Inc.
Engineers/Planners

888 SW 5th Avenue, Suite 1170 ▪ Portland, OR 97204 ▪ PHONE 503.225.9010 ▪ FAX 886.274.9807

92-0251.040
March 13, 2017

Mr. Michael Weston
City Manager - City of King City
15300 SW 116th Avenue
King City, OR 97224

Re: King City Urban Reserve Area Concept Plan

Dear Mr. Weston:

As requested, MSA has prepare a revised draft of the Existing Public Utilities Baseline Memorandum in response to comments received from the project team and the Technical Advisory Committee. Please find enclosed a Comment Log documenting our response to the comments provided and a copy of the revised draft memorandum that incorporates changes that are acknowledged in the Comment Log. Please note that there are a number of comments that have not been directly addressed in the revised memorandum because they require further discussion with agency staff (City of Tigard or Clean Water Services) or we determined that they were not specifically relevant to documentation of the Baseline Conditions.

We look forward to reviewing the Comment Log and finalizing the memorandum with the project team following this week's charrette.

Please do not hesitate to contact us if you have any questions in this regard. Thank you.

Sincerely,

MURRAY, SMITH & ASSOCIATES, INC.

Brian Ginter, P.E.
Principal Engineer

Enclosures

COMMENT REVIEW LOG

Existing Public Utilities Baseline Memorandum Comments

Existing Public Utilities Baseline Report (MSA)			
Location	**Comment**		**Response**
General	I highly recommend that KC work with Tigard staff to improve the information about how stormwater will be conveyed through this area from RT. Review RT stormwater reports and incorporate information into your document.	JS	Reference to the Otak Memorandum to the Tigard City Engineer dated October 15, 2015 has been included. Additional coordination with City of Tigard is warranted for concept development.
General	CWS will manage one (1) PS for this area and everything will be served by gravity lines…we don't allow numerous sanitary PS, so remove sentences that state pump stations will be installed on the southern end.	JS	Based on coordination with CWS on current planning and design for the River Terrace South Pump Station, developer pump stations are expected to serve certain areas in the southern portion of the planning area.
General	Describe the water supply transmission infrastructure and the process to ascertain any potential capacity deficiencies.	SS	General description of infrastructure added. Per the Intergovernmental Agreement Regarding Water System Ownership and Water Service (12/9/2014), the City of Tigard is responsible for water system planning.
General	Add recommendations to evaluate the need for, and timing of, additional transmission infrastructure.	SS	Recommendations added. Per comment above, this will be the responsibility of the City of Tigard.
General	Describe 410-foot pressure zone existing reservoir locations and any deficiencies in supplying water to this area.	SS	Additional description added. There are no current deficiencies documented as water service to this area has not been considered in prior planning.
General	Add recommendations regarding what studies King City needs to complete in order to evaluate the need for, and timing of, additional 410-foot storage.	SS	Per the comment above, these additional studies are the responsibility of the City of Tigard. King City will provide estimates of water demand to support these studies, as required by the IGA.
General	Describe the issue of timing as it relates to the location of any new facilities under the current planned build out of the areas north and uphill of King City, i.e. if a reservoir is needed, where would it be located and is their available land with the current planned build out of River Terrace.	SS	Per the comment above, these additional studies are the responsibility of the City of Tigard. Kind City will provide estimates of water demand to support these studies, as required by the IGA.
General	Describe methods to finance studies, future facility plans, and upgrades to existing infrastructure.	SS	Per the comment above, these additional studies are the responsibility of the City of Tigard.

Existing Public Utilities Baseline Report (MSA)			
Location	**Comment**		**Response**
General	Consider incorporating more detailed information regarding stormwater existing conditions and multijurisdictional issues as described in the Otak Memorandum to the Tigard City Engineer dated October 15, 2015.	SS	Reference to the Otak Memorandum to the Tigard City Engineer dated October 15, 2015 has been included. Additional coordination with City of Tigard is warranted for concept development.
General	Consider applying River Terrace stormwater facility design standards in King City Concept Plan Area. Design standards are available here: http://riverterracetigard.com/wp-content/uploads/2015/07/Stormwater-Management- Standards.pdf	SS	Future development design standards are not included in the Baseline Conditions reporting and will be addressed at a later time.
1	Water: While not intended to serve King City, either directly or indirectly, should the Willamette Water Supply project be discussed?	JF	It has no direct bearing on water supply to King City and there are currently no existing facilities to include in "Baseline Conditions" memorandum.
3	Correction, second paragraph under Water Demands: no "d" in Rogers Rd.	JP	Corrected
Figure 1 (Water)	• Clarify water piping in River Terrace (much of what is shown has not yet been constructed) • Remove fill color for Concept Plan Area to show water pressure zone • Show existing and planned water reservoirs in/near the Concept Plan Area	SS	Figure for final memorandum will be revised to address bullets 1 and 2. There are currently no existing or planned reservoirs in/near the Concept Plan area.
Figure 2 (Sewer)	• Show existing trunk capacity limitations • Show existing gravity and force mains more clearly	SS	The specific limitation locations, if any, are currently unknown. Language in memorandum has been modified. Figure for final memorandum will be revised to address bullet 2.
Figure 3 (Storm water)	• Update map to show all layers (some habitat layers not showing) • Identify Tigard and Unincorporated Washington County boundaries more clearly (this is especially important for understanding and managing stormwater issues) • Label stream channels	SS	Refer to Natural Resources Baseline Memorandum for additional habitat information. Figure for final memorandum will be revised to address bullets 2 and 3.
General	Consider incorporating more detailed information regarding stormwater existing conditions and multijurisdictional issues as described in the Otak Memorandum to the Tigard City Engineer dated October 15, 2015.	SS	Reference to the Otak Memorandum to the Tigard City Engineer dated October 15, 2015 has been included. Additional coordination with City of Tigard is warranted for concept development.

Murray, Smith & Associates, Inc.
Engineers/Planners
888 SW 5th Avenue, Suite 1170 ■ Portland, OR 97204 ■ PHONE 503.225.9010 ■ FAX 886.274.9807

DRAFT MEMORANDUM

DATE: March 13, 2017

DRAFT

PROJECT: 92-0251.040

TO: Mr. Michael Weston
City of King City - City Manager

FROM: William S. Evonuk, P.E.
Brian M. Ginter, P.E.
Murray, Smith & Associates, Inc.
City of King City - City Engineer

RE: King City Urban Reserve Area Concept Plan
Existing Public Utilities Baseline Memorandum

Introduction

This memorandum was prepared to provide an overview of the existing public utilities available for the King City Urban Reserve Area (URA). The public utilities of particular interest described in this memorandum include: water, sanitary sewer, and storm drainage. Overall, the URA planning area is not currently served by public utilities and development within the URA planning area will require facility upgrades.

The existing conditions of public utilities are summarized below followed by more detailed information in the remainder of this memorandum:

Water

- Developed parcels within the URA planning area are currently served with on-site private domestic and/or irrigation wells.
- The public drinking water provider for King City, including future development of the URA is the City of Tigard
- Extension of transmission piping and possible development of additional storage facilities will be required to provide water service to the King City URA. Further study by the City of Tigard is recommended to identify the extent of deficiencies, need for additional infrastructure and funding mechanisms.

- Development should be coordinated with the City of Tigard as the water service provider for the area within King City.

Sanitary Sewer

- Developed parcels within the King City URA are currently served with on-site private septic systems.
- Clean Water Services (CWS) is the service provider for sanitary service within the City of King City and future development in the URA.
- CWS is in the preliminary planning stage of installing a sanitary sewerage pump station adjacent to Roy Rogers Road to serve development to the north of the King City URA. In addition to the pump station, CWS is planning installation of a force main and gravity conveyance system improvements. This future pump station will also have the capacity to serve the western portion of the URA planning area.
- Natural topography and existing drainage ways limit the areas that can be served by gravity. It is expected that the southern half of the King City URA will require the installation of small developer pump stations as development occurs.
- Specific development should be coordinated with CWS to identify system needs based on the specific new development proposals.

Storm Drainage

- CWS is responsible for storm drainage throughout Washington County under a National Pollutant Discharge Elimination System (NPDES) – Municipal Separated Storm Sewer System (MS4).
- The King City URA consists of natural stormwater infiltration and conveyance through natural drainage ways that generally flow from north to south, ultimately discharging to the Tualatin River.
- The existing drainage ways are susceptible to erosion and degradation from high flows.
- The City of Tigard and CWS are currently considering alternatives to manage high flows from upstream development by either diverting peak flows through a high flow bypass pipeline that would be constructed through the planning area or by constructing stream channel enhancements to reduce or prevent further degradation.
- New development within the planning area must meet CWS requirements, and it should occur in such a manner so as not to create an adverse impact to the existing storm drainage systems, in accordance with CWS' NPDES MS4 permit.
- Future development within the planning area should be coordinated with current upstream planning efforts to mitigate high flow events and prevent further degradation of the existing drainage ways.

Water Supply

Existing System

The City of King City receives potable water supply from the City of Tigard, which serves Tigard, King City, Durham and the unincorporated Bull Mountain area. Under the terms of the Intergovernmental Agreement Regarding Water Service ownership and Water Service between the City of Tigard and the City of King City, dated December 9, 2014, the responsibilities for water service are sumamrized as follows:

- System Management: The City of Tigard is responsible for planning, designing, building, financing, operating, maintaining, repairing and replacing components of the water system within King City's boundaries. King City will provide information, as requested, to enable Tigard to prepare demand forecasts to support system planning and financing.
- Service Area: The City of Tigard will serve areas annexed to King City, areas added to the urban Growth Boundary and any designated urban Reserve where King City will ultimately be required to provide water service.
- Infrastructure Financing: The City of Tigard is responsible for setting rates and System Development Charges (SDCs) for the entire water service area for recovery of costs associated with system management and capital improvements.

King City is located in the 410-foot pressure zone of Tigard's distribution system. There are seven existing reservoirs that provide gravity water supply to this zone. The nearest 410-foot zone reservoirs are the Menlor Reservoir located south of the intersection of SW 154th Avenue and SW Barrows Road, and Reservoir No. 4 located north of the intersection of SW 122nd Avenue and SW Beef Bend Road. There are currently no 410-foot pressure zone reservoirs in the southwest portion of the Tigard water system service area.

The Urban Reserve Area is located southwest of existing water system infrastructure. Figure 1 shows the existing water distribution system adjacent to the planning area.

Water Demands

Development of the King City URA will likely result in an increase in water demands and an extension of service that was not projected in the Tigard Water System Master Plan (Carollo, May 2010) for the water system's 410-zone. This increase in demands may trigger the need for additional 410-foot pressure zone storage.

Future service to the King City URA will require updated water system planning by the City of Tigard. In particular, Tigard will need to evaluate the need for, and timing of, additional 410-foot pressure zone storage and extension of transmission piping west from SW Beef Bend Road and south from SW Roy Rogers Road to serve the planning area. It is recommended that the City of Tigard initiate studies to determine if additional storage and

transmission infrastructure will be required, especially as it pertains to the need for acquisition of property to site an additional 410-foot pressure zone reservoir.

Water System Constraints

Water system infrastructure within the planning area will likely consist of 8-inch and 12-inch diameter distribution mains for local domestic, irrigation, and fire suppression service. It is likely that this infrastructure will be located in existing and proposed rights-of-way and will be developed under and constructed to City of Tigard standards.

Sanitary Sewer

Existing System

Clean Water Services (CWS) provides wastewater collection, treatment and disposal service for the City of King City. Wastewater from King City is generally collected via 6-inch to 8-inch diameter sewer mains and then routed south across the Tualatin River and then east to the CWS Durham Wastewater Treatment Plant. Developed parcels within the URA planning area are currently served by private on-site septic systems. Figure 2 shows CWS' sanitary sewer collection and conveyance system in and around King City and the URA planning area.

Planned Sanitary Sewer System Improvements

CWS is currently planning a new waste water pump station to be located in the west of the King City URA adjacent to Roy Rogers Road. The pump station will serve River Terrace South and other development north of the King City URA. A force main will connect the proposed pump station to CWS' existing gravity system and will generally route north along Roy Rogers Road, then east along Beef Bend Road, as shown on Figure 2. Portions of the existing gravity conveyance system will be upgraded/upsized, if required, in conjunction with the construction of the new pump station. The pump station is being planned with the capacity to serve the King City URA.

Sanitary Sewer System Constraints

The natural topography and existing drainage ways within the King City URA limit the ability to serve the entire planning area by gravity. It is expected that the southern half of the planning area will require small developer pump stations to be installed as development occurs to pump swage into the existing gravity conveyance system to the east, or to the planned pump station to the west.

Storm Drainage

Existing System

CWS is the primary agency responsible for surface water management in King City through an intergovernmental agreement. The storm drainage system in and around King City is comprised of both underground piping, open channel drainage ditches, and natural drainage ways. Generally, storm water flows down gradient from north to south through the city, with ultimate discharge to the Tualatin River through numerous outfalls. The King City URA is mostly undeveloped and generally lacks improved stormwater conveyance and detention facilities. The existing natural drainage ways are susceptible to erosion and degradation during high flow runoff events. Figure 3 shows the existing natural drainage network in and around King City and the URA planning area.

Planned Storm Drainage Improvements

The City of Tigard and CWS are currently considering alternatives to manage high flows from upstream development by either diverting peak flows through a high flow bypass pipeline that would be constructed through the planning area or by constructing stream channel enhancements to reduce or prevent further degradation. Additional information on current planning efforts can be obtained from the City of Tigard (River Terrace Area High Flow Conveyance Alternatives Memorandum, October 15, 2015). Future development within the planning area should be coordinated with current upstream planning efforts to mitigate high flow events and prevent further degradation of the existing drainage ways.

Existing Storm Drainage Constraints

New development within the King City URA must meet CWS requirements, and it should occur in such a manner so as not to create an adverse impact to the existing drainage systems, in accordance with CWS' NPDES MS4 permit. CWS should be consulted on storm water management issues for new development in the URA planning area. Based on a review of CWS' current development standards, development within the URA planning area should conform to the following minimum requirements:

- ***Impacts to Existing Wetlands*** – Existing freshwater wetlands are present in the planning area and are shown on Figure 3. These wetlands are part of the storm drainage system. Construction activities that impact existing wetlands, streams or sensitive areas may be subject to permitting through the Oregon Division of State Lands, the U.S. Army Corps of Engineers and CWS. Wetland delineations will be required as part of the development process for properties containing potential wetlands to determine impacts and permitting requirements.

- ***Drainage Channel Setbacks*** – Development setback requirements will be required for drainage channels, wetlands and sensitive areas.

- ***Hydrologic & Hydraulic Analyses –*** The development or redevelopments should evaluate the drainage basin(s) upstream and downstream of the site to determine the system capacity and verify that no adverse impacts will occur with increased storm water runoff.

- ***Offsite Improvements*** – The developer or developers may be required to construct improvements to the storm drainage system outside of the planning area boundary to increase system capacity and mitigate adverse impacts created by development within the planning area.

- ***Stormwater Detention –*** On-site storm water detention should be expected if the proposed development adversely impacts upstream and/or downstream properties. Situations that might require detention include, but are not limited to, potential downstream flooding due to increased peak storm water flows, or potential upstream flooding due to high water levels in existing drainage channels. Existing natural area may be a possible location to construct new stormwater detention facilities.

- ***Water Quality –*** Development of the subject area will need to conform to the storm water quality and treatment requirements set forth by CWS.

Conclusion

This memorandum presents an overview of the existing public utilities available for the King City URA, including water, sanitary sewer, and storm drainage. Next steps include coordinating with the utility owners to assist with concept planning for future utility improvements to serve the URA planning area.

LEGEND

- King City West Concept Plan Area
- City of King City
- Urban Growth Boundary (UGB)
- 50-foot Contour
- 10-foot Contour
- 410-foot Pressure Zone Elevation Limit (290 feet)

Piping (Color by Pressure Zone) (Diameter Indicated in Inches):

- 410
- 410B
- 470
- 550
- 550G
- 710B
- 710G
- 713
- 830

Pressure Zones:

- 410
- 530
- 550A
- 550B
- 550C
- 550D
- 550E
- 550F
- 550G
- 550H
- 640
- 713
- 830

410-foot Pressure Zone Elevation Limit (290 feet)

City of Tigard (River Terrace)

King City West Concept Plan Area

King City

Tualatin River

Chicken Creek

Rock Creek

N

700 0 700

Scale in Feet

King City

Figure 1

King City West
Water System Base Conditions Map

MSA Murray, Smith & Associates, Inc.

January 2017 92-0251.040

Source: Base Mapping Metro-RLIS Nov 2016, Contours-Dogami.

G:\PDX_Projects\92\0251\40\King City West Concept Plan\GIS\Figures\System Maps\92-0251-040-GR-FIGURE 1 22x34L.mxd 1/30/2017 4:12:49 PM DKH

LEGEND

- PS — Proposed River Terrace South Pump Station
- Proposed Forcemain
- Proposed Gravity Main Improvement
- Existing Forcemain
- Existing Gravity Main
- King City West
- Current Limits of King City
- Urban Growth Boundary (UGB)

N

500 0 500

Scale in Feet

King City West
Concept Plan Area

Tualatin River

Proposed
River Terrace South
Pump Station

PS

To Durham
WWTP

King City

Figure 2

King City West
Sanitary System Base Conditions Map

MSA
Murray, Smith & Associates, Inc.

Data Resource Center Metro

G:\PDX_Projects\92\0251\40\King City West Concept Plan\GIS\Figures\System Maps\92-0251-040-OR-FIGURE 2 22x34L.mxd 1/30/2017 4:14:18 PM DKH

January 2017 92-0251.040

Source: Metro-RLIS Nov 2016, Contours-Dogami, Aerial Photo-USDA NAIP 2014.

LEGEND

- King City West Concept Plan Area
- City of King City
- Urban Growth Boundary (UGB)
- Streams
- 50-foot Contour
- 10-foot Contour
- FEMA Floodplains
- Wetlands (Metro)

Upland Wildlife Habitat Quality (Metro)

- Class A
- Class B
- Class C

Riparian Wildlife Habitat Quality 9Metro)

- Class I
- Class II
- Class III

Other (Metro)

- Areas where nearby activies have an impact on resources

City of Tigard (River Terrace)

King City West Concept Plan Area

Tualatin River National Wildlife Refuge

Tualatin River

Heritage Pine Natural Area

King City Community Park

Chicken Creek

Westside Trail

King City

SW HAWK RIDGE RD
SW ENNIS LN
SW APRIL LN
SW LASICH LN
SW ROY ROGERS RD
SW TAYLOR LN
SW BEEF BEND RD
SW ELSNER RD
SW 150TH AVE
SW 147TH AVE
SW MEYER LN
SW MULBERRY DR
SW TREVOR LN
SW ROSARIO LN
SW HUNTWOOD CT
SW WOODHUE ST
SW 145TH TER
SW 144TH TER
SW ASHLEY DR
SW AINSWAY WAY
SW TEMPEST WAY
SW FISCHER RD
SW KING LEAR WAY
SW PORTIA LN
SW TIMARA LN
SW SHAKESPEARE ST
SW BEDFORD ST
SW DEERGROVE LN
SW CAPULET LN
SW MACBETH DR
SW PACIFIC DR

N

400 0 400

Scale in Feet

King City

Figure 3

King City West
Stormwater System Base Map

MSA
Murray, Smith & Associates, Inc.

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Source: Base Mapping Metro-RLIS Nov 2016, Contours-Dogami.

Date March 16, 2018

Subject King City URA 6DConcept Plan

From Urbsworks, Inc.

TECHNICAL ADVISORY COMMITTEE COMMENTS, INFRASTRUCTURE FUNDING STRATEGY

Response to Technical Advisory Committee (TAC) Comments on *King City Urban Reserve Area 6D: Funding Strategy*

The King City URA 6D Technical Advisory Committee (TAC) was given the opportunity to review and comment on both the *King City Preliminary Draft Concept Plan* as well as the *King City Urban Reserve Area 6D: Funding Strategy*, (Leland Consulting Group, December 2017). The table below shows all comments related to the Funding Strategy and the project team's response to those comments.

Note: Most responses to the funding strategy document are found in the final Concept Plan document, called the *Concept Plan, King City Urban Reserve Area 6D, Public Review Draft*, dated February 2018. In a few instances, responses are also found in additional documents, as noted.

TAC Comments	Solutions and Responses
Transportation	
The preliminary infrastructure cost estimates used in the report are not based on a traffic study or similar impact analysis that would determine the infrastructure improvements needed to serve the proposed development.	Further studies are underway in coordination with Washington County and a more detailed transportation assessment will accompany the Final Concept Plan. King City will continue to work with Washington County on the creation of a more detailed funding plan during the master planning process.
The Beef Bend assumptions are not correct. Washington County does not have a "Capital Improvement Plan" and it is incorrect to say that the County is collecting funds to pay for Beef Bend improvements from 150th to Hwy 99W. The reality is that the Beef Bend project from 150th to Hwy 99W (the extent of the roadway within the UGB) is included in the Metro RTP project list, but is on the strategic improvement list, which means it is beyond the likely funding horizon. Being on the RTP project list alone does not imply a commitment to funding. Additionally, the RTP project would be for improvements up to the current TSP standard for a three-lane arterial, not taking into account any upsizing needed to accommodate development needs.	Clarification has been added to the Final Concept Plan.
The plan should assume that there will be improvements for the length of Beef Bend adjacent to the entire URA area (i.e. to 137th at a minimum)	The cost and allocation tables in the Final Concept Plan have been updated to include improvements Beef Bend improvements from Roy Rogers to 137th.
The funding strategy assumes that Beef Bend will retain its 3-lane classification, which may not be the case. This is evident on page 6, with the discussion of removing ROW acquisition costs from the cost estimates. This should also be revisited for the green boulevard – developers typically are	New calculations have been incorporated into the Final Concept Plan regarding the cost of Beef Bend from Roy Rogers to 137th. In keeping

TAC Comments	Solutions and Responses
required to dedicate and construct improvements up to a local street standard (unless their particular development requires the upsized roadway), meaning that cities typically give SDC credits for the additional capacity improvement (extra width over a local street standard, bike lane, etc) necessary for a collector road.	with the funding strategy methodology for the other street costs, ROW acquisition was not added in only for Beef Bend (cost assumptions were not changed). The five-lane version of Beef Bend has not been cost estimated at this time. Factors that would demand Beef Bend to become five lanes are being studied in a transportation assessment, which is a separate document being prepared by the consultant team in coordination with Washington County.
Development of the plan area will likely require upsizing Beef Bend to maintain capacity and mobility. It's possible that MSTIP would be available to cost share on the project, but cannot be counted on as the sole funding source.	Factors that would demand a five lane are described in the transportation assessment (separate document).
Improvements to Elsner Road (Washington County collector) Roy Rogers Road (Washington County arterial), and Fischer Road (Washington County collector) are not addressed.	Elsner Road and Fischer Road have been included within the cost of the green boulevard.
The overall funding package needs to assess all of the identified infrastructure needs. Many assumptions about transportation infrastructure assume that improvements are the responsibility of other parties; these commitments have not been made and are not a given. All project funding assumptions should be clearly articulated and documented.	Some funding assumptions and cost estimates in the Final Concept Plan have been revised in response to comments. The transportation assessment (separate document) is also being prepared in response to comments. However, it should be noted that cost estimates and assumptions in the Concept Plan are preliminary, were used to determine feasibility at a concept-level of planning and are subject to change during the master planning phase. The City will work with Washington County and other agencies to refine the infrastructure funding plan during the master planning phase of the project.
Any supplemental transportation fees should be coordinated with the existing Washington County TDT.	
Research whether it's appropriate to remove all of the right-of-way costs from the street estimates. It is our understanding that oversized portions of right-of-way are eligible for SDC credits (Page 6).	
Culverts	
Explain which roads need culverts and why culverts are listed as a separate project and not part of the associated road improvement project.	There are multiple possible street networks and multiple possible alignments for collectors and local streets. In addition, culverts vary in cost by location (generally higher in cost when located toward the southern portion of ravines). Given the degree of

TAC Comments	Solutions and Responses
	variability in the concept plan phase, and the focus of the funding strategy, which was to identify a reasonable assumption for culvert "oversize cost," the consultant team took an approach toward costing culverts which disassociates them from specific street alignments. The purpose of the funding strategy was to determine oversize costs that would be allocated to the district, not to each individual street.
Stormwater and Sanitary/Sewer	
Stormwater facilities costs will be paid by developers, not CWS.	Clarification has been added to the Final Concept Plan.
Table only shows sanitary fees (called "sewer") in table, but need to add row for stormwater management costs, which is more than the WQ fee.	
Water	
Add water infrastructure as a standalone infrastructure project in the various project tables and text. This area will need more than just pipes in the right-of-way. The type of water infrastructure needed potentially falls into the Major Off-Site Infrastructure and Framework Infrastructure categories. Preliminary analysis indicates that a storage facility (reservoir) will be needed to serve this area for firefighting and emergency water supply purposes in addition to the construction of a distribution system (pipes and pumps). A new reservoir will require the purchase of property outside the URA 6D plan area that must meet specific size and elevation requirements.	Water infrastructure has been added to the Cost and Allocation tables in the Concept Plan.
Identify City of Tigard as a key service provider (Pages 2, 15, and 16).	Corrections have been added to the Final Concept Plan.
Parks	
Consider revising the approach to neighborhood parks. Leaving them out of the Funding Strategy may inhibit the city's ability to build them (no funding source) or incentivize them (with SDC credits). Neighborhood parks are difficult to outright require as a condition of land use approval for many reasons.	Cost and Allocation tables as well as SDC calculations and tables have now incorporated neighborhood parks as an additional project.
Clarify whether the Community Park proposed in the area is included in the city's existing SDC or CIP. There was some inconsistency in the document on this point.	Revisions to tables in the Concept plan clarify this.
Timing and Phasing of Development	
Clarify that the timing and phasing of development will also be affected by the timing and phasing of infrastructure (Page 2).	Text in Concept Plan has been revised to reflect this.

TAC Comments	Solutions and Responses
General	
The funding strategy is too detailed and premature for this stage of planning without more thorough impact analysis to determine the needed infrastructure improvements. Remove the infrastructure cost allocation and supplemental fee estimates. The County will work with the City on a more detailed funding plan for needed infrastructure during the comprehensive planning phase once traffic analysis has been completed. The County's comments on the draft funding strategy should be considered and included in the funding strategy work to be done during the master planning phase.	The figures are preliminary and based on the best information available at this point. They are subject to change during the master planning phase of the project. After careful consideration, the project team felt it was beneficial to leave the funding strategy details in place.
Tigard reserves the right to conduct updates to its water system development charges (SDCs) and may impose "supplemental SDCs" on URA 6D or subareas. This is consistent with Tigard's practice that growth within certain areas of the Tigard Water Service Area fund its own water improvements serving that growth. A King City expansion was not included in the 2010 update and, therefore, was not part of any review or assessment of project capitalization necessary to serve such an expansion.	A note has been added to the concept plan regarding SDC charges.
Clarify what kind of fee is proposed for the "supplemental fee." This information is critical for understanding who will be paying for the infrastructure to serve future development in URA 6D (e.g. developers, existing residents, future residents, city, others) and when the money will be available for use.	The supplemental fee has been revised to show the individual areas of transportation, major sanitary sewer, water, and parks.
CWS reserves the right to conduct updates to its system development charges (SDCs) and may impose "supplemental SDCs" or "Regional Stormwater Management Charges" (RSMC) on URA 6D or subareas.	A note has been added to the concept plan regarding SDC charges.
Identify City of Tigard as a key service provider (Pages 2, 15, and 16).	Corrections have been added to the Final Concept Plan.

King City Urban Reserve Area 6D: Funding Strategy

LELAND CONSULTING GROUP

Date	December 29, 2017
To	Keith Liden, City of King City Marcy McInelly, Urbsworks
From	Brian Vanneman, Leland Consulting Group

Introduction

In order for the King City Concept Plan area ("plan area") to develop in a manner consistent with community goals and market potential, the study area's 525+ acres will require a variety of new infrastructure. This memorandum summarizes the infrastructure that has been recommended by the Concept Plan team and recommends a funding strategy for that infrastructure. The plan area is formally known as Urban Reserve Area (URA) 6D; Urbsworks urban designers are leading this Concept Plan process.

Figure 1 below lists the infrastructure that has been recommended for the plan area, by type, name, and category. The design, location, purpose, and rationale for each element of infrastructure is described in the URA 6D Concept Plan document, and supporting engineering documents by Murraysmith engineers.

Figure 1. Infrastructure Summary

Infrastructure Type	Project Name and number	
Transportation	T1	Green Boulevard (Collector, internal to URA)
	T2	Beef Bend: 150th to Roy Rogers
	T3	Beef Bend: 150th to Hwy. 99
	T4	Culverts
	-	Local Roads (Neighborhood Collectors)
Framework Utilities	-	Stormwater, Water, Sanitary Sewer in Framework ROW
Major Sanitary Sewer (SS Concept 2)	SS1	River Terrace South Pump Station/Forcemain
	SS2	Subdistrict Pump Stations/Forcemains
	SS3	Trunk Sewer (Concept 1 only)
Parks	P1	Community Park (1 park)
	P2	Neighborhood Parks (3 to 5 parks)
Stormwater	S2	Subdistrict Facilities (5)
	S1	On-site management
School District	SD1	Primary School

Source: City of King City, Urbsworks, Murraysmith engineers, Leland Consulting Group.

Why is a funding strategy needed?

In some cases—for example, when a relatively small property is controlled by a single property owner/developer—there is no need for a concept plan or a funding strategy. However, a funding strategy will be useful in the plan area, for a number of reasons:

- **Fragmentation of Ownership/Control.** Property ownership is fragmented, and includes both experienced developers who control large properties, and others who control smaller properties that may be difficult to develop due to access, slope, or environmental challenges.

- **Timing/Phasing.** The western portion of the Plan Area has larger parcels and less ownership fragmentation. As a result, the western section is likely to see substantial coordinated development earlier than eastern or central portions.

- **Physical Features.** Topography in the area south of Beef Bend Road presents specific challenges to infrastructure development – most notably by raising likely costs of any new east-west collector roads because of increased need for culvert/bridge facilities.

- **Multiple Jurisdictions.** Numerous different public agencies and entities are likely to be involved in the provision of infrastructure within or near the plan area, including King City, Washington County, Clean Water Services, Tigard Tualatin School District, and nearby property owners/developers. Infrastructure projects related to the plan area will require some coordination with these groups.

Infrastructure Categories

This funding strategy divides infrastructure into four general categories, which are listed below. These categories correspond to the "service area" of the infrastructure—i.e., the geographical area in which existing or new households or businesses will generate demand for the infrastructure. Leland Consulting Group (LCG) recommends that the costs of infrastructure generally be allocated to the beneficiaries of the infrastructure within the service area. Thus, the cost of infrastructure that benefits a large area (e.g., Washington County) would be spread over a large area, while the costs of infrastructure that benefits a small area (e.g., a local street), would be allocated just to the developers of the adjacent property. From largest to smallest infrastructure service area, the categories are:

- Major off-site
- Framework or district
- Subdistrict
- Local or on-site

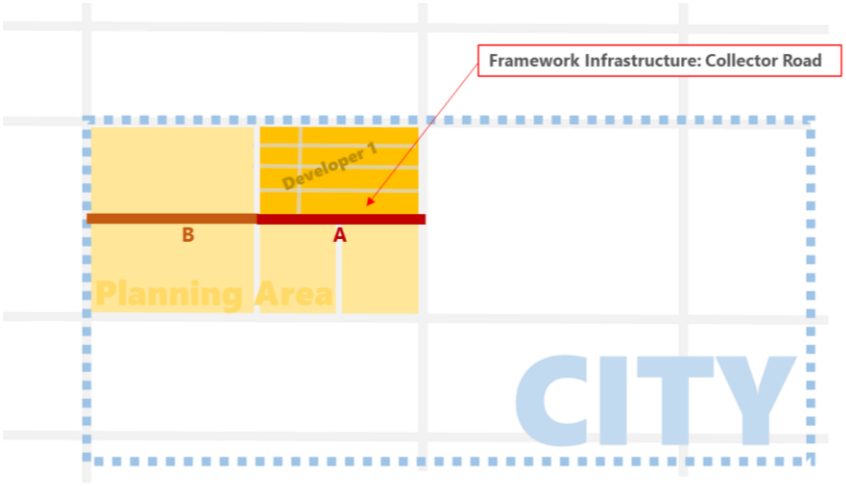
Major Off-Site Infrastructure

- Major off-site infrastructure is generally located outside of a planning area boundary and, while it may benefit on-site properties to some degree, mostly serves populations in the city, county, or region.
- For this reason, major off-site infrastructure is likely to be funded via a city, county, or regional capital improvement program.
- There is only one major off-site infrastructure element addressed in this plan: Beef Bend Road from 150th to Highway 99, which has been identified in Washington County's Capital Project List as a

candidate for "long-term" funding (defined by the County as more than 20 years in the future). This project, which borders the plan area for about 0.6 miles, was identified for improvement by the County to "address recurring safety" issues. Because a need for this improvement has already been identified by the County, LCG's assessment is that the improvement is not required by new development in the plan, and therefore its cost is not allocated to the plan area. In keeping with current County policy, the project would likely be paid for by Major Streets Transportation Improvement Program (MSTIP) and/or Transportation Development Tax (TDT) funds. As this Concept Plan area moves forward, advocates of the plan and King City may want to work with Washington County to elevate this project in order to see it built in the near- or medium- time frame. This will not necessarily be easy, as it will have to compete with many other projects.

Framework Infrastructure

- "Framework" or "district" infrastructure serves residents and businesses in the entire plan area, and is fundamental to the achievement of the plan vision. It is also usually larger and more costly than "subdistrict" and "local" infrastructure, described below.
- The proposed east-west collector roads, which would connect Roy Rogers Road to existing King City neighborhoods, are examples of framework infrastructure. These collector roads have additional transportation and design features that go beyond those in local roads. A sanitary sewer trunk line would be another example.
- These collector roads benefit all developers in the plan area (shown in shades of yellow), not just the area marked "developer 1" below, and therefore, we recommend that the costs for this category of infrastructure be allocated to all developers.
- **Framework infrastructure is the primary focus of this funding strategy**, because a) it is important to fairly and equitably allocate these larger costs, and b) unduly burdening some developers with a greater share of costs can significantly reduce the financial feasibility of developing their land, lead them to forgo development, and prevent the plan from being achieved.



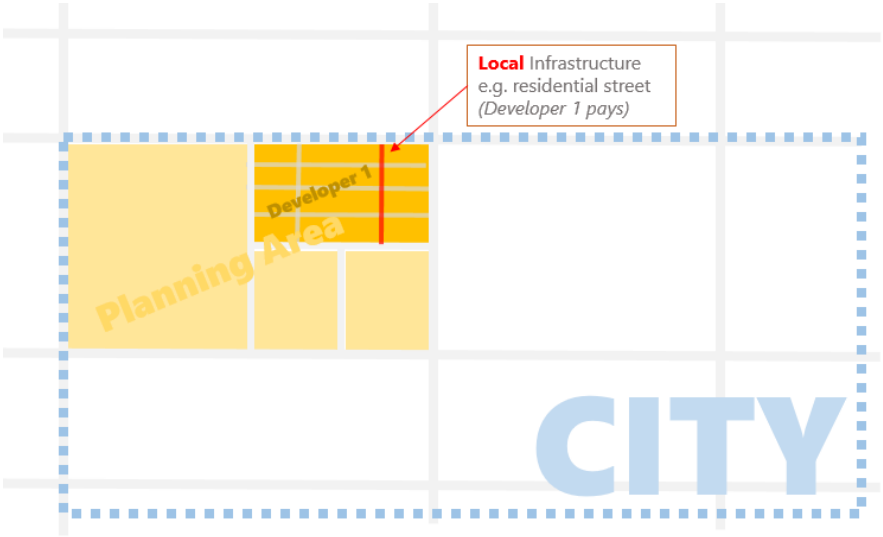
- A key concept relative to framework infrastructure is the "oversize" cost. This is the difference between the typical local infrastructure costs (e.g., a local road), and the cost of the framework infrastructure. Since all developers will be required to build and pay for local infrastructure to serve their properties, it is only the oversize cost that is allocated to developers throughout the district.

Subdistrict Infrastructure

- Some infrastructure benefits an area smaller than the entire plan area, but larger than just one developer's property. This is referred to as "subdistrict" scale infrastructure. Examples shown in Figure 1 above include a series of sanitary sewer pump stations, and neighborhood parks, both of which may serve an area of 50 to 100 acres, but not the entire 525-acre plan area.
- Like framework infrastructure, properly allocating the cost of this infrastructure can be challenging, since it may be unfair and diseconomic for one developer to pay for all of it.
- However, since the focus of this Concept Plan is the entire plan area, there are many unknowns about how individual subdistricts will develop, and in order to allow developers the flexibility to plan and pay for infrastructure within each of these areas, this funding strategy provides only very general guidance about subdistrict infrastructure.

Local or On-Site Infrastructure

- Local or on-site infrastructure is located on or adjacent to a development property and largely serves a single developer/property owner, and may include transportation, sanitary sewer, water, or stormwater infrastructure. Local infrastructure is typically of the minimum size required by the city for project approval (e.g., a local street cross section, or 8-inch sewer or water pipe).
- King City's policy is consistent with most other jurisdictions in that this infrastructure is largely built and paid for by developers.



Study Area Infrastructure and Category

Figure 2 below shows the infrastructure required for the plan area, and which category (off-site, framework, subdistrict, local) the infrastructure projects fall into. Project names are color-coded to correspond with the infrastructure categories.

Two projects (Beef Bend Road from 150th to Highway 99, and the proposed Community Park) are already included on Capital Improvement Plans (the Washington County and King City capital improvement plans, respectively). These improvements are described in detail beginning on page 7. This generally means that funds are already being collected by the public agencies—via SDCs and other sources—to pay for the improvements. It also means that any parts of this CIP infrastructure that is paid for/built by developers is "SDC creditable." Developers can credit the amount they spend on this CIP infrastructure against the SDCs owed at time of housing construction.

Figure 2. Infrastructure and Infrastructure Category

Infrastructure Type	Project Name and number		Infrastructure Category	CIP Project (SDC Creditable)
Transportation	T1	Green Boulevard (Collector, internal to URA)	Framework	No
	T2	Beef Bend: 150th to Roy Rogers	Framework	No
	T3	Beef Bend: 150th to Hwy. 99	Off-Site	Yes
	T4	Culverts	Framework	No
	-	Local Roads (Neighborhood Collectors)	Local	No
Framework Utilities	-	Stormwater, Water, Sanitary Sewer in Framework ROW	Framework	No
Major Sanitary Sewer (SS Concept 2)	SS1	River Terrace South Pump Station/Forcemain	Framework	No
	SS2	Subdistrict Pump Stations/Forcemains	Subdistrict	No
	SS3	Trunk Sewer (Concept 1 only)	Framework	No
Parks	P1	Community Park (1 park)	Framework	Yes
	P2	Neighborhood Parks (3 to 5 parks)	Subdistrict	No
Stormwater	S2	Subdistrict Facilities (5)	Subdistrict	No
	S1	On-site management	Local	No
School District	SD1	Primary School	NA	No

Infrastructure Cost Estimates

The design, location, purpose, and rationale for each element of infrastructure is described in the URA 6D Concept Plan document, and supporting engineering documents by Murraysmith engineers.

Transportation, framework utilities, and sanitary sewer infrastructure. Murraysmith engineers completed civil engineering analysis for this project and were the primary source for infrastructure cost estimates. Murraysmith provided conceptual designs and cost estimates for the transportation, framework utilities, and sanitary sewer infrastructure.

Murraysmith's cost estimates include "hard" (or construction) costs, soft costs, and a 50 percent cost contingency. Soft costs are estimated at 29 percent of hard costs and include engineering/design, construction administration, permitting, wetland mitigation, and City administration. A table showing soft costs as a percentage of hard cost is included in the Appendix. In LCG's experience, the soft cost estimate is reasonable, and the cost contingency is at the high end, and reflects the fact that the plan is in the conceptual phases rather than detailed design.

LCG made only one change to Murraysmith's cost estimate figures: we removed the right of way acquisition costs from Green Boulevard and Beef Bend (150th to Roy Rogers). This is because developers are typically required to deed land for framework transportation infrastructure that will serve their properties.

Community Park. Murraysmith did not complete a cost estimate for the park space. Therefore, the community park cost used in this funding strategy is based on cost estimates developed for similar parks in Wilsonville's Frog Pond urban reserve planning area. The assumptions used are a land cost of $6 per square foot, park "improvement" costs of $15 per square foot, a 6.5-acre park, and 29 percent soft costs as a percent of all improvement costs. This results in a $7.1 million total cost. These assumptions are shown in Figure 10 in the Appendix.

Other considerations. All figures shown in this funding strategy are in 2017 dollars in order to keep the funding strategy as straight forward as possible. While costs can be expected to increase in coming years, associated fees can also be set to increase over time to reflect these higher costs, and cost contingencies have been included in estimates. Therefore, while construction cost escalation is always an issue, it can be managed and should not be a primary concern for the City and other stakeholders at this time.

Because, as stated above, the focus of this funding strategy is on framework infrastructure, many cost estimates for off-site, subdistrict, and local infrastructure are neither known nor relevant.

Allocation of Infrastructure Costs

As described above, this funding strategy recommends that some infrastructure costs be allocated to the entire plan area (URA 6D), to various subdistricts within the plan area, and/or to parties outside the plan area (e.g., the City, county, other agencies, or developers of other land such as URA 6C to the north). Figure 3 shows the estimated cost of each infrastructure project (if available), and the cost allocations recommended by LCG.

LCG recommends a "supplemental fee" as the primary cost allocation tool for framework infrastructure (or, possibly an "area-specific system development charge (SDC)"). The term supplemental fee is used in this memo, and the tool is described in greater detail below. The main purpose of the supplemental fee is to allocate the costs of framework infrastructure—those infrastructure projects that are significant in scale and cost, and benefit the entire plan area. The project costs to be allocated via the supplemental fee are shown in the "Framework" column in Figure 3. Developers will owe a supplemental fee for each housing unit or square foot of commercial space they build, *in addition to* the SDCs they owe. Like most SDCs, if developers pay for and build framework infrastructure projects, they earn credits against supplemental fees owed. In other words, they can reduce, or sometimes eliminate, the supplemental fees they actually pay by building framework infrastructure. A preliminary supplemental fee amount is calculated later in this memo. Supplemental fees and/or area-specific SDCs (which are similar) have been used in a number of urban reserve areas, including River Terrace in Tigard, South Hillsboro, and Villebois and Frog Pond, in Wilsonville.

Figure 3. Infrastructure Costs and Allocation

Project Name and number		Cost Estimate Total	Cost Allocation				
			Min.Req.	Other Parties	See text for more information.	Framework Oversize allocable to plan area	Subdistrict Allocable to subdistricts
T	Green Boulevard	$26,140,282	$17,437,500			$8,702,782	
	Beef Bend: 150th to Roy Rogers	$13,665,335	-	$6,832,668	County, 6C developers.	$6,832,668	
	Beef Bend: 150th to Hwy. 99	NA		TBD	County CIP		
	Culverts	$7,650,000	-			$7,650,000	
	Local Roads (Neighborhood Collectors)	Not estimated	-			-	
-	Utilities in Framework ROW	Incl. in above.					
SS	RT South Pump Station/Forcemain	$4,800,000		$3,502,703	CWS, developers.	$1,297,297	
	Subdistrict Pump Stations/Forcemains	$2,500,000					$2,500,000
	Trunk Sewer (Concept 1 only)	NA				NA	
P	Community Park (1 park)	$7,180,000		$7,180,000	City	$0	
	Neighborhood Parks (3 to 5 parks)	Not estimated					Yes, TBD.
S	Subdistrict Facilities (5)	Not estimated		TBD	Possibly CWS		Likely Yes, TBD.
	On-site management	Not estimated					
SD	Primary School	Not estimated		TBD	School District		
	Total	**$61,935,618**	**$17,437,500**	**$17,515,370**		**$24,482,747**	**$2,500,000**

Source: City of King City, Urbsworks, Murraysmith engineers, Leland Consulting Group.

As discussed above, some cost-sharing will also likely be required for subdistrict infrastructure, shown in the Subdistrict column above. However, because the focus of this Concept Plan is the entire plan area,

there are many unknowns about how individual subdistricts will develop, and to allow developers the flexibility to plan and pay for infrastructure within each of these areas, this funding strategy provides only very general guidance about subdistrict infrastructure. It does not provide a supplemental fee calculation for subdistrict infrastructure.

Notes on Individual Infrastructure Projects

This section includes notes on various infrastructure projects that reflect the cost and allocation information summarized in Figure 3.

- **Green Boulevard.** As described above, only the oversize cost ($8.7 million, the difference between the cost of the minimum required roadway and the cost of the framework roadway) is to be allocated to developers throughout the entire plan area. The remaining $17.4 million would be paid by property owners adjacent to the boulevard. As noted above, the transportation cost estimates used in this funding plan differ from those provided by Murraysmith, as LCG has not included the cost of right of way, which is assumed to be dedicated by developers/property owners.

- **Beef Bend: 150th to Roy Rogers.** The total cost estimate reflects both the north and south sides of Beef Bend Road. In keeping with typical policy, only the cost of the south side would be allocated to the plan area. The north side should be paid for by the developers of URA 6C (a separate urban reserve area), the County, or another party.

- **Beef Bend: 150th to Hwy. 99.** As described on page 2, this project is included in Washington County's Capital Project List in order to "address recurring safety" issues. In keeping with current County policy, the project would likely be paid for by Major Streets Transportation Improvement Program (MSTIP) and/or Transportation Development Tax (TDT) funds.

- **Culverts.** A series of 10 culverts that will span creeks and sloped areas within the eastern part of the plan area is a key component of the Concept Plan. These are necessary in order to establish a cohesive district, and connect the plan area to the rest of King City to the east. The entire cost ($7.65 million) is oversize and allocated to the district.

- **Local Roads.** Local roads, some of which are designated as "Neighborhood Collectors," are the minimum rights of way required by King City and will be paid for by the developers of adjacent property.

- **Stormwater, Water, Sanitary Sewer in Framework rights of way.** The costs of this infrastructure is included in the tra**n**sportation projects, above.

- **River Terrace South Pump Station/Forcemain.** This pump station/forcemain will be required in the plan area. However, according to Murraysmith, about 73% of the demand for this facility will originate outside of the plan area, including the River Terrace area. The remaining 27% of demand will originate from within the plan area. Therefore, the costs of this project have been allocated on a pro rata share, with 27% allocated to the plan area.

- **Major Sanitary Sewer: Subdistrict Pump Stations/Forcemains.** Murraysmith engineers prepared cost estimates for two "sewer service concepts," as follows:

  - Concept 2 (used in this funding strategy) assumes a series of pump stations and forcemains will be needed for "subdistricts" of the plan area. These facilities are considered "subdistrict" infrastructure, and should be designed, built, and paid for by single large developers, or smaller groups of developers. The reimbursement district tool is often used for infrastructure of this scale (described in greater depth on page 10and in the appendices on page 20). This is a better approach than attempting to allocate the cost throughout the entire district, as framework infrastructure, since it allows developers more flexibility in the timing and design of development and infrastructure.

  - Concept 1 assumes the construction of a large ($7.4m) trunk sewer line that would run east-west across the plan area; this trunk sewer line would eliminate the need for the subdistrict-level pump stations and forcemains designed in Concept 2.

  Based on conversations with the Concept Plan team, LCG has assumed that concept 2 will be built, not concept 1, since concept 1 would require significant, costly infrastructure work to be completed through private properties on the east side of the plan area, where development is not expected in the near term. This would create logistical, negotiation, and design challenges. The financing (interest) costs would also be high, since the investment would need to be made up front, with payback taking place over many years. It is not clear what entity would take on such a major trunk sewer line investment; the most likely options would be Clean Water Services (CWS), or a very-well capitalized developer, with repayment via a supplemental fee or reimbursement fee.

- **Trunk Sewer.** No major trunk sewer is assumed to be part of this funding strategy; see Major Sanitary Sewer discussion above.

- **Community Park.** 1 community park (approximately 6.5 acres) is proposed for the plan area. According to King City staff, this park is part of the City's capital improvement plan (CIP) / Parks SDC methodology, and therefore, will be paid for from those sources. Developer contributions to this park (i.e., land contributions or park improvements) can be credited against Parks SDCs owed. LCG has used the following estimates for this park: $6 land value per square foot, $18 improvement costs per square foot, and 6.5 acres.

- **Neighborhood Parks (3 to 5 parks).** LCG recommends that these neighborhood parks be "subdistrict" improvements that are designed, built, and paid for by groups of developers that collectively control 50 to 100 acres of land. These may be funded via a reimbursement district.

- **Subdistrict Stormwater Facilities.** LCG recommends that stormwater facilities (approximately 5) be "subdistrict" improvements that are designed, built, and paid for by groups of developers that collectively control 50 to 100 acres of land. These may be funded via a reimbursement district.

- **On-site management.** Property developers will also be responsible for certain on-site stormwater management; this is a local infrastructure project.

- **Primary School.** The Concept Plan calls for a +/- 10-acre primary school site within the plan area, however, LCG is not aware of a specific location or cost estimate for this school. The school site

could be combined with one of the parks. The plan area is within the Tigard-Tualatin School District (TTSD). Unlike the public infrastructure described above, Oregon school districts are prohibited by state law from imposing SDCs to fund capital improvements. Therefore, the most common funding approach to funding school construction is a voter-approved general obligation bond, often covering the entire school district geography. In 2016, TTSD voters approved such a bond. LCG assumes that land acquisition and construction of this primary school would be covered by either the 2016 bond, or a future bond. Another option available to school districts is a construction excise tax (CET). Whatever the funding source, it is often advantageous for school districts to acquire properties early in urban reserve areas, before intense private-market competition drives up the cost of land.

Supplemental Fee for Framework Infrastructure

As stated above, LCG recommends that a **supplemental fee** be imposed to generate funds to pay for key elements of framework infrastructure. Another alternative is the imposition of two separate area-specific SDCs, for transportation and sanitary sewer. This supplemental fee would be modeled after reimbursement fees/districts; the Cities of Tigard (Municipal Code Chapter 13.09, Reimbursement Districts) and West Linn (Advance Financing of Public Improvements) provide potential implementation models.

Advantages of the supplemental fee are that it is a single fee that can be used for transportation, sanitary sewer, and potentially other infrastructure projects in the plan area; and that it generally follows the per-unit or per-square-foot allocation model of SDCs. Other tools/approaches are possible, and could be explored further in a more-detailed Master Plan process. Each has trade-offs, particularly in terms of the complexity of implementing and managing the programs. These other tools are described in more detail in the Appendix and include:

- Local improvement district (LID)
- Voter-approved property tax levies / general obligation bonds
- Utility fees
- Reducing infrastructure costs
- Potentially other tools.

Without such a fee, or another carefully-designed infrastructure funding strategy, neither individual developers, the City of King City, or other parties, are likely to have the financial capacity or incentive to fund and build the framework infrastructure, since they would be at risk of expending significant funds for infrastructure, without a means to be reimbursed. The fee would generate funds for four framework infrastructure projects:

- Green Boulevard
- Beef Bend: 150th to Roy Rogers
- Culverts
- River Terrace South Pump Station/Forcemain

Land Use Program

In order to allocate the costs of infrastructure to individual residential and commercial developments within the plan area, a land use program (the number and type of homes, offices, retail establishments, etc.) must

be known or assumed. While the concept planning completed to date defines many aspects of future development in the plan area, there are also many unknowns and options as to how the area will develop, as developers may choose to build a wide range of project scales, types, and densities within the infrastructure "framework" provided by the concept plan. The amount of housing and commercial development is therefore a significant variable for this funding plan.

Figure 4 shows the estimates of residential units and commercial square feet used in this funding plan. These estimates could change as further planning (e.g., a Master Plan) is completed for the area. LCG estimates that about 3,800 housing units are likely to be built in the plan area, based on the gross area (525 acres), buildable area (318 acres, per Urbsworks), and an average density of 12 units per buildable acre (assuming a range of housing types, from single family to apartments). We apply a 20% housing "underbuild" for this funding analysis, which is a precaution in case the amount of development (and therefore fees generated) are less than anticipated. Therefore, 3,050 housing units are assumed for this funding strategy.

LCG's market analysis included estimates for two types of commercial space in the plan area. The first is 40,000 to 60,000 square feet of general commercial space, which could include grocery, pharmacy, healthcare, fitness, other daily commercial needs, and office space. For this funding strategy, we assume that 50,000 square feet of commercial space will be built, as shown in Figure 4 below. The second type is a "gateway to wine country" concept (including a 70-room lodge with event space, and estimated at 40,000 to 60,000 square feet). While this concept is possible, it is a special concept and would be more difficult to achieve than the general commercial space. In order to make the funding plan conservative, we do not include the gateway to wine country square footage in the funding plan.

Figure 4. Plan Area: Residential Program Estimates

Plan Area	
Gross	525
Buildable	318
%	61%
Density per Buildable Acre	
Plan / Average / (Max. Allowed)	12.0
Housing Units	
Max per Plan	3,816
20% Underbuild, for funding analysis	3,050
Commercial (SF)	50,000

Source: Urbsworks and Leland Consulting Group.

Preliminary Supplemental Fee Calculation

Figure 5 shows LCG's calculation of a *preliminary* supplemental fee for the plan area. We consider this preliminary because future planning efforts, including a Master Plan, will be completed for the plan area, and these could change many inputs, including the amount of housing and commercial space, the net developable area, infrastructure cost estimates, and other variables. An administrative fee of 5% was added to the total infrastructure cost shown in Figure 3, in order to compensate the City, or other agency, for the staff time and equipment, associated with administering the supplement fee program. The costs were then divided between the residential and commercial development based on LCG's estimate of the share of demand (for transportation and sanitary sewer infrastructure) that each category will comprise. This estimate was based on a review of existing King City SDCs and the assumption that these SDCs are a reasonable reflection of infrastructure demand by use.

In order to establish a fee estimate by dwelling unit type (consistent with King City's existing practice for SDCs), we assumed 70 percent single family dwellings and 30 percent multifamily (including senior) housing. This is the ratio of single family to multifamily housing that has been built in the surrounding four-city market area over the past decade, and therefore, we consider this reasonable. However, the City and other stakeholders may decide to change this assumption as planning, including the Master Plan, proceeds. The estimates for number of housing units by type, and allocated cost per development type, results in a supplemental fee per unit. Consistent with SDC methodologies, this supplemental fee is greater for development types that have been shown to generate greater amounts of infrastructure (largely transportation) demand.

Figure 5. URA 6D Supplemental Fee for Residential and Commercial Development

Framework Infrastructure		
Base Cost, all framework infrastructure		$24,487,755
Administrative Fee	5%	$1,224,388
Total Cost		**$25,712,143**
Allocations by Land Use		
Residential Allocation	96%	$24,569,250
Commercial Allocation	4%	$1,142,893
Total Cost		**$25,712,143**

Residential	Estimated Housing Units		Allocated Cost	Supplemental Fee/Unit
	%	#		
Single Family Dwelling	70%	2,135	$19,799,406	$9,274
Apartment	18%	549	$3,259,548	$5,937
Residential Condominium	6%	183	$986,191	$5,389
Manufactured Housing	0%	-	-	-
Assisted Living/Hospital/Nursing Home	6%	183	$519,080	$2,837
Total	**100%**	**3,050**	**$24,564,225**	

Commercial	SF	Allocated Cost	Supplemental Fee/1,000 SF
	50,000	**$1,142,659**	$22,853

Source: Leland Consulting Group.

The commercial fee per 1,000 square feet is an average and could be structured to vary significantly by commercial use type. For example, in Wilsonville, the transportation SDC for suburban ("specialty") retail building is more than four times that of a comparable office building. LCG cannot predict the exact mix of commercial space in the plan area at this time, and therefore a commercial average is used here.

Fee Comparison

In addition to addressing the challenges of funding needed infrastructure, a supplemental fee such as the one recommended in this funding plan should be comparable to other infrastructure fees and taxes assessed by other cities in other developing areas. If the costs of development in the plan area are much higher than the costs in other locations, developers will avoid building in the plan area, since it would be less profitable. If fees are too high, they can stall development.

This does not appear to be the case given this fee along with the existing fee structure in King City. Development fees in the plan area are compared to those in the Tigard River Terrace, located just north of the plan area. As shown in Figure 6 below, the total infrastructure-related fees in the King City plan area are approximately $4,580 less than those in Tigard for a single-family home. This is because Tigard's Parks SDC is much higher, and the City has imposed a Transportation SDC (TSDC) in River Terrace that is higher than other parts of Tigard. (Note that other fees apply to development, such as plan/design review and construction excise taxes, but typically do not help fund infrastructure and are not shown here.) Another point of reference is the Bonny Slope TSDC ($8,053). Bonny Slope is another urban reserve area that has been concept planned; it is located about 10 miles north of the plan area, on the "developing fringe" of northern Washington County.

Figure 6. Single Family Infrastructure Fee Comparison: King City Plan Area and Tigard River Terrace

Fee	King City URA 6D	Tigard River Ter.
WA County TDT	$8,458	$8,458
City Transportation SDC	-	$8,501
Parks SDC	$3,114	$8,470
Sewer (Clean Water Services)	$5,500	$5,500
Water Quality Fee (Clean Water Services)	$292	$292
Supplemental Fee (URA 6D)	$9,274	-
Total	**$26,637**	**$31,221**

Source: Leland Consulting Group.
Note: The King City Parks SDC is not citywide; it only applies to the West King City Planning Area between SW 131st and the western city limit.

Community Park

The proposed Community Park deserves special consideration by the City, because it is the one framework infrastructure project that is currently in the City's capital improvement plan according to City staff. The City is already collecting SDCs and other funds for this project, and therefore the City will pay for the construction of this park—not developers via a supplemental fee.

Therefore, it is important for the City to ensure it will have the funds necessary to pay for the construction of the Community Park. Figure 7 shows the parks SDC revenues associated with URA 6D plan area. Based on the estimated residential development program, we forecast that the City will receive $8.5 million in parks SDCs during build out of URA 6D. (LCG's understanding is that parks SDCs are not assessed on commercial development.) The community park is estimated to cost $7.18 million (including land, improvements, and soft costs), leaving a surplus or fund balance of $1.3 million to be directed towards other City parks projects.

Figure 7. Parks SDC Revenue associated with URA 6D Plan Area

Development Types	Parks SDC Per Unit	Units	Parks SDC Total
Single Family Dwelling	$3,114	2,135	$6,648,390
Apartment	$1,931	549	$1,059,943
Residential Condominium	$1,931	183	$353,314
Manufactured Housing	$2,803	-	$0
Assisted Living/Hospital/Nursing Home	$2,336	183	$427,397
Total		**3,050**	**$8,489,044**
Estimated Cost of Community Park			$7,180,000
Net Surplus			$1,309,044

The community park may be built and paid for in several different ways. For example:

- Developers could deed the land (6.5 acres) to the City in exchange for SDC credits. The City could then design and build the improvements.
- Developers could set aside the land and build the park in exchange for SDC credits. This may be less likely, since such a developer would need to control a significant amount of land and housing sites in order to take advantage of so many SDC credits.
- The City could seek to proactively purchase land from developers, and build the park, using SDC revenues and/or other funds for both land and improvements.

LCG recommends that the City work through these different options during the Master Plan, in discussions with major property owners/developers.

Conclusions and Next Steps

Conclusions. Based on the above analysis, LCG's conclusions for this funding strategy are:

- A variety of infrastructure—including transportation, sewer, parks, and storm water—will be required in order for the concept plan area to develop as envisioned. A funding strategy is important since it enables government agencies and private developers to have a shared plan that defines how infrastructure will be paid for, given the challenges of fragmented property ownership, staggered timing of infrastructure and real estate development, challenging physical features, and multiple overlapping jurisdictions.
- For the purposes of this plan, infrastructure is divided into four categories: major off-site, framework (or district), subdistrict, and local (or on-site). The focus of this funding strategy is on how to pay for framework infrastructure costs, which are critical to the development of plan area, but often too large and costly for any one developer to build and pay for. Off-site and subdistrict infrastructure elements are also addressed.
- LCG recommends that the City of King City implement a supplemental fee, to be paid by residential and commercial developers, as the primary tool to fund four framework infrastructure projects: Green Boulevard; Beef Bend Road between SW 150th Avenue and Roy Rogers Road; a series of planned culverts; and the River Terrace South Pump Station/Forcemain. The supplemental fee would be assessed in addition to existing systems development charges (SDC). The cost of these projects to be "allocated" via supplemental fee to residential and commercial development is $24.5 million.
- Based on an estimated and conservative residential and commercial land use program (of approximately 3,000 housing units and 50,000 square feet of commercial space), the supplemental fee would be $9,274 for a single-family home, and $22,853 for each 1,000 square feet of commercial space. While this is a significant amount, it is comparable to the supplemental fees/area-specific SDCs being assessed in other urban reserve areas. For example, we calculate that homebuilders in King City URA 6D would pay $26,637 per single family home, compared to $31,221 in the Tigard River Terrace area.
- We also propose that at least three types of projects—subdistrict pump stations/forcemains, neighborhood parks, and subdistrict stormwater facilities—be built and paid for by developers within "subdistricts." Because the development attributes of these subdistricts is unpredictable—including timing of development; the amount, type, and location of housing products; the developers involved; etc.—LCG believes that it makes sense to require that subdistrict infrastructure be built, but not dictate a specific funding strategy.
- One of the City's key responsibilities in the plan area will be guiding the design and construction of the community park—the one framework infrastructure project to be paid for through City SDCs/CIP program. LCG's analysis indicates that the plan area should generate adequate funds to cover the cost of this park. This funding strategy describes several ways that the City can work with property owners/developers to ensure the park is developed, and the City should explore these during the Master Plan.

Next Steps. In order to prepare the URA for annexation and development, the City and project stakeholders should consider completing the following funding-related actions:

- Initiate and complete a Master Plan for the URA, including more specific planning for physical, infrastructure, market, and financial issues.
- Work with stakeholders to refine this funding strategy. This includes the general public, and also groups and organizations that will have important roles in funding and building infrastructure, including developers and property owners, City departments including public works and parks, CWS, Washington County, and the School District.
- The Master Plan and/or related planning should provide additional specificity concerning a number of issues, including:
    - Infrastructure designs and cost estimates. The plan should settle on either sewer service concept 1 or 2. Cost estimates should be more accurate and have a smaller contingency (e.g., 20 percent rather than the current 50 percent), reflecting that the designers and engineers have greater confidence in their accuracy.
    - The amount and types of residential and commercial development. These estimates should be discussed with developers active in the area, and ground-truthed with additional analysis of comparable plan areas (such as Tigard's River Terrace), so that the City and others have confidence about the timing and amount of development—which have a significant impact on infrastructure revenues. Create a year-by-year spreadsheet of forecasted homebuilding/development, associated fee generation, and infrastructure costs.
    - Make sure that maps of the area clearly show developable areas, and the four different infrastructure categories—particularly framework and subdistrict infrastructure.
- Work with developers to determine where the Community Park may be sited, and whether particular developers are willing to deed and/or sell community park land to the City. In addition, explore opportunities to co-locate the park and proposed primary school, which could reduce development costs.
- Review and confirm—with the government agencies cited above and developers—that a supplemental fee will be the primary tool to generate funds for framework infrastructure. LCG's experience has been that the supplemental fee is the most straight forward tool. However, one or more area-specific SDCs, local improvement districts, or other tools could be used. (These other tools are summarized for reference in the Appendix.)
    - Consult with other communities (such as Wilsonville in the Frog Pond community) that are implementing a supplemental fee for urban reserve areas for lessons learned.
- Prepare and adopt enabling ordinances for the supplemental fee.
- In some cases, in which the City and developers have interconnected roles and responsibilities, development agreements between the City and developers may be necessary. An example is the community park. The City should explore the need and nature of any necessary development agreements.

Appendix

Figure 8. Framework Infrastructure Street Types and Costs

Street Type	Length	Cost Per Linear Foot		Cost
	Feet	MSA	Less ROW Acquisition	Total
Green Boulevard (Collector)				
Green Boulevard (Collector)	11,250	$3,330	$2,324	$26,140,282
Minimum Required: Neighborhood (Collector)	11,250	$1,550		$17,437,500
Oversize Amount: Allocable to Framework Fee				**$8,702,782**
Green Boulevard (Arterial) Beef Bend	**5,332**	**$3,570**	**$2,563**	**$13,665,335**

Source: Murraysmith engineers, Leland Consulting Group.

Figure 9. Soft Costs as a Percentage of Construction or Hard Cost

Soft Costs	Percent of Const. Cost
Engineering	15%
Construction Administration	10%
Permitting	1%
Wetland Mitigation/Bank	1%
City Staff - Legal and Administrative	2%
Total	**29%**

Source: Murraysmith engineers.

Note: These soft costs are included in the costs per linear foot shown in Figure 8, and other cost estimates developed by Murraysmith.

Figure 10. Community Park Cost Estimate

Park Cost Category	Unit Cost		Acres	Subtotal
	Per SF	Per Acre		
Land	$6	$261,360	6.5	$1,698,840
Improvements	$15	$653,400	6.5	$4,247,100
Soft Costs (as % of Improvements)			29%	$1,231,659
Total (Rounded)				$7,180,000

Source: Leland Consulting Group.

Additional Information Regarding Supplemental Fees and Other Funding Tools

This section provides additional information regarding the supplemental fee/reimbursement district tool (recommended in this plan), and other alternative infrastructure funding tools, for the City's reference.

Supplemental Fee

The supplemental fee approach and application is discussed above, throughout this funding strategy. The supplemental fee provides the means to allocate the costs of major infrastructure projects to residential and commercial development via a fee that is applied, similar to an SDC. One benefit of a supplemental fee is that it can cover multiple types of infrastructure, such as transportation, sewer, water, parks, etc. via a single fee.

Example Communities

The best example of a supplemental fee being applied to a greenfield urban reserve area is the Frog Pond Supplemental Fee, in Wilsonville, Oregon. The fee was adopted by the City Council on August 7, 2017. http://www.ci.wilsonville.or.us/AgendaCenter/ViewFile/Agenda/_08072017-659

Area-Specific or Overlay SDC

Functionally, an area specific SDC would be very similar to the supplemental fee discussed above, when applied to the King City URA. As the name implies, an area-specific SDC only applies to a particular area, whereas the City's general SDCs apply citywide. Area-specific SDCs are generally applied *in addition to* base SDCs. King City already uses this tool for an area-specific parks SDC serving the West King City Planning Area, specifically to fund recreational facilities serving that area. The following are differences between the area-specific SDCs and Supplemental Fee:

- There would likely need to be at least two SDCs applied within the URA, one for transportation, and one for sewer, since both of those infrastructure types are components of the framework infrastructure.
- Additional SDC rate methodology studies may be required for each of the above SDCs to document the link between development demand and costs.

Example Communities and Projects

- South Hillsboro Area, Hillsboro http://www.hillsboro-oregon.gov/home/showdocument?id=1690
- I-5/Wilsonville Road Interchange project, Wilsonville (SDCs in conjunction with Urban Renewal funding) http://www.oregonurbanrenewal.org/wilsonville-rd-i5-interchange/
- Innovation Quadrant, Portland https://www.portlandoregon.gov/transportation/article/386068

Authorizing State Statute

Oregon: ORS 223.297-223.314

Local Improvement Districts

An LID (Local Improvement District) is similar to a reimbursement district in that the cost of infrastructure that benefits multiple property owners is divided among those property owners in an equitable manner, and paid by an assessment. Like reimbursement districts, LIDs may be initiated by property owners or the City. One or more LIDs could be used in the plan area in conjunction with or in place of the supplemental fee.

LIDs differ from supplemental fees in the following important ways:

- Typically, a majority (50% plus one) of property owners (weighted by the amount of area they own) must sign a petition in support of initiating the district. (The establishment of a supplemental fee is a discretionary decision made by the city council.) Naturally, this LID vote requires the support of property owners, and outreach and discussion among property owners may require considerable time.

- Assessments may be paid in a lump sum or financed over time at the property owner's discretion. Assessments are due upon allocation of costs and creation of the district. Supplemental fees are typically due later, when property owners seek public works or building permits. Some property owners, particularly those not seeking to develop in the near term, may view immediate assessments as a drawback.

- The LID creates a lien against each individual's property until all assessments are paid in full. This can be seen as negative by lenders considering financing real estate development projects, whose strong preference is that there be no other claims on the property on which they are making a loan. This can also be seen as a positive since the lien creates a secure income stream against which the city can issue bond debt. Whether an LID is initiated by property owners or the City, LID debt is always issued by a government agency, and thus takes advantage of low interest rates.

Thus, LIDs are a financing mechanism that can create immediate capital for construction. By contrast, supplemental fees take time to accrue. While the City or developers can make investments before receiving all corresponding supplemental fees, they will take on more risk since it is possible that some development will not take place, or take place more slowly than expected.

Example Communities

- Portland, https://www.portlandoregon.gov/transportation/35715
- Albany, http://www.cityofalbany.net/departments/public-works/engineering/local-improvement-districts

Authorizing State Statute

Oregon: Local Improvements and Works: ORS 223.378-223.401, ORS 223.225-223.295

Reimbursement District

A reimbursement district is an area within which one party (typically a developer though sometimes a city) builds infrastructure that benefits multiple property owners. The other benefiting property owners pay a reimbursement fee—a pro rata share of the infrastructure costs (determined on a per-unit, square foot, or per-acre basis)—to the original developer or city, typically at the time when property owners seek public works permits for development.

While this is very similar to the supplemental fee discussed throughout this memorandum, reimbursement districts have most often been used for smaller-scale projects, for example, for small subdivisions. Reimbursement districts would probably be a good tool to fund the *subdistrict* infrastructure (such as neighborhood parks and subdistrict sewer pump stations) discussed above.

Example Communities

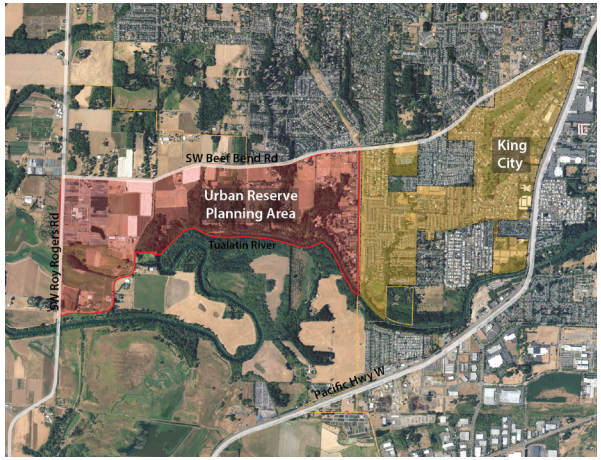
- Reimbursement Districts, Municipal Code Chapter 13.09, City of Tigard, http://www.tigard-or.gov/Titles1-17/13_09.pdf
- Advance Financing of Public Improvements, West Linn http://westlinnoregon.gov/sites/default/files/fileattachments/city_council/page/5656/chapter_3-advance_financing_of_public_improvements.pdf
- Reimbursement District for Streets and other utilities, Wilsonville http://www.ci.wilsonville.or.us/DocumentCenter/View/34
- Normal Neighborhood Plan (proposed), Ashland https://www.ashland.or.us/SIB/files/HousingLandUseFramework.pdf
- North Redwood Storm Drainage District, Canby http://www.canbyoregon.gov/N_Redwood/docs/ProjectMemo2_2-2015.pdf

Authorizing State Statute

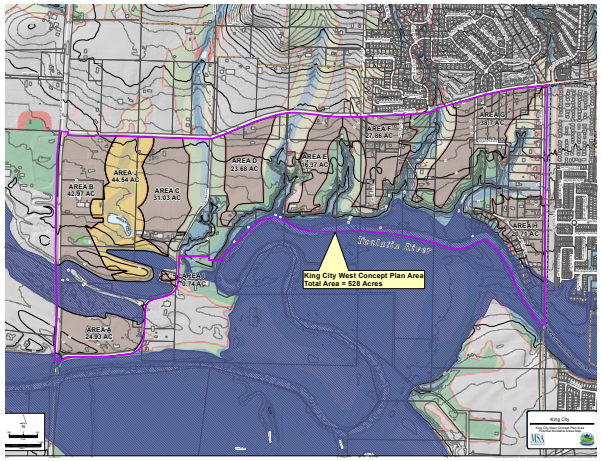
Oregon: ORS 223.387-223.401

Other Approaches to Framework Infrastructure

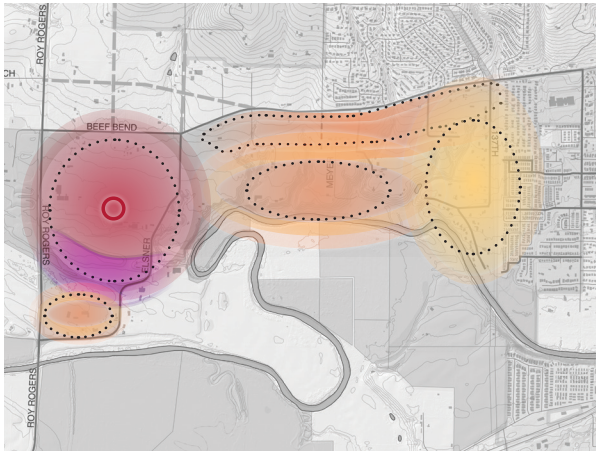
- *CIP investments.* As described elsewhere, the City, County, or other agencies such as CWS could potentially fund additional projects or portions of projects through their CIPs. This can be a challenging process, however, as most CIPs are oversubscribed, with many worthy projects competing for funding.
  - *Expansion of the types of facilities that are on near-term CIP lists and/or are considered SDC creditable, by the City, County, or other entity.* For example, segments of Beef Bend Road between 150th and Roy Rogers. This provides an incentive for developers to make those improvements, but it can also reduce SDC receipts.



Simple calculation



Subarea calculation

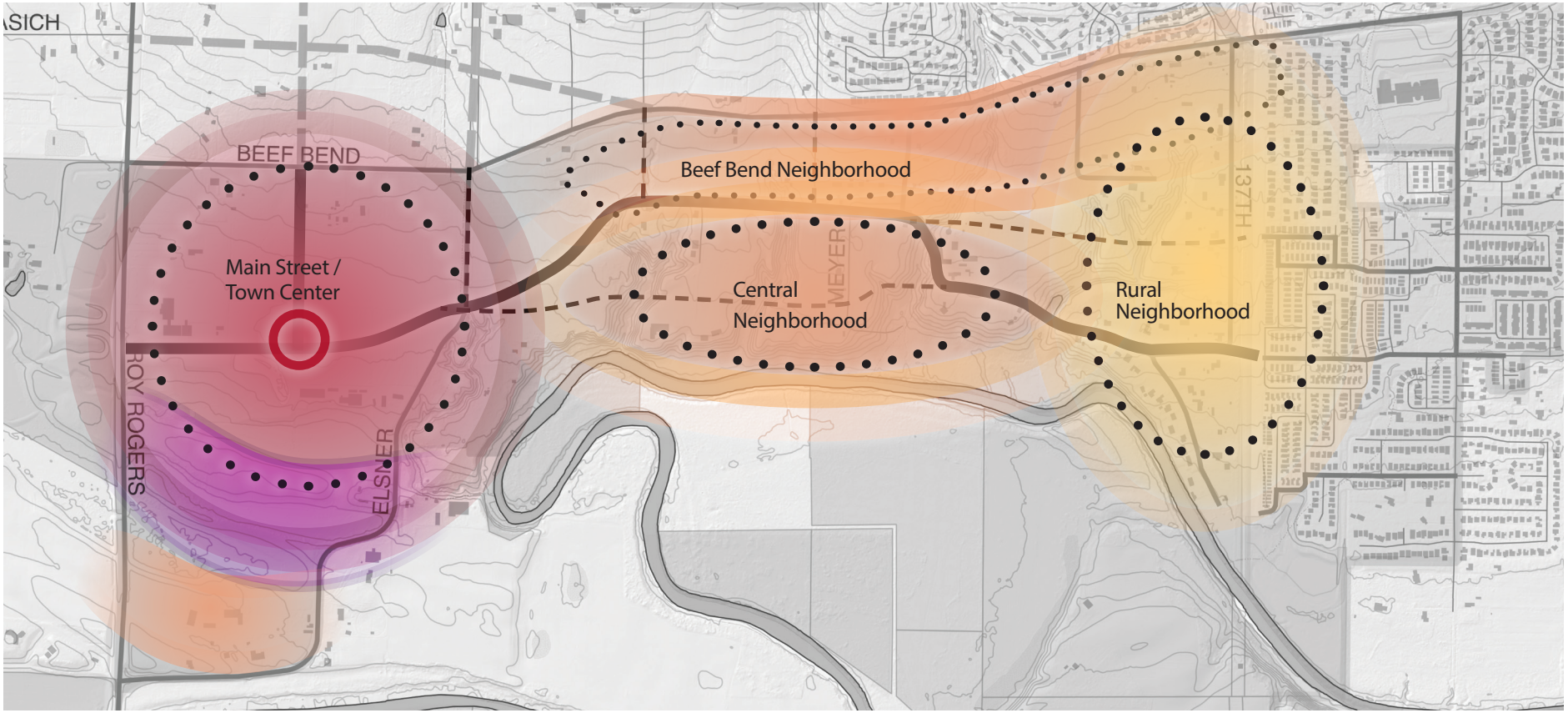


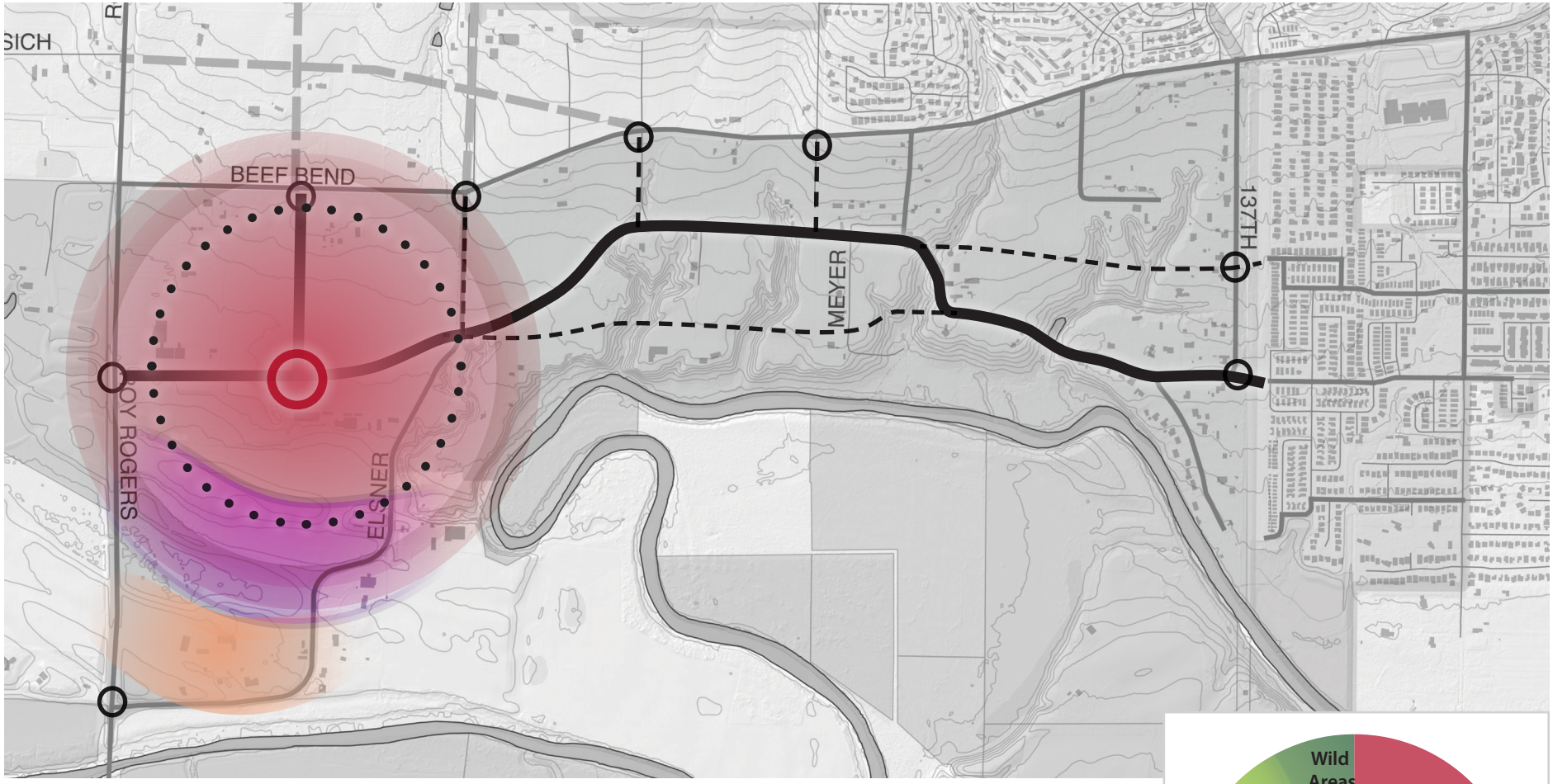
Neighborhood calculation

Area and Density Calculation Methods

Calculation Method	Simple	By Subarea	By Neighborhood
Total URA 6D Acreage	528		
Developable Area	318	273	318
Percent of total acreage	60%	52%	60%
Total Units	3,816		
Average Density	12	14	12
Low to High Density	NA	NA	4 - 100

Town Center/Main Street | Beef Bend | General | Rural

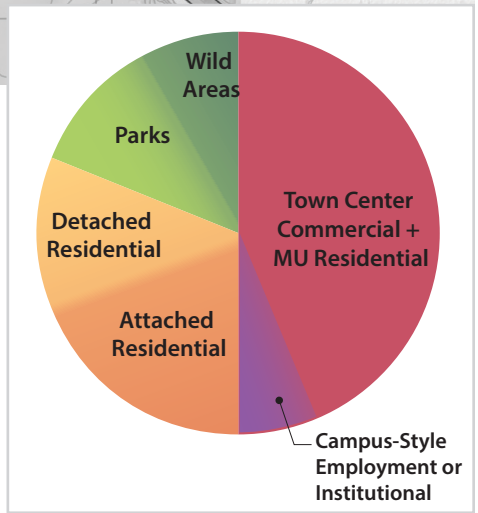




Town Center/Main Street Neighborhood

Total Neighborhood Acreage (Net)	Developable area	Percent of total URA 6D acreage	Total units	Average density	Other uses	Lowest to highest density
145	145	27%	2,950 (1)	25	20-25 acres campus employ-ment; 40-60,000 sf commercial	8 / 10

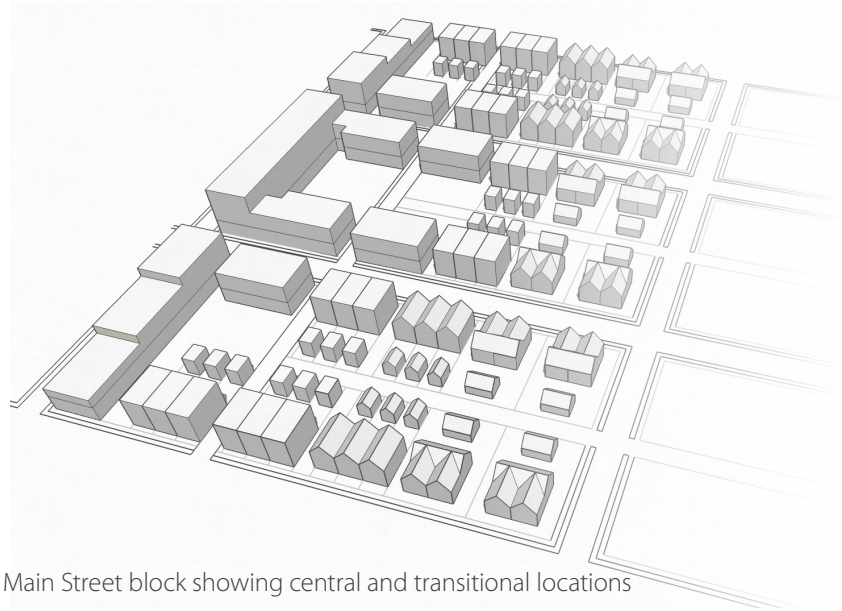
(1) Assumptions: 120 acres is allocated to residential (25 acres to campus-style employment). 20 acres of that is Main Street Central Block; 50 acres is Main Street Transitional Block, and 50 acres is High-to-mid-density block.



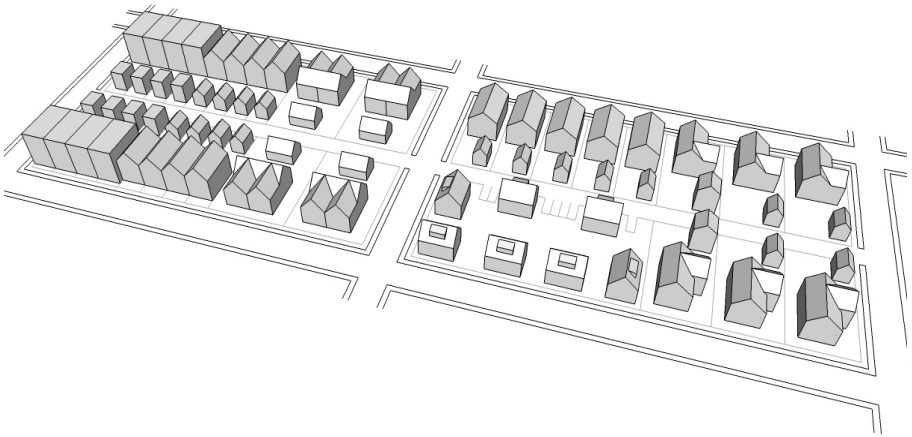
Town Center/Main Street Neighborhood

Unit Breakdown			
Category	Type	Subtotal by type	Subtotal by category
Residential Acreage = 120 acres (1)			
Multidwelling	Flats over retail	400	1,000
	Flats in standalone building (Main Street)	500	
	Flats in standalone building (Boulevard)	100	
Single dwelling, attached	Live-work or rowhouse	300	500
	Duplex	200	
Single dwelling, detached	Cottage cluster	100	860
	Narrow lot	300	
	Mid lot with ADU	300	
	Mid lot no ADU	160	
Totals		**2,360**	**2,360**

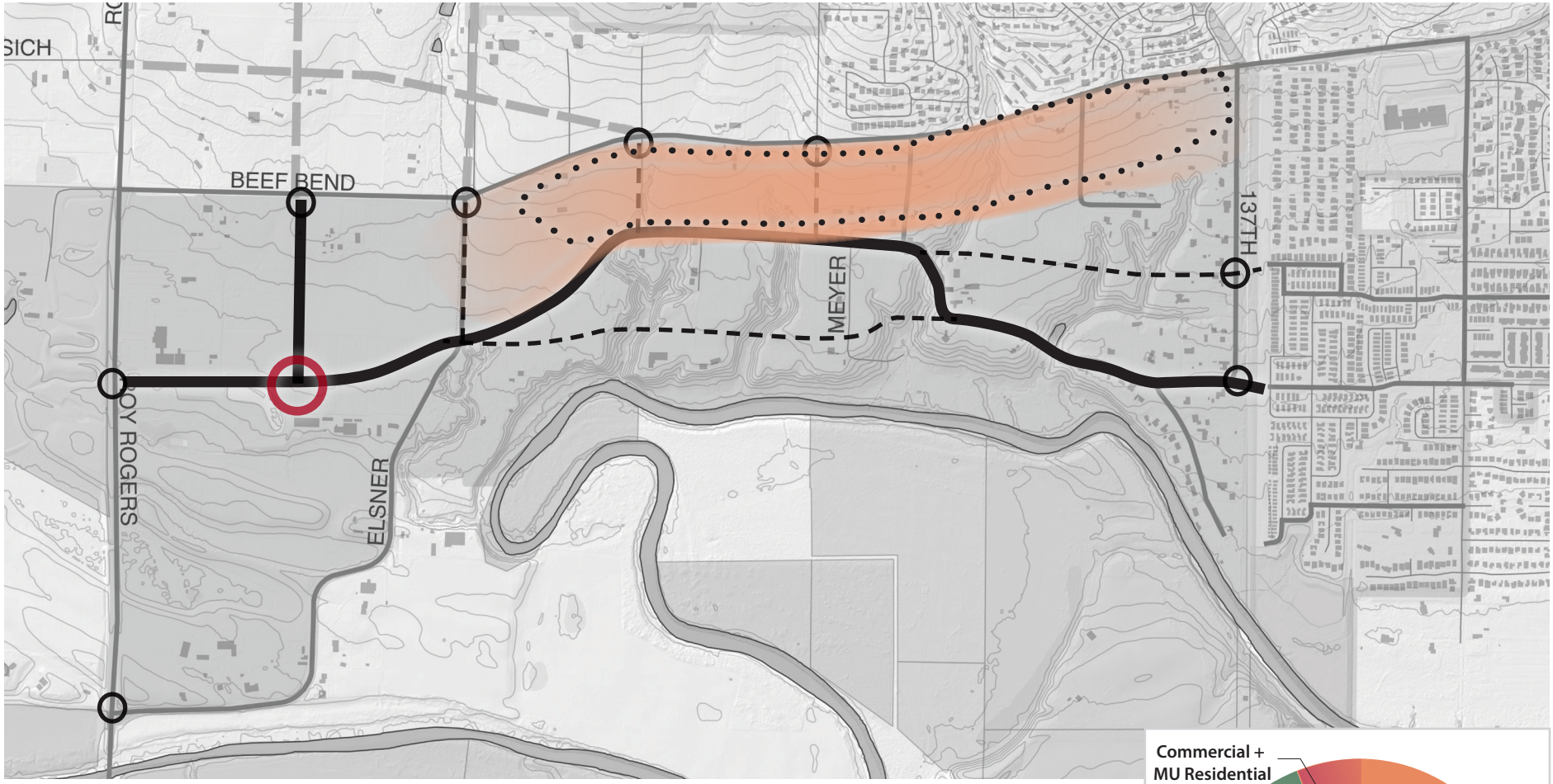
(1) Of the 120 acres allocated to residential (out of 145), some of it is stacked over commercial. 80% of the120 acres is represented in the unit breakdown, meaning residential net neighborhood acreage equals 96 acres.



Main Street block showing central and transitional locations

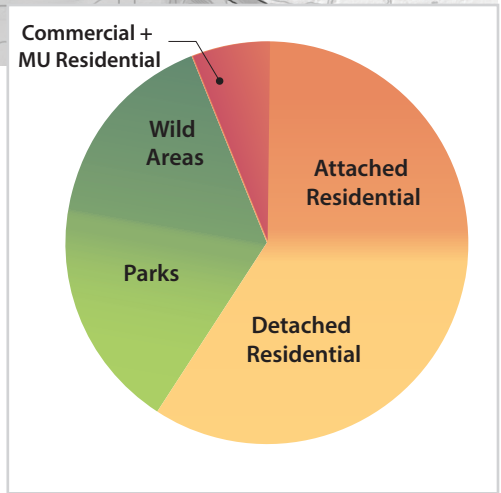


High to mid density block



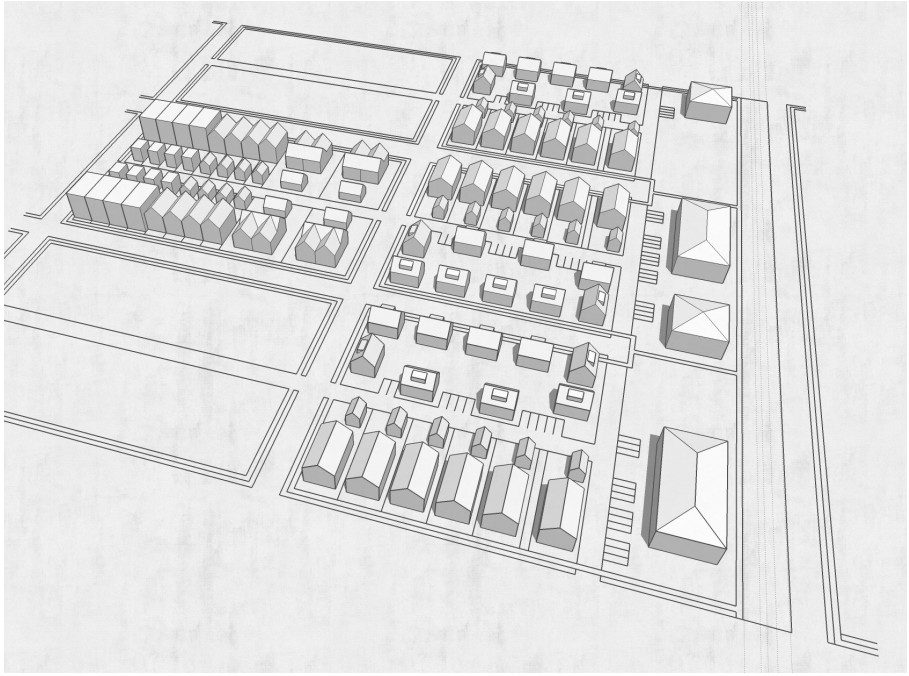
Beef Bend Neighborhood

Total Neighborhood Acreage (Net)	Developable area	Percent of total URA 6D acreage	Total units	Average density	Other uses	Lowest to highest density
62	37	12%	666	18	Incidental, optional retail	12 / 24

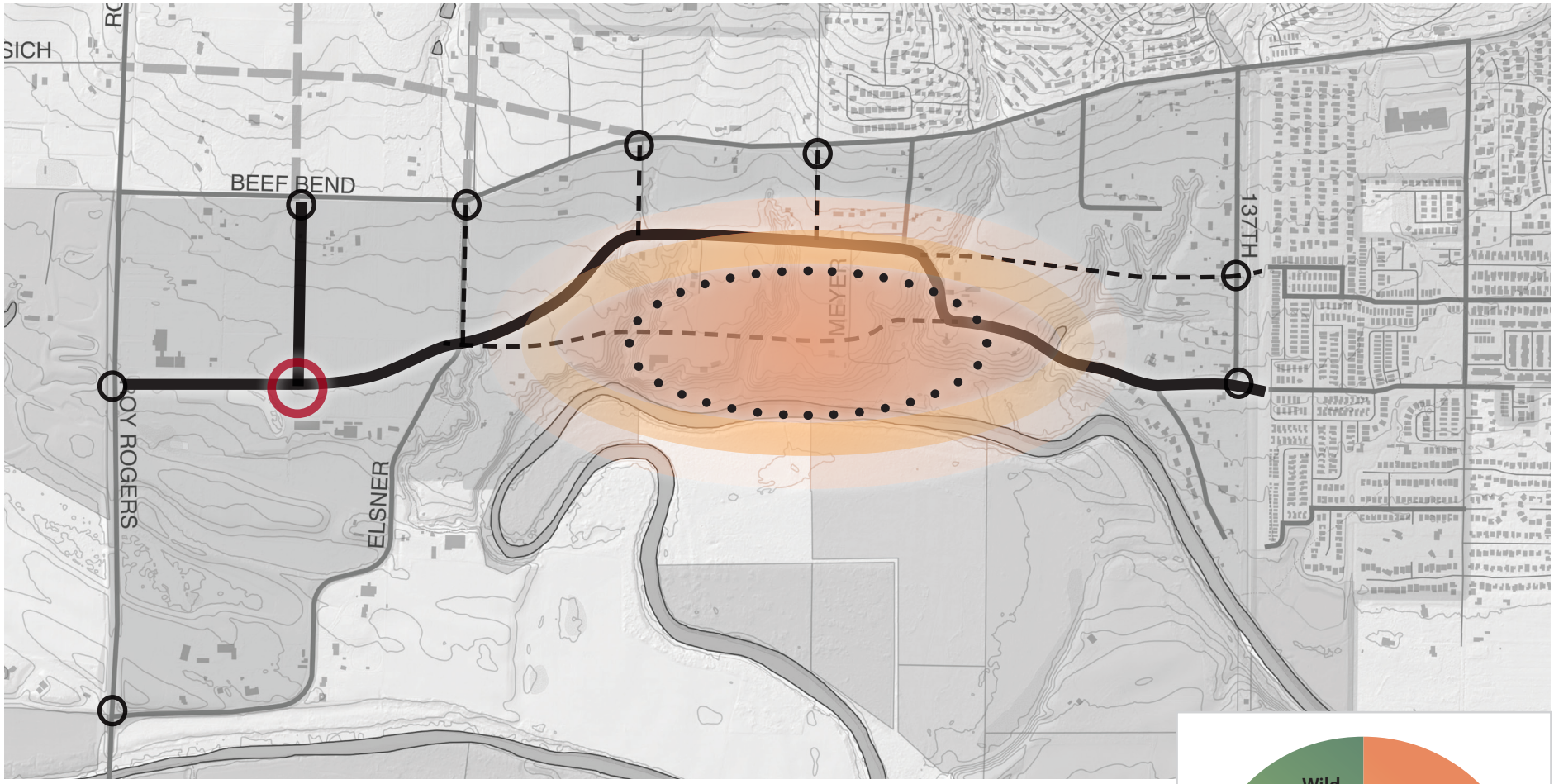


Beef Bend Neighborhood

Unit Breakdown			
Category	Type	Subtotal by type	Subtotal by category
Multidwelling	Flats over retail	0	222
	Flats in standalone building (Main Street)	0	
	Flats in standalone building (Boulevard)	222	
Single dwelling, attached	Live-work or rowhouse	0	0
	Duplex	0	
Single dwelling, detached	Cottage cluster	50	444
	Narrow lot	250	
	Mid lot with ADU	144	
	Mid lot no ADU	0	
Totals		**666**	**666**

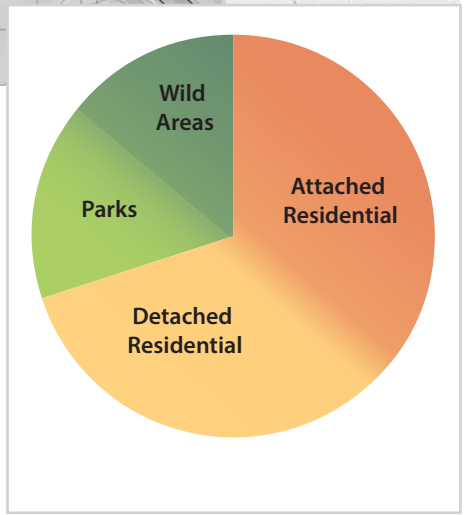


Boulevard block



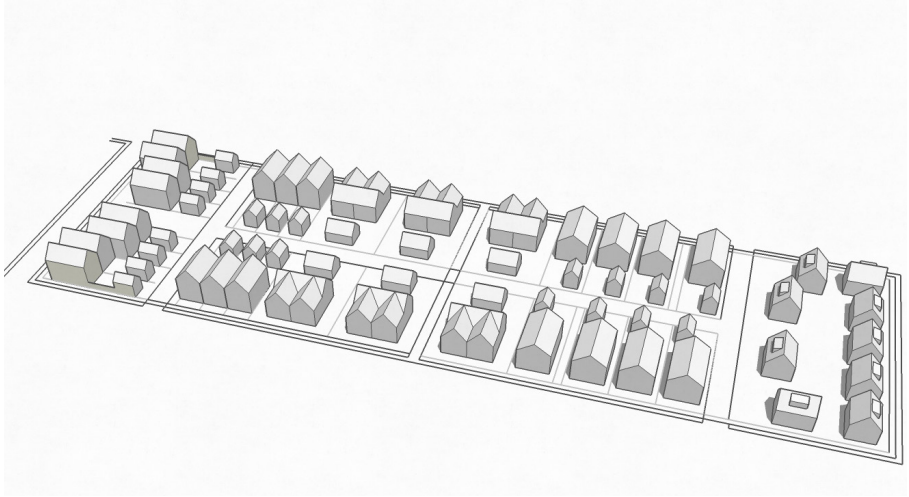
Central Neighborhood

Total Neighborhood Acreage (Net)	Developable area	Percent of total URA 6D acreage	Total units	Average density	Other uses	Lowest to highest density
57	34	11%	558	16	None	8 / 20

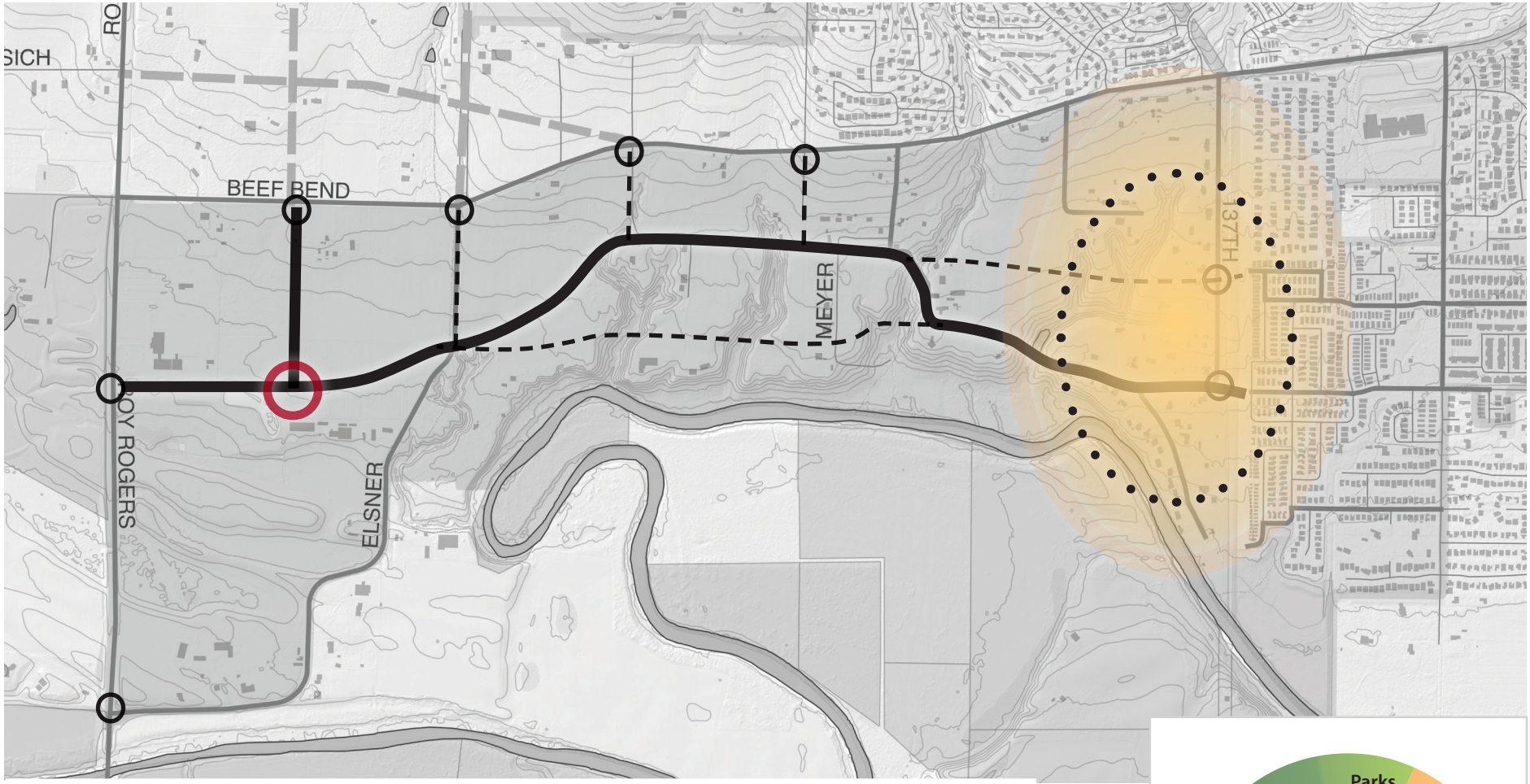


Central Neighborhood

Unit Breakdown			
Category	Type	Subtotal by type	Subtotal by category
Multidwelling	Flats over retail	0	0
	Flats in standalone building (Main Street)	0	
	Flats in standalone building (Boulevard)	0	
Single dwelling, attached	Live-work or rowhouse	30	60
	Duplex	30	
Single dwelling, detached	Cottage cluster	24	498
	Narrow lot	30	
	Mid lot with ADU	144	
	Mid lot no ADU	300	
Totals		**558**	**558**

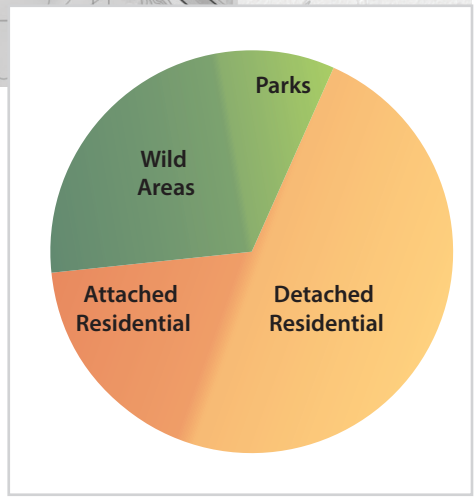


Mid density block



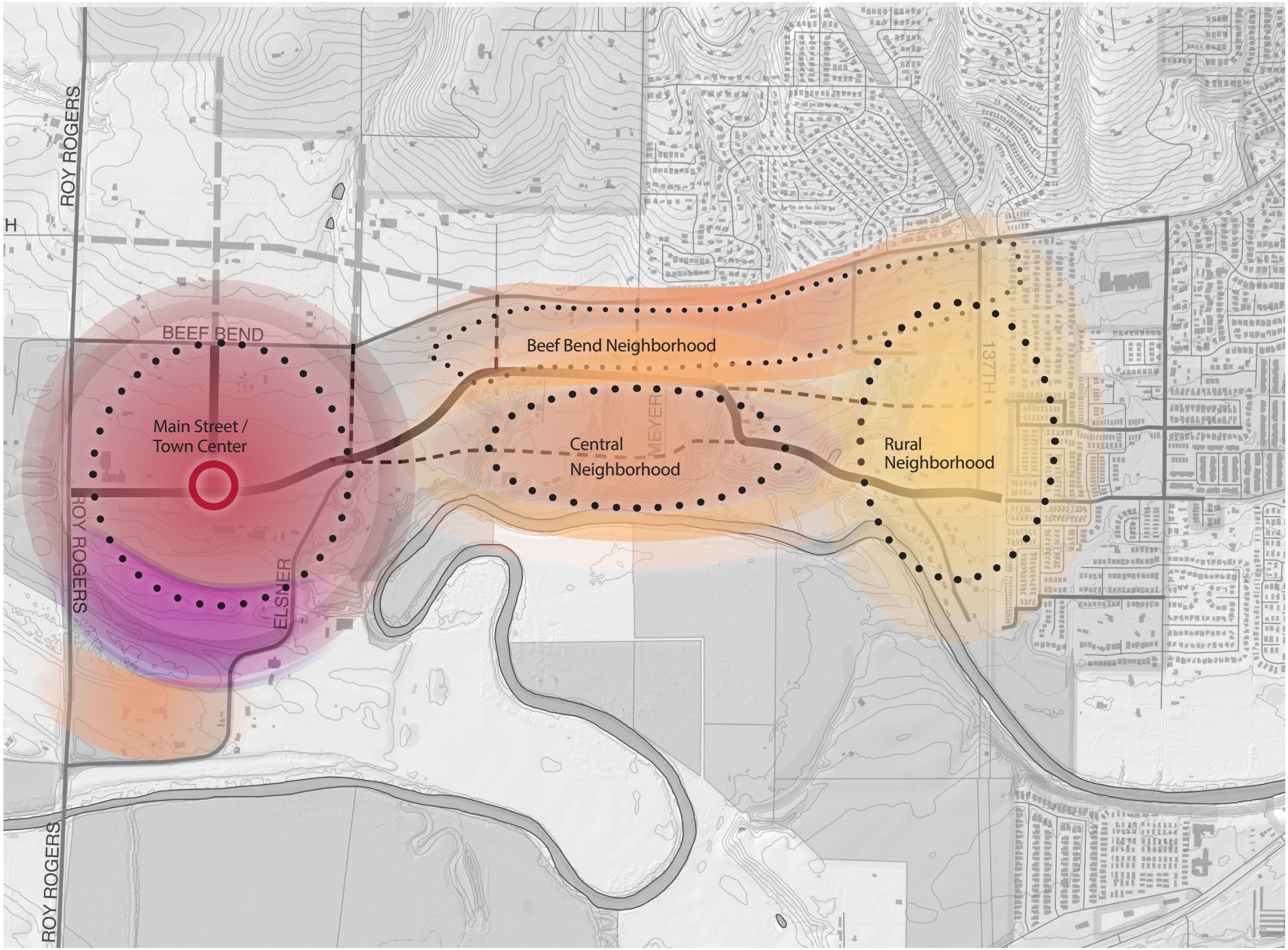
Rural Neighborhood

Total Neighborhood Acreage (Net)	Developable area	Percent of total URA 6D acreage	Total units	Average density	Other uses	Lowest to highest density
54	34	10%	232	4	none	4 / 12



Rural Neighborhood

Unit Breakdown			
Category	Type	Subtotal by type	Subtotal by category
Multidwelling	Flats over retail	0	0
	Flats in standalone building (Main Street)	0	
	Flats in standalone building (Boulevard)	0	
Single dwelling, attached	Live-work or rowhouse	0	0
	Duplex	0	
Single dwelling, detached	Cottage cluster	50	232
	Narrow lot	0	
	Mid lot with ADU	82	
	Mid lot no ADU	100	
Totals		**232**	**232**


ROY ROGERS
BEEF BEND
Main Street /
Town Center
Beef Bend Neighborhood
Central
Neighborhood
MEYER
137TH
Rural
Neighborhood
ROY ROGERS
ELSNER
ROY ROGERS

Summary by Neighborhood

Unit Breakdown											
Category	Type	Main Street / Town Center		Beef Bend		Central		Rural		**Totals**	
		Subtotal by type	Subtotal by category	Subtotal by type	Subtotal by category	Subtotal by type	Subtotal by category	Subtotal by type	Subtotal by category	**Total by type**	**Total by category**
Multidwelling	Flats over retail	400	1,000	0	222	0	0	0	0	**400**	**1,222**
	Flats in standalone building (Main Street)	500		0		0		0		**500**	
	Flats in standalone building (Boulevard)	100		222		0		0		**322**	
Single dwelling, attached	Live-work or rowhouse	300	500	0	0	30	60	0	0	**330**	**560**
	Duplex	200		0		30		0		**230**	
Single dwelling, detached	Cottage cluster	100	860	50	444	24	498	50	232	**224**	**2,034**
	Narrow lot	300		250		30		0		**580**	
	Mid lot with ADU	300		144		144		82		**670**	
	Mid lot no ADU	160		0		300		100		**560**	
Totals		**2,360**	**2,360**	**666**	**666**	**558**	**558**	**232**	**232**	**3,816**	**3,816**

City of King City
Housing Needs Analysis

February 2018

Prepared for:

King City

***DRAFT* REPORT**

ECONorthwest
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Table of Contents

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Summary

This report presents a housing needs analysis consistent with requirements of Statewide Planning Goal 10 and Oregon Administrative Rule (OAR) 660-008. The methods used for this study generally follow the *Planning for Residential Growth* guidebook, published by the Oregon Transportation and Growth Management Program (1996).

The primary goals of the housing needs analysis were to (1) project the amount of land needed to accommodate the future housing needs of all types within the King City Urban Growth Boundary (UGB), (2) evaluate the existing residential land supply within the King City UGB to determine if it is adequate to meet that need, (3) to fulfill state planning requirements for a twenty-year supply of residential land, and (4) identify policy and programmatic options for the City to meet identified housing needs.

What are the key housing needs in King City?

Following are several key issues identified in the housing needs analysis:

- **King City has very little vacant, unconstrained buildable residential land.** King City has 3.8 acres of vacant, unconstrained buildable land. Of this, 2.3 acres is in the Limited Commercial Plan Designation, where multifamily housing is permitted but commercial development is also permitted. The remaining 1.5 acres is in residential Plan Designations. This land has capacity for a total of 40 new dwelling units.
- **King City has a deficit of land for housing.** King City can only accommodate about 4% of the forecast for new housing on areas within the city limits. King City has a deficit of land for 940 dwelling units. The deficits are: 217 dwelling unit deficit in the Single-Family Designation, 252 dwelling unit in the R-9 Residential Designation, and 471 dwelling units in multifamily Designations (including the R-12, R-24, and AT Designations).
- **King City will need an expansion of the Metro urban growth boundary to accommodate its forecast of housing.** Given the limited supply of land within King City, the city needs an expansion of the urban growth boundary to accommodate the forecast of growth. King City is developing a Concept Plan for development in Urban Reserve Area 6D (URA 6D), which can accommodate King City's forecast of growth, with room for additional growth.
- **King City will need to plan for more single-family attached and multifamily dwelling units in the future to meet the City's housing needs.** Historically, about 72% of King City's housing was single-family detached. While 50% of new housing in King City is forecast to be single-family detached, the City will need to provide opportunities for development of new single-family attached (15% of new housing) and new multifamily housing (35% of new housing). This housing mix will be similar to King City's housing mix in 2000, before the rapid growth of single-family housing over the last decade or so.

- The factors driving the shift in types of housing needed in King City include changes in demographics and decreases in housing affordability. The aging of the Baby Boomers and the household formation of the Millennials will drive the demand for renter- and owner-occupied housing such as small single-family detached housing, townhouses, cottage housing, duplexes, and apartments. Both groups may prefer housing in walkable neighborhoods, with access to services.
- King City's existing deficit of housing affordable for low- and middle-income households indicates a need for a wider range of housing types, especially for renters. About 39% of King City's households have affordability problems, including a cost burden rate of 56% for renter households.
- Growth of housing in King City will be driven by growth of housing across the Portland Region. As King City grows, the demographic characteristics of King City will become more like the Portland Region: a balance of older and younger households. King City has and will continue to have housing affordability problems similar to other cities on the Portland Region's westside.

- **King City has an existing lack of affordable housing.** King City's key challenge over the next 20 years is providing opportunities for development of relatively affordable housing of all types of housing, such as apartments, duplexes, tri- and quadplexes, manufactured housing, townhomes, cottages, and smaller single-family housing.
  - More than half of King City households cannot afford a two-bedroom apartment at HUD's fair market rent level of $1,242.
  - King City currently has a deficit of housing units that are affordable to households earning less than $50,000.
  - About 40% of King City's households are cost burdened, with 56% of renters and 36% of owners paying more than 30% of their income on housing.

How much buildable residential land does King City currently have?

Exhibit 1 shows buildable residential acres by plan designation, after excluding constrained and unbuildable land. The results show that King City has about 3.8 net buildable acres in residential plan designations.

Exhibit 1. Buildable Residential Acres, Excluding Constrained and Unbuildable, King City, 2016
Source: Appendix A, Table A-3

Inside King City city Limits	
Limited Commercial	2.3 acres
Small Lot and Attached Residential	1.4 acres
Attached Residential	0.1 acres
Total	3.8 acres

How much housing will King City need?

Metro's forecast for King City for the 2015 to 2040 period is the foundation for estimating the number of new dwelling units needed. ECONorthwest used this forecast to extrapolate King City's forecast for 2018 to 2038, shown in Exhibit 2. It shows that King City's population will grow by about 980 people over the 20-year period.

Exhibit 2. Population Forecast, King City, 2018–2038
Source: ECONorthwest based on Metro's 2018–2038 population forecast.

2018 Population	2,122
2038 Population	3,102
Change 2018 to 2038	
Number	980
Average annual growth rate	1.9%

The housing needs analysis assumes that King City's population will grow by 980 people over the 2018 to 2038 period.

About 490 dwelling units (50%) will be single-family detached types, which includes manufactured homes and accessory dwelling units. About 147 (15%) will be single-family attached, and 343 (35%) will be multifamily, which includes structures with three to four dwellings and structures with five or more dwellings.

This mix represents a shift from the existing mix of housing, in which more than three-quarters of the housing stock in single-family detached housing. The shift in mix is in response to the

need for a wider range of relatively affordable housing types, including housing types such as duplexes, townhouses, and apartments. In addition, King City has need for relatively affordable smaller single-family detached housing.

How much land will be required for housing?

Error! Reference source not found. shows that King City has 2.3 acres of vacant land in the LC (Limited Commercial) Plan Designation. The potential capacity on vacant unconstrained LC land ranges from 56 dwelling units (if all vacant LC land is developed with multifamily housing) to zero dwelling units (if no vacant LC land is developed with multifamily housing). This analysis assumes that half of the vacant LC land will develop with multifamily housing, resulting in a capacity of 28 dwelling units.

shows that King City has a deficit of capacity in most residential plan designations:

- **SF Single Family** has a deficit of capacity for about 217 dwelling units to accommodate growth over the 2018–2038 period.
- **SF Single Family** has a deficit of capacity for about 252 dwelling units to accommodate growth.
- **Multifamily Designations** have a deficit of capacity for about 471 dwelling units to accommodate growth.
- **LC- Limited Commercial** can accommodate 28 multifamily units. If the City Designates more land LC in areas brought into the city limits (through a Metro UGB expansion), then more multifamily housing may locate in LC, especially multifamily in mixed-use development.

King City does not have enough land to accommodate residential growth over the 20-year period.

1. Introduction

This report presents King City's Housing Needs Analysis for the 2018 to 2038 period. It is intended to comply with statewide planning policies that govern planning for housing and residential development, including Goal 10 (Housing) and OAR 660 Division 7. The methods used for this study generally follow the *Planning for Residential Growth* guidebook, published by the Oregon Transportation and Growth Management Program (1996).

This report provides King City with a factual basis to understand the City's housing needs over the next 20 years and to support future planning efforts related to housing and options for addressing unmet housing needs in King City. It provides information that informs future planning efforts, including development and redevelopment in urban renewal areas. It provides the City with information about the housing market in King City and describes the factors that will affect housing demand in King City, such as changing demographics. This analysis will help decision-makers understand whether King City has enough land to accommodate growth over the next 20 years.

Framework for a Housing Needs Analysis

Economists view housing as a bundle of services for which people are willing to pay: shelter certainly, but also proximity to other attractions (jobs, shopping, recreation), amenities (type and quality of fixtures and appliances, landscaping, views), prestige, and access to public services (quality of schools). Because it is impossible to maximize all these services and simultaneously minimize costs, households must, and do, make tradeoffs. What they can get for their money is influenced by both economic forces and government policy. Moreover, different households will value what they can get differently. They will have different preferences, which in turn are a function of many factors like income, age of household head, number of people and children in the household, number of workers and job locations, number of automobiles, and so on.

Thus, housing choices of individual households are influenced in complex ways by dozens of factors; and the housing market in the Portland Region, Washington County, and King City are the result of the individual decisions of hundreds of thousands of households. These points help to underscore the complexity of projecting what types of housing will be built in King City between 2018 and 2038.

The complex nature of the housing market was demonstrated by the unprecedented boom and bust during the past decade. This complexity does not eliminate the need for some type of forecast of future housing demand and need, with the resulting implications for land demand and consumption. Such forecasts are inherently uncertain. Their usefulness for public policy often derives more from the explanation of their underlying assumptions about the dynamics of markets and policies than from the specific estimates of future demand and need. Thus, we start our housing analysis with a framework for thinking about housing and residential markets and how public policy affects those markets.

Statewide Planning Goal 10

The passage of the Oregon Land Use Planning Act of 1974 (ORS Chapter 197), established the Land Conservation and Development Commission (LCDC) and the Department of Land Conservation and Development (DLCD). The Act required the Commission to develop and adopt a set of statewide planning goals. Goal 10 addresses housing in Oregon and provides guidelines for local governments to follow in developing their local comprehensive land-use plans and implementing policies.

At a minimum, local housing policies must meet the requirements of Goal 10 and the statutes and administrative rules that implement it (ORS 197.295 to 197.314, ORS 197.475 to 197.490, and OAR 600-007).[1] Goal 10 requires incorporated cities to complete an inventory of buildable residential lands and to encourage the availability of adequate numbers of housing units in price and rent ranges commensurate with the financial capabilities of its households.

Goal 10 defines needed housing types as "housing types determined to meet the need shown for housing within an urban growth boundary at particular price ranges and rent levels." ORS 197.303 defines needed housing types:

(a) Housing that includes, but is not limited to, attached and detached single-family housing and multiple family housing for both owner and renter occupancy;

(b) Government assisted housing;[2]

(c) Mobile home or manufactured dwelling parks as provided in ORS 197.475 to 197.490; and

(d) Manufactured homes on individual lots planned and zoned for single-family residential use that are in addition to lots within designated manufactured dwelling subdivisions.

DLCD provides guidance on conducting a housing needs analysis in the document *Planning for Residential Growth: A Workbook for Oregon's Urban Areas*, referred to as the Workbook.

King City must identify needs for all of the housing types listed above as well as adopt policies that increase the likelihood that needed housing types will be developed. This housing needs analysis was developed to meet the requirements of Goal 10 and its implementing administrative rules and statutes.

The Metropolitan Housing Rule

OAR 660-007 (the Metropolitan Housing rule) is designed to "ensure opportunity for the provision of adequate numbers of needed housing units and the efficient use of land within the Metropolitan Portland (Metro) urban growth boundary."

[1] ORS 197.296 only applies to cities with populations over 25,000.

[2] Government assisted housing can be any housing type listed in ORS 197.303 (a), (c), or (d).

The Metropolitan Housing Rule also requires cities to develop residential plan designations:

> (1) Plan designations that allow or require residential uses shall be assigned to all buildable land. Such designations may allow nonresidential uses as well as residential uses. Such designations may be considered to be "residential plan designations" for the purposes of this division. The plan designations assigned to buildable land shall be specific so as to accommodate the varying housing types and densities identified in OAR 660-007-0030 through 660-007-0037.

OAR 660-007-0035 (4) exempts King City from the regional housing density and mix standards in OAR 660-007 because King City had a very small population when OAR 660-007 was written.

Metro Urban Growth Management Functional Plan

The Metro Urban Growth Management Functional Plan describes the policies that guide development for cities within the Metro UGB to implement the goals in the Metro 2040 Plan.

TITLE 1: HOUSING CAPACITY

Title 1 of Metro's Urban Growth Management Functional Plan is intended to promote efficient land use within the Metro UGB by encouraging policies that increase the capacity of residential land for cities within the UGB. Each city is required to determine its housing capacity based on the minimum number of dwelling units allowed in each zoning district that allows residential development, and maintain this capacity by balancing decreases in density in some places with increases in density in other places.

Title 1 requires that a city adopt minimum residential development density standards by March 2011. If the jurisdiction did not adopt a minimum density by March 2011, the jurisdiction must adopt a minimum density that is at least 80% of the maximum density. King City has met this requirement with an 80% minimum standard for all residential zones.

Title 1 provides measures to decrease development capacity in selected areas by transferring the capacity to other areas of the community. This may be approved as long as the community's overall capacity is not reduced.

Metro's *2016 Compliance Report* concludes that King City is in compliance for the City's Title 1 responsibilities.

TITLE 7: HOUSING CHOICE

Title 7 of Metro's Urban Growth Management Functional Plan is designed to ensure the production of affordable housing in the Metro UGB. Each city and county within the Metro region is encouraged to voluntarily adopt an affordable housing production goal.

Each jurisdiction within the Metro region is required to ensure that their comprehensive plans and implementing ordinances include strategies to ensure the production of a diverse range of housing types, maintain the existing supply of affordable housing, increase opportunities for new affordable housing dispersed throughout their boundaries, and increase opportunities for households of all income levels to live in affordable housing (Section 3.07.730, Metro Code).

Metro's *2016 Compliance Report* concludes that King City is in compliance for the City's Title 7 responsibilities.

TITLE 11: PLANNING FOR NEW URBAN AREAS

Title 11 of Metro's Urban Growth Management Functional Plan provides guidance on the conversion of land from rural to urban uses. Land brought into the Metro UGB is subject to the provisions of Section 3.07.1130 of the Metro Code, which requires lands to be maintained at rural densities until the completion of a concept plan and annexation into the municipal boundary.

The concept plan requirements directly related to residential development are to prepare a plan that includes: (1) a mix and intensity of uses that make efficient use of public systems and facilities, (2) a range of housing for different types, tenure, and prices that address the housing needs of the governing city, and (3) identified goals and strategies to meet the housing needs for the governing city in the expansion area.

Metro's *2016 Compliance Report* concludes that King City is in compliance for the City's Title 11 responsibilities.

Organization of This Report

The rest of this document is organized as follows:

- **Chapter 2. Residential Buildable Lands Inventory** presents the methodology and results of King City's inventory of residential land.
- **Chapter 3. Historical and Recent Development Trends** summarizes the state, regional, and local housing market trends affecting King City's housing market.
- **Chapter 4. Demographic and Other Factors Affecting Residential Development in King City** presents factors that affect housing need in King City, focusing on the key determinants of housing need: age, income, and household composition. This chapter also describes housing affordability in King City relative to the larger region.
- **Chapter 5. Housing Need in King City** presents the forecast for housing growth in King City, describing housing need by density ranges and income levels.
- **Chapter 6. Residential Land Sufficiency within King City** estimates King City's residential land sufficiency needed to accommodate expected growth over the planning period.

2. Residential Buildable Lands Inventory

This chapter presents the residential buildable lands inventory (BLI) for the King City city limits. The buildable lands inventory complies with Statewide Planning Goal 10 policies (including OAR 660-007 and OR 600-008) that govern planning for residential uses.

Methods and Definitions

The inventory used commonly accepted methods based on geographic information systems (GIS) data from Metro's Regional Land Information System (RLIS, August 2017 version) and King City. The buildable land inventory used the following steps:

1. establish the residential land base (parcels or portion of parcels with appropriate zoning),
2. classify parcels by development status (e.g., developed, vacant, etc.),
3. identify and deduct development constraints (e.g., floodplain, wetland, etc.), and
4. summarize total buildable area by plan designation.

The inventory used Metro's vacant land layer to identify tax lots or portions of tax lots with vacant land within the King City city limits. The specific data layers and processing steps used for the inventory are included in Appendix A.

Consistent with OAR 660-007-0005 and OAR 660-008-0005, the residential buildable land inventory deducted lands with physical constraints from the inventory consistent with the definition of buildable lands:

> (3) "Buildable Land" means residentially designated land within the Metro urban growth boundary, including both vacant and developed land likely to be redeveloped, that is suitable, available and necessary for residential uses. Publicly owned land is generally not considered available for residential uses. Land is generally considered "suitable and available" unless it:
>
> > (a) Is severely constrained by natural hazards as determined under Statewide Planning Goal 7;
> >
> > (b) Is subject to natural resource protection measures determined under Statewide Planning Goals 5, 6 or 15;
> >
> > (c) Has slopes of 25% or greater;
> >
> > (d) Is within the 100-year flood plain; or
> >
> > (e) Cannot be provided with public facilities.

The physical constraints used in the King City buildable lands inventory includes: areas subject to landslides, areas with slopes greater than 25%, lands within the 100-year flood plain, Metro's Title 3 land (including Water Resource Conservation Areas), lands within Metro's Title 13

Habitat Conservation Areas (Class I and II, A and B), and Wetlands. King City may not have all of these types of constrains within the city limits. No lands were deducted from the inventory due to public facility limitations.

Buildable Lands Inventory Results

King City has 501.4 acres within the city limit, and a total of 8.8 acres of vacant residential land.

Exhibit 3 summarizes buildable residential lands within the King City city limits. The results of the inventory show that King City has very little vacant, buildable residential land: 3.8 acres. About 1.5 acres are within exclusive residential plan designations (R-9 and R-12), with 2.3 acres being in the limited commercial (LC) designation. The LC designation also allows some commercial uses, thus it is likely that not all of the LC land will be used for residential development.

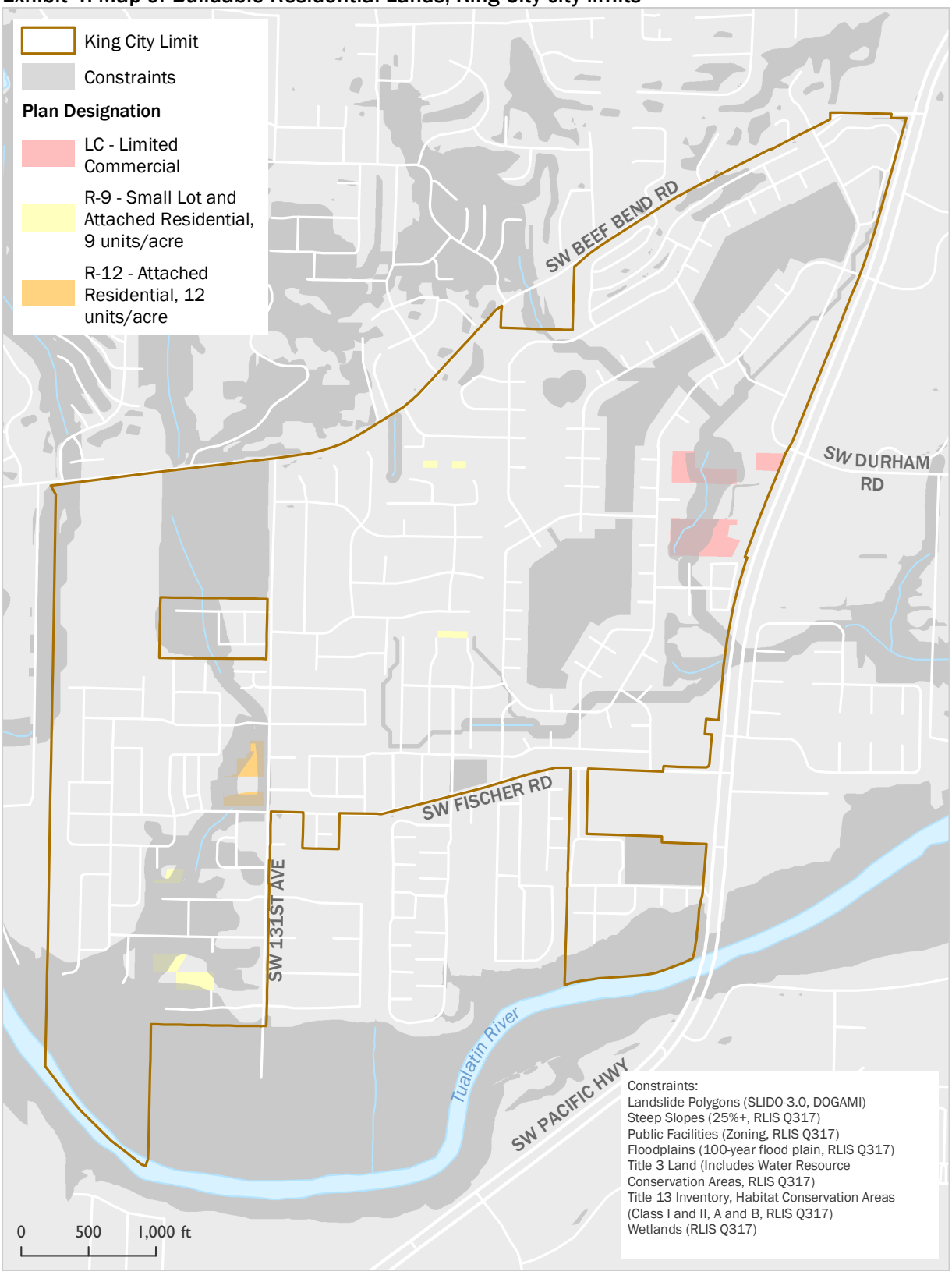
Exhibit 3. Summary of Buildable Residential Lands, King City city limits

Plan Designation	Total Vacant Acres	Constrained Acres	Total Unconstrained Buildable Acres
LC - Limited Commercial	5.2	2.9	2.3
R-9 - Small Lot and Attached Residential (9 du/acre)	2.3	0.9	1.4
R-12 - Attached Residential (12 du/acre)	1.2	1.2	0.1
Total	**8.8**	**5.0**	**3.8**

Exhibit 4 shows the geographic location of buildable residential lands.[3]

[3] The Metro RLIS vacant land layer is partially based on the Metro BLI. Metro is currently undergoing a BLI update process in 2018. The maps and tables produced for this analysis are based on the completed BLI based on RLIS data accessed in December 2018.

Exhibit 4. Map of Buildable Residential Lands, King City city limits



3. Historical and Recent Development Trends

Analysis of historical development trends in King City provides insight into the functioning of the local housing market. The mix of housing types and densities, in particular, are key variables in forecasting future land need. The specific steps are described in Task 2 of the DLCD *Planning for Residential Lands Workbook* as:

1. Determine the time period for which the data will be analyzed
2. Identify types of housing to address (all needed housing types)
3. Evaluate permit/subdivision data to calculate the actual mix, average actual gross density, and average actual net density of all housing types

This housing needs analysis (HNA) examines changes in King City's housing market from 2000 through 2017. We selected this time period because it provides information about King City's housing market before and after the national housing market bubble's growth and deflation. In addition, data about King City's housing market during this period is readily available, from sources such as the Census, the City's building permit database, and Metro's Regional Land Information System (RLIS) data.

The HNA presents information about residential development by housing type. There are multiple ways that housing types can be grouped. For example, they can be grouped by:

1. Structure type (e.g., single-family detached, apartments, etc.)
2. Tenure (e.g., distinguishing unit type by owner or renter units)
3. Housing affordability (e.g., units affordable at given income levels)
4. Some combination of these categories

For the purposes of this study, we grouped housing types based on: (1) whether the structure is stand-alone or attached to another structure and (2) the number of dwelling units in each structure. The housing types used in this analysis are:

- **Single-family detached** includes single-family detached units, manufactured homes on lots and in mobile home parks, and accessory dwelling units.
- **Single-family attached** is all structures with a common wall where each dwelling unit occupies a separate lot, such as row houses or townhouses, as well as duplexes.
- **Multifamily** is all attached structures (e.g., tri-plexes, quad-plexes, and structures with five or more units) other than single-family detached units, manufactured units, single-family attached units, or duplex units.

Data Used in This Analysis

Throughout this analysis, we use data from multiple sources, choosing data from well-recognized and reliable data sources. One of the key sources for data about housing and household data is the U.S. Census. This report primarily uses data from two Census sources:

- The **Decennial Census**, which is completed every ten years and is a survey of all households in the U.S. The Decennial Census is considered the best available data for information such as demographics (e.g., number of people, age distribution, or ethnic or racial composition), household characteristics (e.g., household size and composition), and housing occupancy characteristics. As of the 2010 Decennial Census, it does not collect more detailed household information, such as income, housing costs, housing characteristics, and other important household information. Decennial Census data is available for 2000 and 2010.
- The **American Community Survey (ACS)**, which is completed every year and is a sample of households in the U.S. From 2011 through 2015, the ACS sampled an average of 3.5 million households per year, or about 2.8% of the households in the nation. The ACS collects detailed information about households, such as: demographics (e.g., number of people, age distribution, ethnic or racial composition, country of origin, language spoken at home, and educational attainment), household characteristics (e.g., household size and composition), housing characteristics (e.g., type of housing unit, year unit was built, and number of bedrooms), housing costs (e.g., rent, mortgage, utility, and insurance), housing value, income, and other characteristics.

In general, this report uses data from the 2011–2015 ACS for King City. Where information is available, we report information from the 2000 and 2010 Decennial Census.

Trends in Housing Mix

This section provides an overview of changes in the mix of housing types in King City and comparison geographies. These trends demonstrate the types of housing developed in King City historically. Unless otherwise noted, this chapter uses data from the 2000 and 2010 Decennial Census, and 2011–2015 American Community Survey 5-Year Estimates.

Throughout this report, we compare King City to the Portland Region, which is defined as Clackamas, Multnomah, and Washington counties.

This section shows the following trends in housing mix in King City:

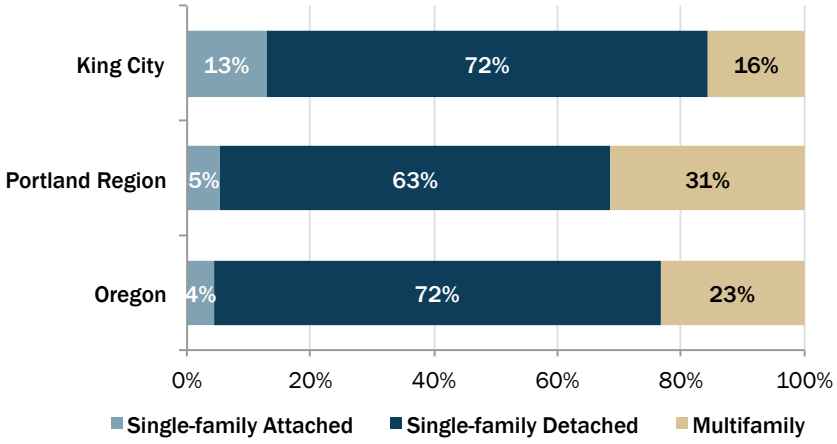
- King City has a housing stock that is primarily single-family (both detached and attached) and at a greater percent of the total housing mix than both the Portland Region and Oregon.
- Total housing units grew by approximately 24% during the 2000 to 2011-2015 period, but the majority of these new units were single-family detached. Multifamily units actually decreased during this period.

Housing Mix

About 72% of King City's housing stock is single-family detached.

In comparison, about 63% of the housing in the Portland Region and about 72% in Oregon are single-family detached. King City has relatively more single-family attached and relatively less multifamily developments than both the Portland Region and Oregon.

Exhibit 5. Housing Mix, 2011–2015
Source: Census Bureau, 2011–2015 ACS Table B25024



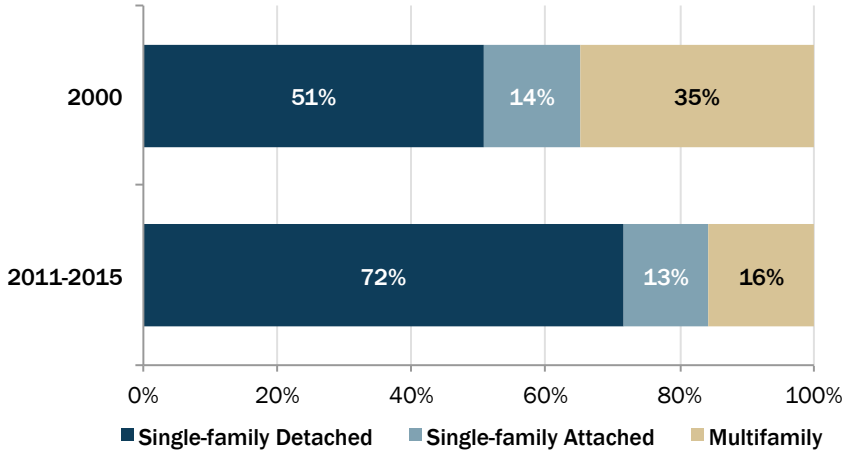
The mix of housing in King City changed between 2000 and 2011–2015.

The percentage of single-family detached housing increased by about 21% while single-family attached and multifamily both fell by about 1% and 19% respectively. The increase in the share of single-family detached housing (and decrease of the share of single-family attached and multifamily housing) occurred because the majority of housing built since 2000 was single-family detached housing.

King City had 1,836 dwelling units in the 2011–2015 period. About 1,314 were single-family detached, 235 were single-family attached, and 287 were multifamily.

Exhibit 6. Change in Housing Mix, King City, 2000 and 2011–15

Source: Census Bureau, 2000 Decennial Census, SF3 Table H030, and 2011–2015 ACS Table B25024

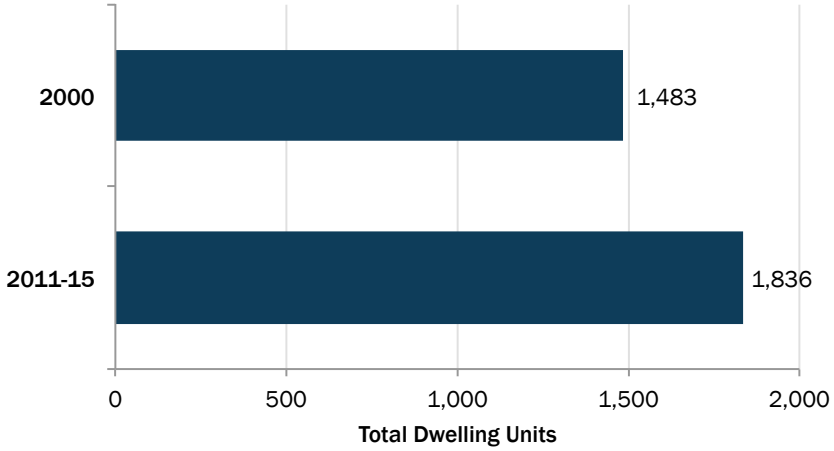


The total number of dwelling units in King City increased by 353 dwelling units from 2000 to 2011–15.

This amounted to a 24% increase over the analysis period.

Exhibit 7. Total Dwelling Units, King City, 2000 and 2011–15

Source: Census Bureau, 2000 Decennial Census, SF3 Table H030, and 2011–15 ACS Table B25024.

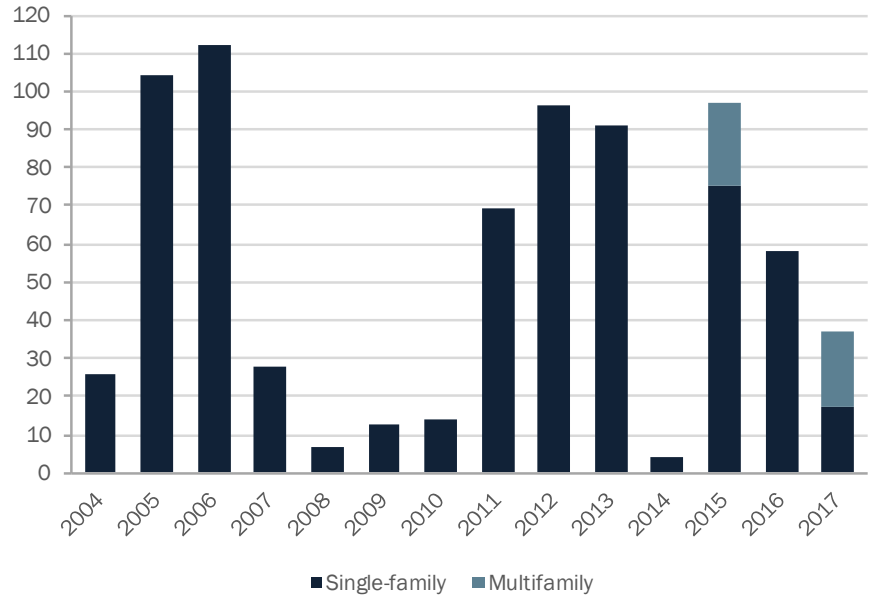


Building Permits

Over the 2004 to 2017 period, King City issued permits for more than 750 dwelling units, with an average of 54 permits issued annually.

About 94% of dwellings permitted were single-family and 6% were multifamily.

Exhibit 8. Building Permits by Type of Unit, King City, 2004 through 2017
Source: City of King City, December 2017.



Trends in Tenure

Housing tenure describes whether a dwelling is owner- or renter-occupied. This section shows:

- The majority (75%) of the housing units in King City are owner-occupied, as compared to slightly lower percentages of owner-occupied housing in the Portland Region and Oregon (59% and 61% respectively). The share of owner-occupied units in King City has increased slightly since 2000.
- Almost all of the owner-occupied housing units (97%) are single-family (either attached or detached). There are few owner-occupied housing units that are in multifamily structures. The share of renter-occupied housing units is more evenly split between single-family and multifamily, with the majority (54%) in multifamily structures.
- The vacancy rate in King City is lower than the Portland Region and Oregon. There are very few units available in King City.

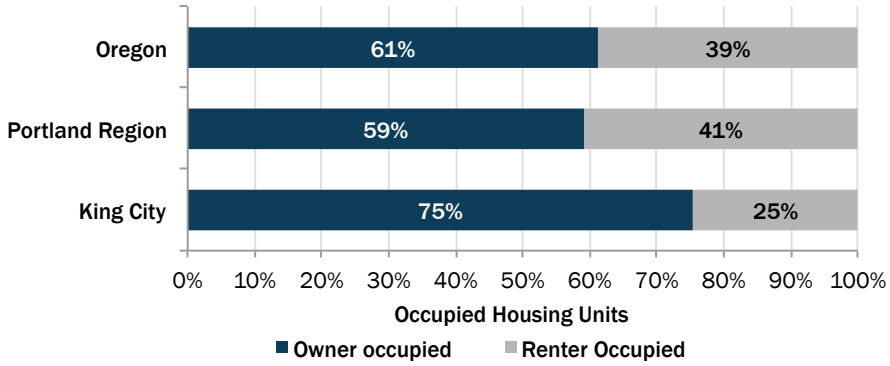
The implications for the forecast of new housing are:

King City has higher rates of homeownership than both the Portland Region and Oregon.

Three-quarters of the households in King City live in owner-occupied dwelling units, compared with 59% of households in the Portland Region and 61% of households in Oregon.

Exhibit 9. Tenure, Occupied Units, King City, Portland Region, Oregon, 2011–15

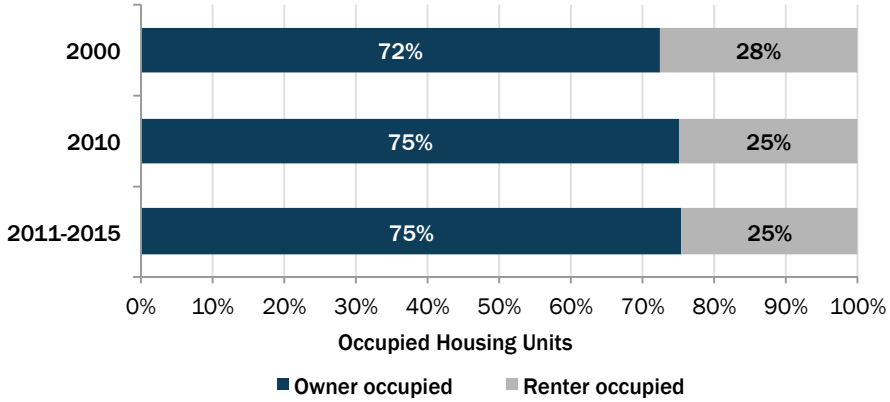
Source: Census Bureau, 2011–2015 ACS Table B25003



The overall homeownership rate in King City increased slightly, from 72% to 75% since 2000.

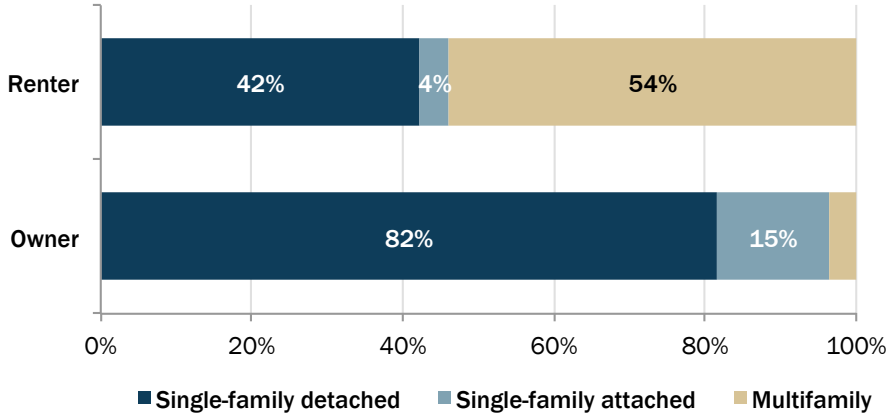
Exhibit 10. Tenure, Occupied Units, King City, 2011–2015

Source: Census Bureau, 2000 Decennial Census SF1 Table H004, 2010 Decennial Census SF1 Table H4, 2011–15 ACS Table B25003



More than three-quarters of owner-occupied housing units are single-family detached units and more than half of renter-occupied units are multifamily. There are very few owner-occupied multifamily units.

Exhibit 11. Housing Units by Type and Tenure, King City, 2011–2015
Source: Census Bureau, 2011–2015 ACS Table B25032



Vacancy Rates

The Census defines vacancy as: "Unoccupied housing units are considered vacant. Vacancy status is determined by the terms under which the unit may be occupied, e.g., for rent, for sale, or for seasonal use only." The Census determines vacancy status and other characteristics of vacant units by enumerators obtaining information from property owners and managers, neighbors, rental agents, and others.

In the 2011–2015 period, the vacancy rate in King City was below that of the Portland Region and Oregon.

Exhibit 12. Percent of Housing Units that Are Vacant, 2011–2015
Source: Census Bureau, 2011–15 ACS Table B25002

2.0%	5.6%	9.5%
King City	Portland Region	Oregon

4. Demographic and Other Factors Affecting Residential Development in King City

Demographic trends are important for developing a thorough understanding of the dynamics of the King City housing market. King City exists in a regional economy; trends in the region impact the local housing market. This chapter documents demographic, socioeconomic, and other trends relevant to King City, at the national, state, and regional levels.

Demographic trends provide a context for growth in a region; factors such as age, income, migration, and other trends show how communities have grown and how they will shape future growth. To provide context, we compare King City to other comparable cities, Washington County, and the greater Portland Region where appropriate. Characteristics such as age and ethnicity are indicators of how population has grown in the past and provide insight into factors that may affect future growth.

A recommended approach to conducting a housing needs analysis is described in *Planning for Residential Growth: A Workbook for Oregon's Urban Areas*, the Department of Land Conservation and Development's guidebook on local housing needs studies. As described in the workbook, the specific steps in the housing needs analysis are:

1. Project the number of new housing units needed in the next 20 years.
2. Identify relevant national, state, and local demographic and economic trends and factors that may affect the 20-year projection of structure type mix.
3. Describe the demographic characteristics of the population and, if possible, the housing trends that relate to the demand for different types of housing.
4. Determine the types of housing that are likely to be affordable to the projected households based on household income.
5. Determine the needed housing mix and density ranges for each plan designation and the average needed net density for all structure types.
6. Estimate the number of additional needed units by structure type.

This chapter presents data to address steps 2, 3, and 4 in this list. Chapter 5 presents data to address steps 1, 5, and 6 in this list.

Demographic and Socioeconomic Factors Affecting Housing Choice[4]

Analysts typically describe housing demand as the *preferences* for different types of housing (i.e., single-family detached or apartment), and *the ability to pay* for that housing (the ability to exercise those preferences in a housing market by purchasing or renting housing; in other words, income or wealth).

Many demographic and socioeconomic variables affect housing choice. However, the literature about housing markets finds that age of the householder, size of the household, and income are most strongly correlated with housing choice.

- **Age of householder** is the age of the person identified (in the Census) as the head of household. Households make different housing choices at different stages of life. This chapter discusses generational trends, such as housing preferences of Baby Boomers (people born from about 1946 to 1964) and Millennials (people born from about 1980 to 2000).
- **Size of household** is the number of people living in the household. Younger and older people are more likely to live in single-person households. People in their middle years are more likely to live in multiple person households (often with children).
- **Income** is the household income. Income is probably the most important determinant of housing choice. Income is strongly related to the type of housing a household chooses (e.g., single-family detached, duplex, or a building with more than five units) and to household tenure (e.g., rent or own).

[4] The research in this chapter is based on numerous articles and sources of information about housing, including:

Davis, Hibbits, & Midghal Research. "Metro Residential Preference Survey." May 2014.

The American Planning Association. "Investing in Place; Two generations' view on the future of communities." 2014

"Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows." Transportation for America.

"Survey Says: Home Trends and Buyer Preferences." National Association of Home Builders International Builders

The Case for Multi-family Housing. Urban Land Institute. 2003

E. Zietz. *Multi-family Housing: A Review of Theory and Evidence.* Journal of Real Estate Research. Volume 25. Number 2. 2003.

C. Rombouts. *Changing Demographics of Homebuyers and Renters.* Multi-family Trends. Winter 2004.

J. McIlwain. *Housing in America: The New Decade.* Urban Land Institute. 2010.

D. Myers and S. Ryu. *Aging Baby Boomers and the Generational Housing Bubble*. Journal of the American Planning Association. Winter 2008.

M. Riche. *The Implications of Changing U.S. Demographics for Housing Choice and Location in Cities.* The Brookings Institution Center on Urban and Metropolitan Policy. March 2001.

L. Lachman and D. Brett. *Generation Y: America's New Housing Wave.* Urban Land Institute. 2010.

This chapter focuses on these factors, presenting data that suggests how changes to these factors may affect housing need in King City over the next 20 years.

National Trends[5]

This brief summary on national housing trends builds on previous work by ECONorthwest, the Urban Land Institute (ULI) reports, and conclusions from *The State of the Nation's Housing, 2017* report from the Joint Center for Housing Studies of Harvard University. The Harvard report summarizes the national housing outlook as follows:

"A decade after the onset of the Great Recession, the national housing market is finally returning to normal. With incomes rising and household growth strengthening, the housing sector is poised to become an important engine of economic growth. But not all households and not all markets are thriving, and affordability pressures remain near record levels. Addressing the scale and complexity of need requires a renewed national commitment to expand the range of housing options available for an increasingly diverse society."

Several challenges to a strong domestic housing market remain. Demand for housing is closely tied to jobs and incomes, which are taking longer to recover than in previous cycles. While trending downward and starting to bottom out, the number of underwater homeowners, delinquent loans, and vacancies remains high. *The State of the Nation's Housing* report projects that it will take changes in financing and government intervention at all levels for market conditions to return to normal.

- **Post-recession construction increases, but tightening supply**. New construction experienced the seventh year of gains in 2016 with 1.17 million units added to the national stock. However, the rate of new-unit production is still well below the 1.4 – 1.5 million unit average rates of the 1980s and 1990s. When including the Great Recession, housing completions over the 10-year period leading to 2016 totaled only 9.0 million units. This low rate of new construction, combined with continued increases in housing demand, have kept the market tight, which is reflected in the lowest gross vacancy rate since 2000.
- **Continued declines in homeownership**. The national homeownership rate declined for the twelfth consecutive year and is at about 63.4% as of 2016. The Urban Land Institute projects that homeownership will continue to decline to somewhere in the low 60% range by 2025 (the lowest point since the 1950s).
- **Housing affordability**. In 2016, almost one-third of American households spent more than 30% of income on housing. This figure is down from the prior year, bolstered by a considerable drop in the owner share of cost-burdened households. Low-income households face an especially dire hurdle to afford housing, and with such a large share of households exceeding the traditional standards for affordability, policymakers

[5] These trends are based on information from: (1) The Joint Center for Housing Studies of Harvard University's publication "The State of the Nation's Housing 2017," (2) Urban Land Institute, "2017 Emerging Trends in Real Estate," and (3) the U.S. Census.

are focusing efforts on the severely cost-burdened. Among those earning less than $15,000, more than 70% of households paid more than half of their income on housing.

- **Long-term growth and housing demand**. The Joint Center for Housing Studies forecasts that demand for new homes could total as many as 13.2 million units nationally between 2015 and 2025. Much of the demand will come from Baby Boomers, Millennials,[6] and immigrants.
- **Changes in housing preference**. Housing preference will be affected by changes in demographics, most notably the aging of the Baby Boomers, housing demand from the Millennials, and growth of foreign-born immigrants.
    - *Baby Boomers.* The housing market will be affected by continued aging of the Baby Boomers, the oldest of whom were in their late 60's in 2015 and the youngest of whom were in their early 50's in 2015. Baby Boomers' housing choices will affect housing preference and homeownership, with some boomers likely to stay in their home as long as they are able and some preferring other housing products, such as multifamily housing or age-restricted housing developments.
    - *Millennials.* As Millennials age over the next 20 years, they will be forming households and families. In 2015, the oldest Millennials in their mid-20's and the youngest in their midteens. By 2035, Millennials will be between 35 and 55 years old.

      Millennials were in the early period of household formation at the beginning of the 2007–2009 recession. Across the nation, household formation fell to around 600,000 to 800,000 in the 2007–2013 period, well below the average rate of growth in previous decades. Despite sluggish growth recently, several demographic factors indicate increases in housing growth to come. The Millennial generation is the age group most likely to form the majority of new households. While low incomes have kept current homeownership rates among young adults below their potential, Millennials may represent a pent-up demand that will release when the economy fully recovers. As Millennials age, they may increase the number of households in their 30's by 2.6 million through 2025.
    - *Immigrants.* Immigration and increased homeownership among minorities could also play a key role in accelerating household growth over the next 10 years. Current Population Survey estimates indicate that the number of foreign-born households rose by nearly 400,000 annually between 2001 and 2007, and they accounted for nearly 30% of overall household growth. Beginning in 2008, the influx of immigrants was staunched by the effects of the Great Recession. After a period of declines, however, the foreign born are again contributing to household growth. Census Bureau estimates of net immigration in 2015–2016 indicate an increase of 1.0 million persons over the previous year, which is a decrease from 1.04 million during 2014–15, but higher than the average annual pace of 850,000

[6] There is no precisely agreed on definition for when the Millennial generation started. Millennials are, broadly speaking, the children of Baby Boomers, born from the early 1980's through the early 2000's.

during the period of 2009–2011. However, if proposed policies are successful, undocumented and documented immigration could slow down and cause a drag on household growth in the coming years.

The growing diversity of American households will have a large impact on the domestic housing markets. Over the coming decade, minorities will make up a larger share of young households and constitute an important source of demand for both rental housing and small homes. This makes the growing gap in homeownership rates between whites and blacks, as well as the larger share of minority households that are cost burdened, troubling. During the 12-year period leading up to 2017, the difference in homeownership rates between whites and blacks rose by 2.3 percentage points to 29.7 in 2016. Alternatively, the gap between white and Hispanic homeownership rates, and white and Asian homeownership rates, both decreased during this period by 2.8 percentage. Although homeownership rates are increasing for some minorities, large shares of minority households are more likely to live in high-cost metro areas. This, combined with lower incomes than white households, leads to higher rates of cost burdens for minorities—47% for blacks, 44% for Hispanics, 37% for Asians/others, and 28% for whites in 2015.

- **Changes in housing characteristics**. The U.S Census Bureau's Characteristics of New Housing Report (2016) presents data that show trends in the characteristics of new housing for the nation, state, and local areas. Several long-term trends in the characteristics of housing are evident from the New Housing Report:[7]
    - *Larger single-family units on smaller lots.* Between 1999 and 2016 the median size of new single-family dwellings increased by over 19% nationally from 2,028 sq. ft. to 2,422 sq. ft., and over 21% in the western region from 2,001 sq. ft. to 2,430 sq. ft. Moreover, the percentage of new units smaller than 1,400 sq. ft. nationally decreased by more than half, from 15% in 1999 to 7% in 2016. The percentage of units greater than 3,000 sq. ft. increased from 17% in 1999 to 30% of new one-family homes completed in 2016. In addition to larger homes, a move towards smaller lot sizes is seen nationally. Between 2009 and 2016, the percentage of lots less than 7,000 sq. ft. increased from 25% of lots to 30% of lots.
    - *Larger multifamily units.* Between 1999 and 2016, the median size of new multiple family dwelling units increased by almost 6% nationally and 2.5% in the western region. The percentage of new multifamily units with more than 1,200 sq. ft. increased from 28% in 1999 to 37% in 2016 nationally, and increased from 25% to 27% in the western region.
    - *More household amenities.* Between 1990 and 2013, the percentage of single-family units built with amenities such as central air conditioning, 2 or more car garages, or 2 or more baths all increased. The same trend in increased amenities is seen in multifamily units.

[7] https://www.census.gov/construction/chars/highlights.html

State Trends

Oregon's 2016-2020 Consolidated Plan includes a detailed housing needs analysis as well as strategies for addressing housing needs statewide. The plan concludes that "A growing gap between the number of Oregonians who need affordable housing and the availability of affordable homes has given rise to destabilizing rent increases, an alarming number of evictions of low- and fixed- income people, increasing homelessness, and serious housing instability throughout Oregon."

It identified the following issues that describe housing need statewide.[8]

- For housing to be considered affordable, a household should pay up to one-third of their income toward rent, leaving money left over for food, utilities, transportation, medicine, and other basic necessities. Today, one in two Oregon households pays more than a third of their income toward rent, and one in three pays more than half of their income toward rent.
- More school children are experiencing housing instability and homelessness. In 2014–2015, 21,214 K-12 school children were identified as experiencing homelessness at some point during the school year. This is a 12% increase over the 2013–2014 school year data.
- Oregon has 28,500 rental units that are affordable and available to renters with extremely low incomes and 131,000 households that need those apartments, leaving a gap of 102,500 units.
- Housing instability is fueled by an unsteady, low-opportunity employment market. Over 400,000 Oregonians are employed in low-wage work. Low-wage work is a growing share of Oregon's economy. When wages are set far below the cost needed to raise a family, the demand for public services grows to record heights.
- Women are more likely than men to end up in low-wage jobs. Low wages, irregular hours, and part-time work compound issues.
- People of color historically constitute a disproportionate share of the low-wage work force. Forty five percent of Latinos, and 50% of African Americans, are employed in low-wage industries.
- The majority of low-wage workers are adults over the age of 20, many with a college degree or some level of higher education.
- Minimum wage in Oregon is $9.25. A minimum wage worker must work 72 hours a week, and 52 weeks a year, to afford a two-bedroom apartment at Fair Market Rents.

[8] These conclusions are copied directly from the report: *Oregon's 2016-2020 Consolidated Plan* http://www.oregon.gov/ohcs/docs/Consolidated-Plan/2016-2020-Consolidated-Plan.pdf

Regional and Local Demographic Trends that May Affect Housing Need

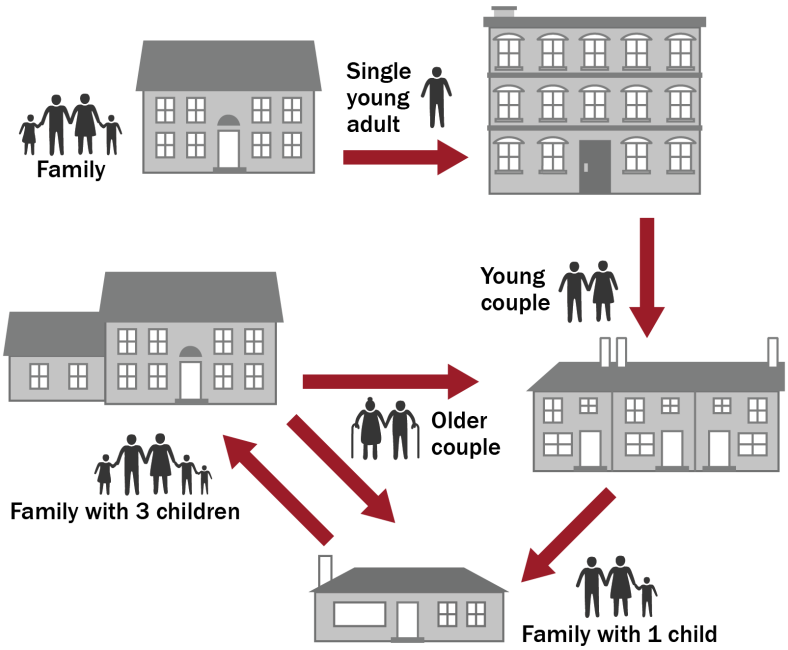
Demographic trends that might affect the key assumptions used in the baseline analysis of housing need are: (1) the aging population, (2) changes in household size and composition, and (3) increases in diversity.

An individual's housing needs change throughout their life, with changes in income, family composition, and age. The types of housing needed by a 20-year-old college student differ from the needs of a 40-year-old parent with children, or an 80-year-old single adult. As King City's population ages, different types of housing will be needed to accommodate older residents. The housing characteristics by age data below reveal this cycle in action in King City.

Housing needs and preferences change in predictable ways over time, with changes in marital status and size of family.

Families of different sizes need different types of housing.

Exhibit 13. Effect of Demographic Changes on Housing Need
Source: ECONorthwest, adapted from Clark, Willam A.V. and Frans M. Dieleman. 1996. *Households and Housing*. New Brunswick, NJ: Center for Urban Policy Research.



King City's demographic and socioeconomic characteristics are largely reflective of the city's history as a retirement community that strictly forbade homeowners under the age of 55. As King City grows, the demographic and socioeconomic characteristics will come to more closely resemble that of the rest of the Portland Region. The demographic changes affecting the Portland Region are the changes that will affect King City, as discussed in the next sections.

Growing Population

King City's population grew by 96% between 2000 and 2017, adding 1,868 new residents. Over this period, King City's population grew at an average annual growth rate of 4.3%. **King City's population growth, based on Metro's forecast for future growth, will drive future demand for housing in King City over the planning period.**

Since 2000, King City's population has grown by 1,868 people at an average annual growth rate of 4.3%.

Exhibit 14. Population, U.S., Oregon, Portland Region, and King City, 2000–2016

Source: US Decennial Census 2000 and U.S. Census Annual Estimates of the Resident Population Estimate as of July 1, 2016.
Note: AAGR is Average Annual Growth Rate.

			Change 2000 to 2016		
	2000	2016	Number	Percent	AAGR
Oregon	3,421,399	4,093,465	672,066	20%	1.1%
Portland Region	1,444,219	1,790,607	346,388	24%	1.4%
King City	1,949	3,817	1,868	96%	4.3%

Aging Population

King City has a larger share of older residents and a relatively small share of people younger than 20 years. King City's age distribution is largely a factor of its historical development patterns as a retirement community that strictly forbade homeowners under the age of 55. Regional growth in seniors and Millennials will affect King City's housing need over the next 20 years:

- **Seniors.** Demand for housing for retirees will grow in the Portland Region through 2040, as the Baby Boomers continue to age and retire. The State forecasts share of residents aged 60 years and older will account for almost 25% of the Portland Region's population, compared to around 19% in 2015.

  The impact of growth in seniors in King City will depend, in part, on whether current residents already in the city continue to live in there as they retire. National surveys show that, in general, most retirees prefer to age in place by continuing to live in their current home and community as long as possible.[9]

  Regional and local growth in the number of seniors will result in the demand for housing types specific to seniors, such as small and easy to maintain dwellings, assisted living facilities, or age-restricted developments. Senior households will make a variety of housing choices, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached) or multifamily units, or moving into group housing (such as assisted living facilities or nursing homes) as their health fails. The challenges that aging seniors face in continuing to live in their community include: changes in healthcare needs, loss of mobility, the difficulty of home maintenance, financial concerns, and increases in property taxes.[10]

- **Millennials.** Millennials are people born approximately between 1980 and 2000. They are the largest demographic group in Oregon. In 2018, they are between 18 and 38 years old. By 2038, they will be between 38 and 58 years old. Over the next 20 years, Millennials will be in the prime household formation period, with their housing needs changing as they age and their family composition changes. Millennials are forecast to grow by about 117,000 people between 2017 and 2035.

  Although King City's population under 40 years old is smaller than the Portland Region's (33% of King City's population, compared to 54% of the Portland Region's population), the percentage of young people and Millennials is likely to grow in King City over the next 20 years, consistent with trends across the Portland Region. King City's ability to attract people in this age group will depend, in large part, on whether the city has opportunities for housing that both appeals to—and is affordable—to Millennials.

[9] A survey conducted by the AARP indicates that 90% of people 50 years and older want to stay in their current home and community as they age. See http://www.aarp.org/research.

[10] "Aging in Place: A toolkit for Local Governments." M. Scott Ball.

In the near-term, Millennials may increase the demand for rental units. The long-term housing preference of Millennials is uncertain. They may have different housing preferences as a result of the current housing market turmoil and may prefer smaller, owner-occupied units or rental units. On the other hand, their housing preferences may be similar to the Baby Boomers, with a preference for larger units with more amenities. Recent surveys about housing preference suggest that Millennials want affordable single-family homes in areas that offer transportation alternatives to cars, such as suburbs or small cities with walkable neighborhoods.[11]

A recent survey of people living in the Portland Region shows that Millennials prefer single-family detached housing. The survey finds that housing price is the most important factor in choosing housing for younger residents.[12] The survey results suggest that Millennials are more likely than other groups to prefer housing in an urban neighborhood or town center. National surveys and studies about housing preference for Millennials show similar results.

Growth in Millennials in King City will result in increased demand for both affordable single-family detached housing, as well as increased demand for affordable townhouses and multifamily housing. Growth in this population will result in increased demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable.

From 2000 to 2011–15 King City's median age decreased from 76.4 to 57.9 years. This trend differs from both Washington County and Oregon where median age increased during the study period.

Exhibit 15. Median Age, Years, 2000 to 2011–2015
Source: US Census Bureau, 2000 Decennial Census Table B01002, 2011–2015 ACS, Table B01002.

2000	76.4 King City	33.0–37.5 Portland Region	36.3 Oregon
2011–15	57.8 King City	36.1–41.3 Portland Region	39.1 Oregon

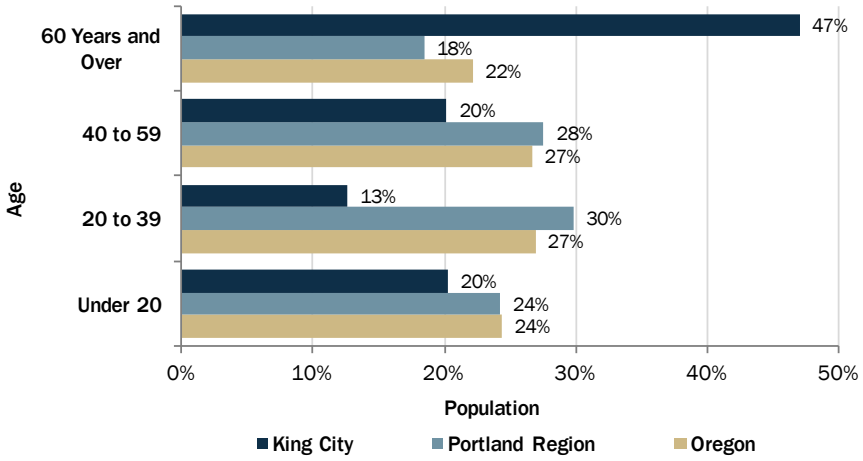
[11] The American Planning Association. "Investing in Place; Two generations' view on the future of communities." 2014.
"Access to Public Transportation a Top Criterion for Millennials When Deciding Where to Live, New Survey Shows." Transportation for America.
"Survey Says: Home Trends and Buyer Preferences." National Association of Home Builders International Builders

[12] Davis, Hibbits, & Midghal Research. "Metro Residential Preference Survey." May 2014.

In 2011–2015, about 47% of King City residents were older than 60.

Exhibit 16. Population Distribution by Age, 2011–2015

Source: US Census Bureau, 2011–2015 ACS, Table B01001.

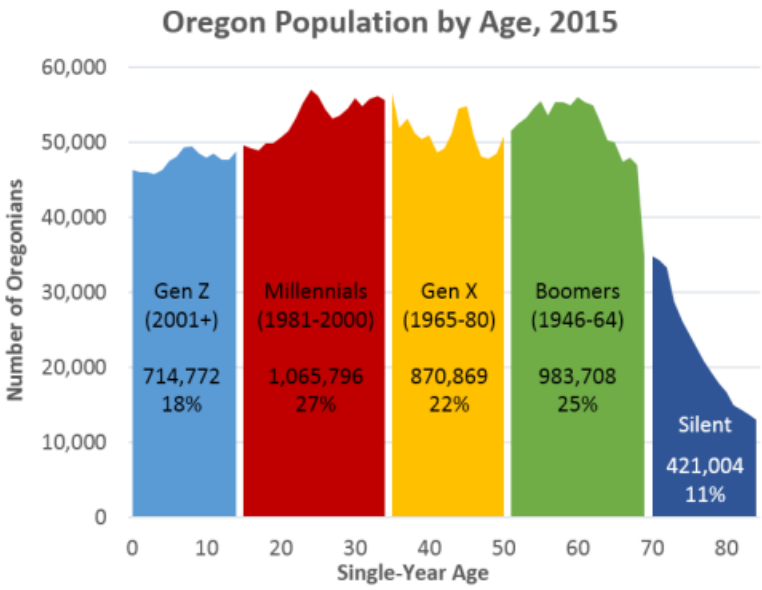


Oregon's largest age groups are the Millennials and the Baby Boomers.

By 2035, Millennials will be between 35 and 54 years old. Baby Boomers will be 71 to 89 years old.

Exhibit 17. Population Distribution by Generation and Age, Oregon, 2015

Source: Oregon Office of Economic Analysis, "Population, Demographics, and Generations" by Josh Lehner, February 5, 2015. http://oregoneconomicanalysis.com/2015/02/05/population-demographics-and-generations/



Source: Oregon Office of Economic Analysis

The majority of population growth in the Portland Region will be in people over 60 years old.

Exhibit 18. Fastest-Growing Age Groups, Portland Region, 2017–2035

Source: Portland State University, Population Research Center, Multnomah County, Clackamas County, and Washington County Forecast, June 30, 2017

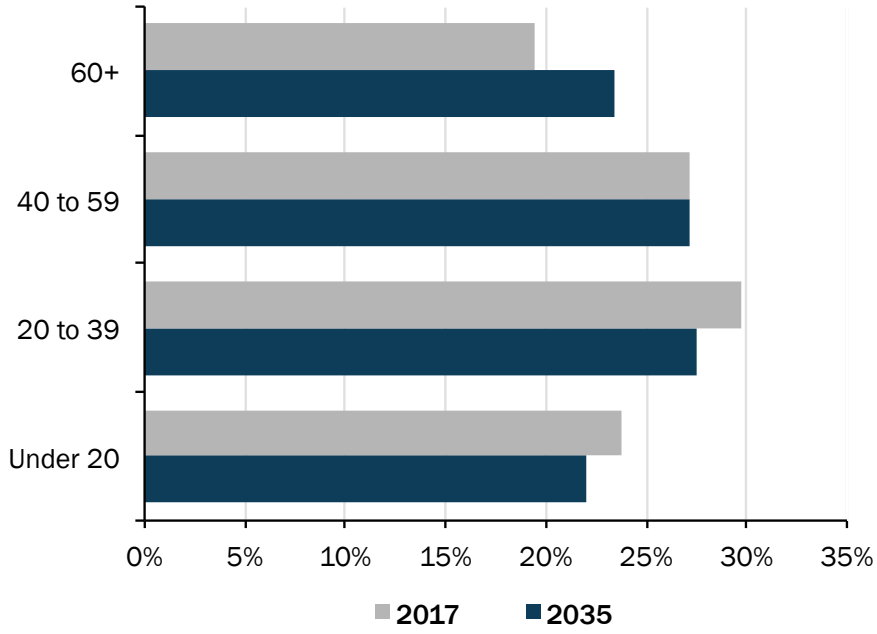
Under 20	20–39 Yrs	40–59 Yrs	60+ Yrs
15% Increase	15% Increase	24% Increase	50% Increase
63,335 People	78,143 People	116,972 People	174,042 People

Although the most population growth is expected for the age group over 60, residents between the ages of 20 and 39 will still make up a larger share of the population by 2035.

The share of residents in each age group will be more evenly distributed by 2035, with the greatest share (approximately 27%) in the 20–39 age group.

Exhibit 19. Population Growth by Age Group, Portland Region, 2017–2035

Source: Portland State University, Population Research Center, Washington County Forecast, June 30, 2017



Increased Ethnic Diversity

King City is becoming more ethnically diverse. The Hispanic and Latino population grew from 0.5% of King City's population in 2000 to 2.7% of the population in the 2011–2015 period, adding more than 80 new Hispanic and Latino residents. As King City's population grows, its ethnic composition is likely to more closely resemble that of the entire Portland Region.

Continued growth in the Hispanic and Latino population will affect King City's housing needs in a variety of ways.[13] Growth in first-generation and, to a lesser extent, second- and third-generation Hispanic and Latino immigrants will increase the demand for larger dwelling units to accommodate the, on average, larger household sizes for these households. Households for Hispanic and Latino immigrants are more likely to include multiple generations, requiring more space than smaller household sizes. As Hispanic and Latino households integrate over generations, household size typically decreases and their housing needs become similar to housing needs for all households.

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[13] The following articles describe housing preferences and household income trends for Hispanic and Latino families, including differences in income levels for first-, second-, and third-generation households. In short, Hispanic and Latino households have lower median incomes than the national averages. First- and second-generation Hispanic and Latino households have median incomes below the average for all Hispanic and Latino households. Hispanic and Latino households have a strong preference for homeownership, but availability of mortgages and availability of affordable housing are key barriers to homeownership for this group.

Pew Research Center. *Second-Generation Americans: A Portrait of the Adult Children of Immigrants*, February 7, 2012.

National Association of Hispanic Real Estate Professionals. *2014 State of Hispanic Homeownership Report*, 2014.

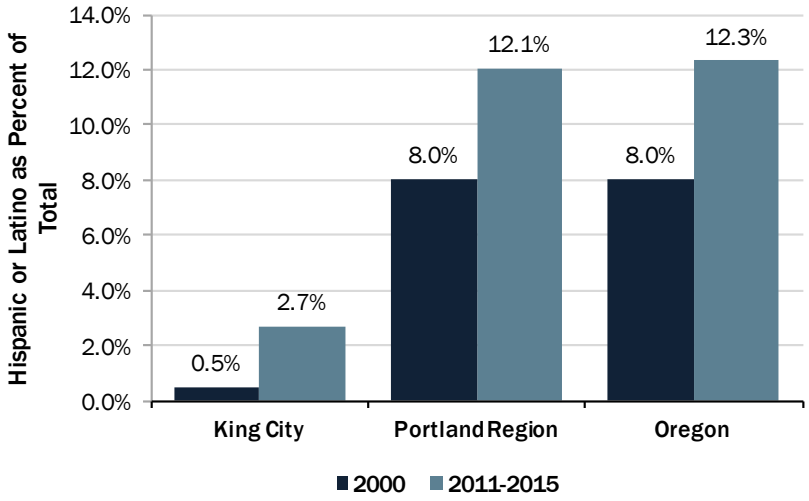
Growth in Hispanic and Latino households will result in an increased demand for housing of all types, both for ownership and rentals, with an emphasis on housing that is comparatively affordable.

King City's Hispanic population has increased.

The Hispanic population also grew in the Portland Region, and Oregon.

Exhibit 20. Hispanic or Latino Population as a Percent of the Total Population, 2000 to 2011–2015

Source: US Census Bureau, 2000 Decennial Census Table P008, 2011–2015 ACS Table B03002.



Household Size and Composition

King City's household size and composition show that households in King City are different from the county and statewide averages. King City's households are small, compared to average households in Washington County and Oregon. Additionally, a smaller percentage of total households in King City are family households with children. These characteristics are likely to change, with King City more closely resembling the Portland Region as the city grows.

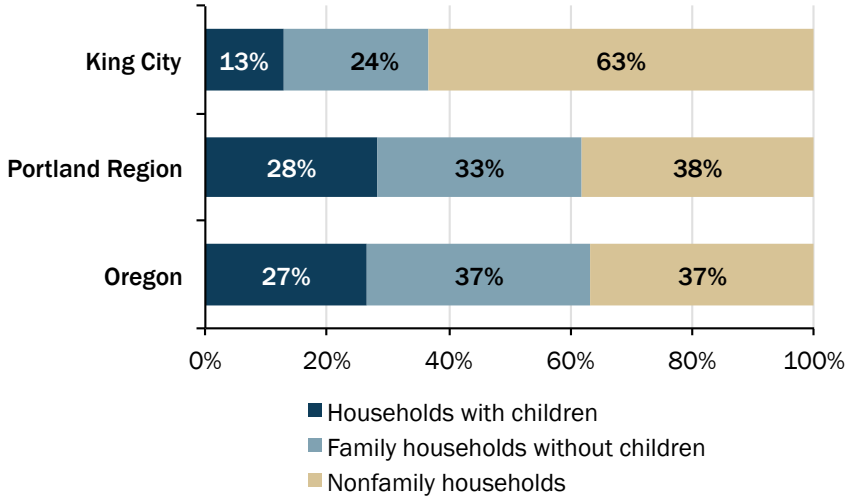
King City's average household size is below that of the county and the state.

Exhibit 21. Average Household Size, 2011–2015
Source: US Census Bureau, 2011–2015 ACS Table B25010.

1.88 Persons	2.66 Persons	2.51 Persons
King City	Washington County	Oregon

King City has a smaller share of households with children than Washington County or Oregon. King City has a larger share of nonfamily households, which include single-person households or households with one or more unrelated people.

Exhibit 22. Household Composition, 2011–2015
Source: US Census Bureau, 2011–2015 ACS, Table DP02.



Income of King City Residents

Income is one of the key determinants in housing choice and a household's ability to afford housing. Income for people living in King City is slightly below the state average and considerably below the average in Washington County. The likely reason for the lower income is the older population, with more retirees in King City than the Portland Region's average.

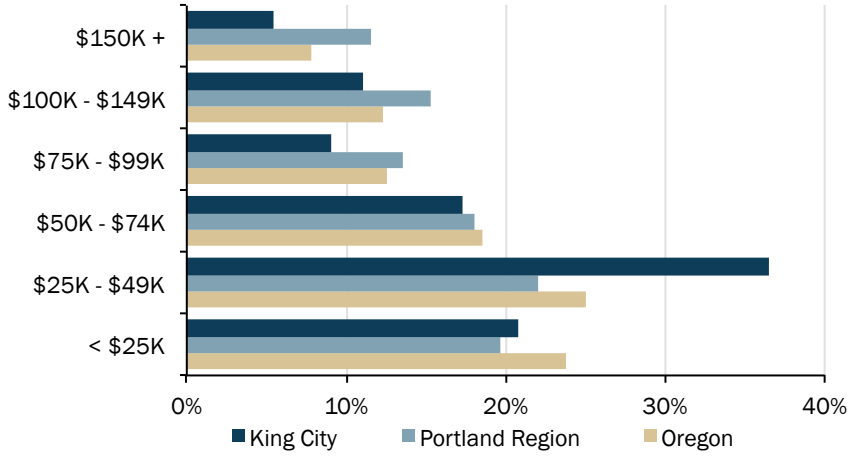
In the 2011–2015 period, King City's median household income was below that of the county and the state.

Exhibit 23. Median Household Income, 2011–2015
Source: US Census Bureau, 2011–2015 ACS Table B25119.

$45,283	$66,754	$51,243
King City	Washington County	Oregon

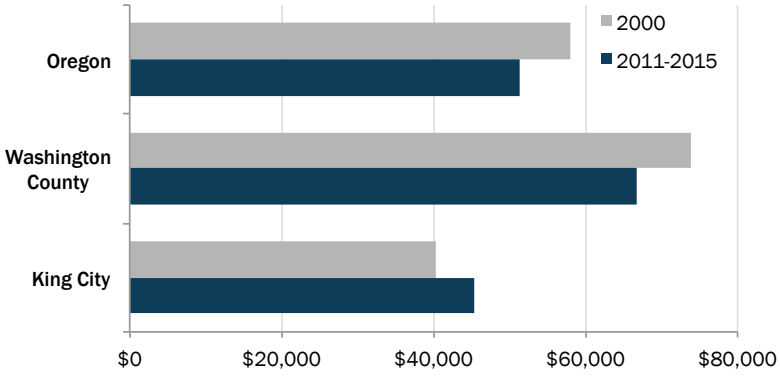
More than one-third of King City households earn between $25,000 and $49,000.

Exhibit 24. Household Income, King City, Portland Region, Oregon, 2011–15
Source: US Census Bureau, 2011–2015 ACS, Table B19001.



After adjusting for inflation, King City's median household income increased by 13% from 1999 to the 2011–2015 period, from $40,207 to $45,283. This differs from both Washington County and Oregon, where median household income decreased during the study period.

Exhibit 25. Median Household Income, Oregon, Washington County, King City, 2000 to 2011–2015, Inflation-Adjusted
Source: US Census Bureau, 2000 Decennial Census, Table HCT012, 2011–2015 ACS Table B25119.



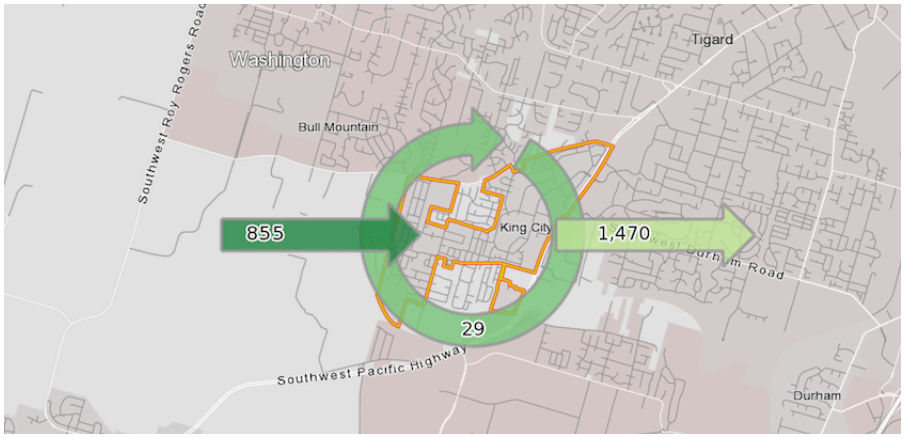
Commuting Trends

King City is part of the complex, interconnected economy of the Portland Region. Of the more than 850 people who work in King City, approximately 97% of workers commute into King City from other areas, most notably Portland, Tigard, and Beaverton. Approximately 1,470 King City residents commute out of the city for work, mostly to Portland and Tigard.

King City is part of an interconnected regional economy.

More than 850 people commute into King City for work, and approximately 1,470 people living in King City commute out of the city for work.

Exhibit 26. Commuting Flows, King City, 2015
Source: US Census Bureau, Census On the Map.



More than 80% of workers at businesses located in King City live in the Portland Region, mostly in areas outside of King City.

Thirteen percent of people employed at businesses in King City live in Portland, 12% live in Tigard, 10% live in Beaverton, and 5% live in Tualatin.

Exhibit 27. Places Where Workers at Businesses in King City Lived, 2015
Source: US Census Bureau, Census On the Map.

3%	13%	12%	10%	5%
King City	Portland	Tigard	Beaverton	Tualatin

Almost 90% of residents of King City work in the Portland Region, most of them in cities outside of King City.

Thirty percent of residents of King City work in Portland and 11% in Tigard. Only 2% of King City residents live and work in King City.

Exhibit 28. Places Where King City Residents Were Employed, 2015
Source: US Census Bureau, Census On the Map.

2%	30%	11%	8%	6%
King City	Portland	Tigard	Beaverton	Tualatin

Regional and Local Trends Affecting Affordability in King City

This section describes changes in sales prices, rents, and housing affordability in King City, Washington County, and comparable cities since 2000.

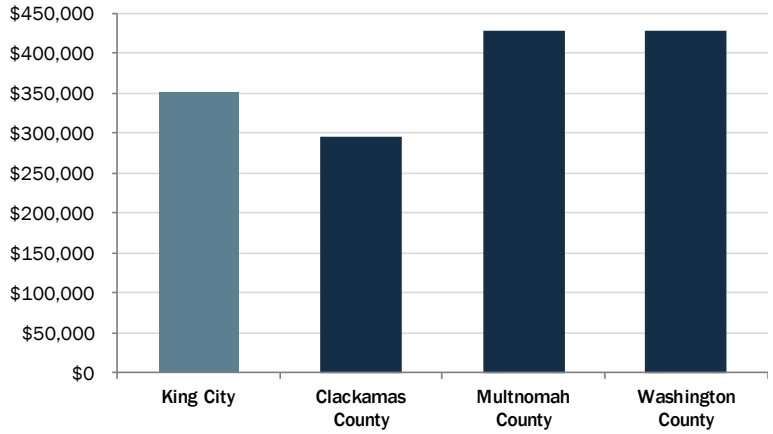
Changes in Housing Costs

King City's housing sales prices are slightly lower than the average in most of the Portland Region, with a median sales price of $352,000 in 2017. In general, King City's housing prices changed with changes in housing price throughout the region, but stayed slightly below most prices, except for those in Wilsonville.

King City's median home sale price was lower than most of the comparable cities in the region.

Exhibit 29. Median Sales Price, King City and Portland Region Counties, August 2016–July 2017

Source: Metro RLIS Taxlot data, August 2017.



King City's median home sales price falls in the range of the regional average, but is lower than Washington County's median price.

Exhibit 30. Median Home Sale Price, King City, Beaverton, Sherwood, Tigard, Tualatin, Wilsonville, Portland Region, August 2016–July 2017

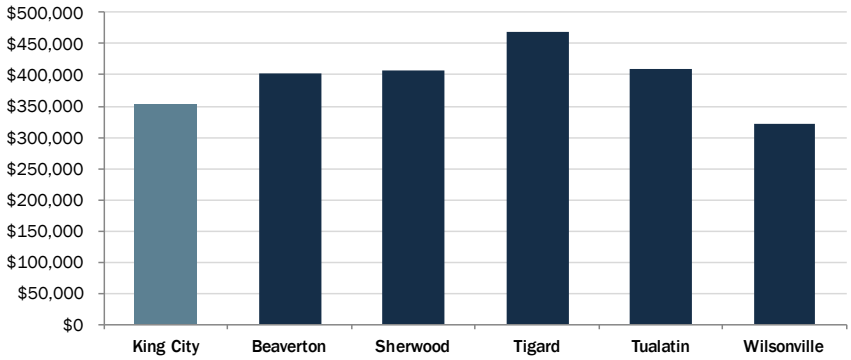
Source: Metro RLIS Taxlot data, August 2017.

$352K King City	**$403K** Beaverton	**$408K** Sherwood	**$467K** Tigard
	$409K Tualatin	**$322K** Wilsonville	**$295K– $428K** Portland Region

King City's median home sale price was lower than most of the comparable cities in the region.

Exhibit 31. Median Sales Price, King City-area Geographies, August 2016–July 2017

Source: Metro RLIS Taxlot data, August 2017.

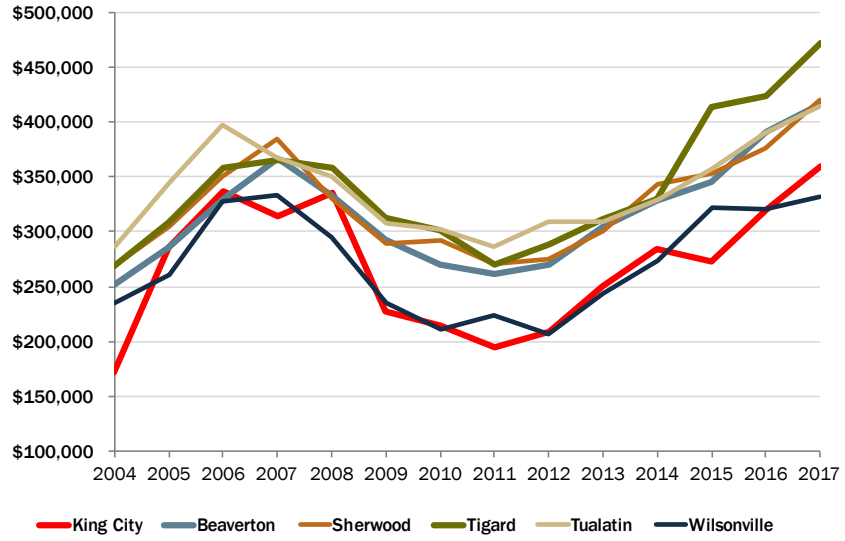


Median home sales prices in King City and across the Portland Region declined after 2007, but are generally at or above the 2007 peak.

The median sales price in King City in 2017 exceeded the sales price at the height of the housing market bubble in 2006.

Exhibit 32. Median Sales Price, King City, Beaverton, Sherwood, Tigard, Tualatin, Wilsonville, 2008–2017

Source: Metro RLIS Taxlot Data, August 2017.

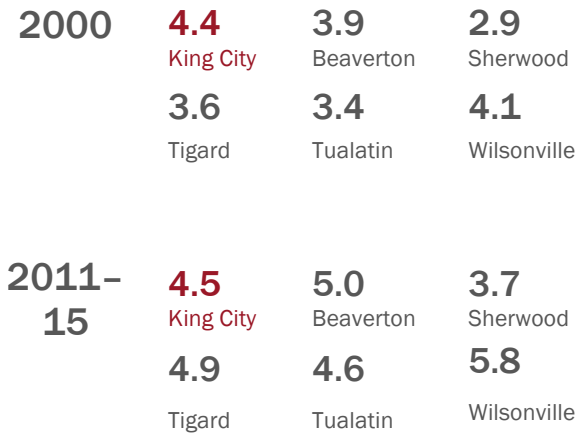


Housing costs have increased slightly faster than income since 2000.

The median value of a house in King City was 4.4 times the median household income in 2000 and 4.5 times by the 2011–2015 period. The change in housing value compared to income was smaller in King City than in all comparison geographies.

Exhibit 33. Ratio of Housing Value to Income (Median to Median), 2000 to 2011–2015[14]

Source: US Census Bureau, 2000 Decennial Census, Tables HCT012 and H085, and 2011–2015 ACS, Tables B19013 and B25077.



[14] This ratio compared the median value of housing in King City to the median household income. Inflation-adjusted median owner values in King City increased from $177,784 in 2000 to $201,800 in 2011–15. Over the same period, median income increased from $40,207 to $45,283.

Changes in Rental Costs

Rent costs are relatively low in King City, compared to other comparable cities in Oregon.

Median contract rent in King City is about $861.

Exhibit 34. Median Contract Rent, 2011–2015
Source: US Census Bureau, 2011–2015 ACS Table B25058.

$861	$900	$1,084	$871	$891	$913
King City	Beaverton	Sherwood	Tigard	Tualatin	Wilsonville

Housing Affordability

A typical standard used to determine housing affordability is that a household should pay no more than a certain percentage of household income for housing, including payments and interest or rent, utilities, and insurance. HUD guidelines indicate that households paying more than 30% of their income on housing experience "cost burden," and households paying more than 50% of their income on housing experience "severe cost burden." Using cost burden as an indicator is consistent with the Goal 10 requirement to provide housing that is affordable to all households in a community.

Throughout this report, a household that spends more than 30% of gross income on housing costs is considered cost burdened. Discussions of affordable housing (at any income level, from low-income to high-income households) assume a household can afford to spend no more than 30% of their gross income on housing costs.

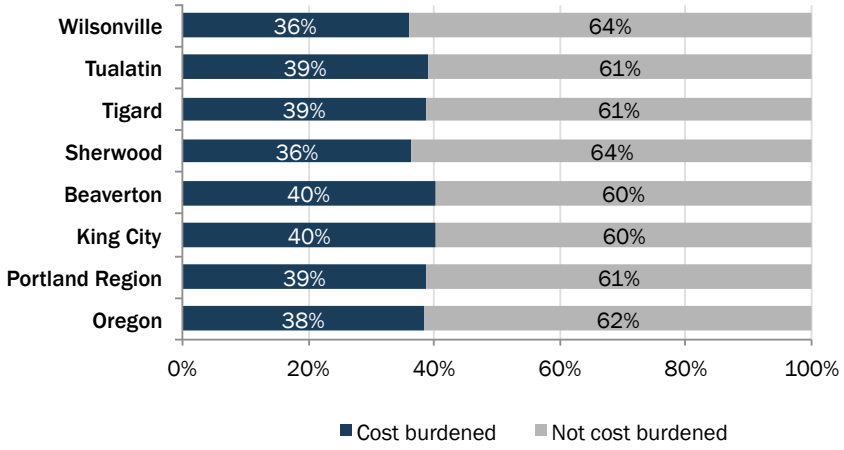
About 40% of King City's households are cost burdened. About 56% of renter households are cost burdened, compared with 36% of homeowners. Cost burden rates in King City for both owner and renter households are higher than in most comparable cities, the Portland Region, and Oregon. The two exceptions are in Tigard and Tualatin, where cost burden rates for owner households are equal to those in King City.

For example, almost one-half of King City households have incomes of less than $37,350 per year. These households can afford rent of less than $934 per month or a home with a value of less than $112,050. Most, but not all, of these households are cost burdened and cannot find suitable housing for a cost that they can afford.

About 40% of all households in King City are cost burdened.

The percentages of cost-burdened households is slightly lower than that of King City in all comparison geographies except Beaverton. The share of owners that are cost burdened is higher in King City than across the region and the state.

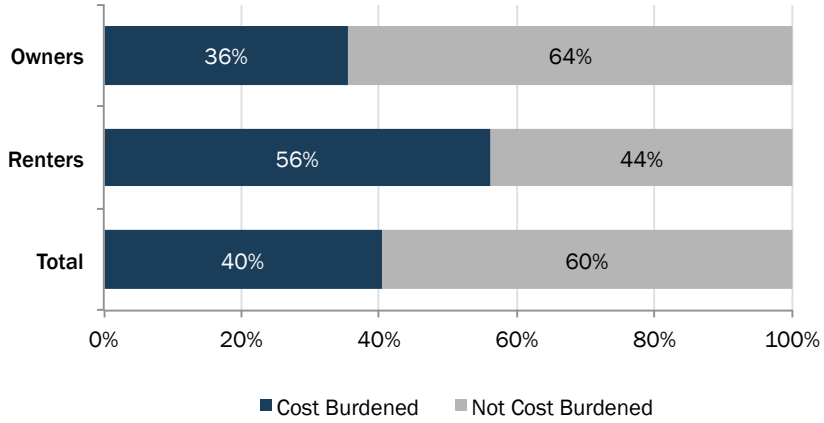
Exhibit 35. Housing Cost Burden King City, Wilsonville, Tualatin, Tigard, Sherwood, Beaverton, Portland Region, Oregon, 2011–2015
Source: US Census Bureau, 2011–2015 ACS Tables B25091 and B25070.



The majority of King City renters are cost burdened compared to a little more than one-third of homeowners.

Cost burden rates are higher among renters in King City than among homeowners. In the 2011–2015 period, about 56% of renters were cost burdened compared to 36% of homeowners. This trend is shared throughout the region and state.

Exhibit 36. Housing Cost Burden by Tenure, King City, 2011–2015
Source: US Census Bureau, 2011–2015 ACS Tables B25091 and B25070.



While cost burden is a common measure of housing affordability, it does have some limitations. Two important limitations are:

- A household is defined as cost burdened if the housing costs exceed 30% of their income, regardless of actual income. The remaining 70% of income is expected to be spent on nondiscretionary expenses, such as food or medical care, and on discretionary expenses. Households with higher income may be able to pay more than 30% of their income on housing without impacting the household's ability to pay for necessary nondiscretionary expenses.
- Cost burden compares income to housing costs and does not account for accumulated wealth. As a result, the estimate of how much a household can afford to pay for housing does not include the impact of accumulated wealth on a household's ability to pay for housing. For example, a household with retired people may have relatively low income,

but it may have accumulated assets (such as profits from selling another house) that allow them to purchase a house that would be considered unaffordable to them based on the cost burden indicator. This issue is particularly important in King City, where the population is substantially older than the average for Washington County, the Portland Region, or Oregon.

Cost burden is only one indicator of housing affordability. Another way of exploring the issue of financial need is to review housing affordability at varying levels of household income. Exhibit 37 shows financially attainable housing based on the Median Family Income (MFI) in Washington County in 2017 ($74,700). The MFI is defined by HUD by county. Exhibit 37 shows the annual income at different levels of MFI based on HUD standards. Exhibit 37 also shows the monthly affordable rent, based on the assumption that households spend no more than 30% of their gross income on housing costs.

Almost half of King City households have an income of less than $37,350 and cannot afford a one-bedroom apartment at Washington County's Fair Market Rent (FMR) of $1,053. More than half of King City households cannot afford a two-bedroom apartment at a Fair Market Rent of $1,242.

Exhibit 37. Financially Attainable Housing, by Median Family Income (MFI) for Washington County ($74,700), King City, 2017
Source: U.S. Department of Housing and Urban Development
US Census Bureau, 2011–2015 ACS Table 19001.

% of Wa. Co. MFI	<30%	30%–50%	50%–80%	80%–120%	>120%
Annual Income	<$22,410	$22,410–$37,350	$37,350–$59,760	$59,760–$89,640	> $89,640
Monthly Affdble. Housing Cost	<$560	$560–$934	$934–$1,494	$1,494–$2,241	> $2,241
Percent of King City House-holds	16%	32%	16%	16%	20%
Attainable Owner Housing Types	None	Mfg. in parks	Mfg. in parks Mfg on lot Duplex	Townhome Single-family house Cottage	All housing types
Attainable Renter Housing Types	Subsidized housing	Subsidized housing Apartment Mfg. in parks	Apartment Duplex Townhome Single-family house	Most Single-family houses	All housing types

King City currently has a deficit of housing affordable to households earning less than $50,000.

The deficit of housing for households earning less than $50,000 results in these households living in housing that is more expensive than they can afford, consistent with the data about owner and renter cost burden in King City.

The housing types that King City has a deficit of are more affordable housing types such as apartments, duplexes, tri- and quad-plexes, manufactured housing, townhomes, cottages, and smaller single-family housing. King City also has a deficit of government-subsidized housing, affordable to households earning less than $37,000.

Exhibit 38. Rough Estimate of Housing Affordability, King City, 2015
Source: US Census Bureau, 2011–2015 ACS Tables 19001, 25075, 25063.

Annual Income	<$25K	<$25K–$50K	<$50K–$75K	<$75K–$100K	>$100k
HH in King City	373 21%	657 37%	311 17%	164 9%	295 16%
Monthly Affdble. Housing Cost	<$625	$625–$1,250	$1,250–$1,875	$1,875–$2,450	>$2,450
Affdble. Owner Housing Cost	<$75,000	$75,000–$150,000	$150,00–$250,000	$250,00–$350,000	>$350K
Est. of Number of Owner Units in King City	195	108	499	187	170
Est. of Number of Renter Units in King City	92	478	20	36	15
HUD Fair Market Rent (2017)		Studio: $946 1 bdrm: $1,053 2 bdrm: $1,242	3bdrm: $1,808	4 bdrm: $2,188	
Does King City Have Enough Units?	**No Deficit: 87 units**	**No Deficit: 71 units**	Yes Surplus: 209 units	Yes Surplus: 59 units	**No Deficit: 110 units**

Summary of the Factors Affecting King City's Housing Needs

The purpose of the analysis thus far has been to provide background on the kinds of factors that influence housing choice, and in doing so, to convey why the number and interrelationships among those factors ensure that generalizations about housing choice are difficult to make and prone to inaccuracies.

There is no question that age affects housing type and tenure. Mobility is substantially higher for people aged 20 to 34. People in that age group will also have, on average, less income than people who are older. They are less likely to have children. All of these factors mean that younger households are much more likely to be renters, and renters are more likely to be in multifamily housing.

The data illustrate what more detailed research has shown and what most people understand intuitively: life cycle and housing choice interact in ways that are predictable in the aggregate; age of the household head is correlated with household size and income; household size and age of household head affect housing preferences; income affects the ability of a household to afford a preferred housing type. The connection between socioeconomic and demographic factors and housing choice is often described informally by giving names to households with certain combinations of characteristics: the "traditional family," the "never marrieds," the "dinks" (dual-income, no kids), the "empty nesters."[15] Thus, simply looking at the long wave of demographic trends can provide good information for estimating future housing demand.

Thus, one is ultimately left with the need to make a qualitative assessment of the future housing market. The following is a discussion of how demographic and housing trends are likely to affect housing in King City over the next 20 years:

- **Growth in housing will be driven by growth in population and households.** King City is forecast to add 980 new households between 2018 and 2038, an increase of 46% at an average annual growth rate of 1.9%.

  King City's households are expected to grow at a slightly faster rate than the Metro urban growth boundary or the portion of Washington County within the urban growth boundary. The total number of households within the current Metro urban growth boundary is expected to grow at an average annual growth rate of 1.3% over the 2015 to 2040 period and households in Washington County within the Metro urban growth boundary are expected to grow at 1.2% over the same period.
- **Housing affordability will continue to be a key challenge in King City and around the Portland Region.** Housing affordability is a challenge in the Portland Region in general and in Washington County. The rates of cost burden in King City and the Portland Region are comparable, about 40% of households are cost burdened. Housing prices in King City in 2017 were generally below average for the Portland Region and for cities on the westside of Portland.

[15] See *Planning for Residential Growth: A Workbook for Oregon's Urban Areas* (June 1997).

Housing prices are increasing faster than incomes in the Portland Region, consistent with state and national challenges. King City has relatively low housing prices and housing costs and incomes have kept pace with housing cost growth better than in most cities in the Region. However, growth in King City will be driven by growth in the Portland Region. King City's housing market will continue to become more like the housing market on the westside of the Portland Region as the City grows. Providing opportunity for development of affordable owner- and renter-occupied housing for households at all income levels will be a challenge in King City, as in other cities in the Region

King City has a relatively small share of housing that is multifamily housing (less than one-fifth of the city's housing stock). King City's key challenge over the next 20 years is providing opportunities for development of relatively affordable housing of all types, from lower-cost single-family housing to market-rate multifamily housing.

- **The City's residential policies can impact the amount of change in King City's housing market, to some degree.** If the City adopts policies to increase opportunities to build smaller-scale single-family and multifamily housing types, especially multifamily that is affordable to low- and moderate-income households, a larger percentage of new housing developed over the next 20 years in King City may be relatively affordable. Examples of policies that the City could adopt to achieve this outcome include: allowing a wider range of housing types (e.g., duplex, cottages, or townhouses) in single-family zones, ensuring that there is sufficient land zoned to allow single-family attached multifamily housing development, supporting development of government-subsidized affordable housing, creating an exclusive multifamily zone where single-family housing is not permitted and encouraging multifamily residential development in commercial centers. The degree of change in King City's housing market, however, will depend on market demand for these types of housing in the Portland Region.
- **Where the future differs from the past, it is likely to move in the direction (on average) of smaller units and more diverse housing types.** Most of the evidence suggests that the bulk of the change will be in the direction of smaller average house and lot sizes for single-family housing. This includes providing opportunities for development of smaller single-family detached homes, townhomes, and multifamily housing.

  Key demographic and economic trends that will affect King City's future housing needs are: (1) the aging of the Baby Boomers, (2) aging of the Millennials, and (3) continued growth in the Hispanic and Latino population. An aging population, increasing housing costs (although lower than the Region), housing affordability concerns for Millennials and the Hispanic and Latino populations, and other variables are factors that support the conclusion of the need for smaller and less expensive units and a broader array of housing choices. Growth of retirees will drive the demand for small single-family detached units and townhomes for homeownership, townhome and multifamily rentals, age-restricted housing, and assisted-living facilities. Growth in the Millennial and Hispanic and Latino populations will drive the demand for affordable housing types, including the demand for small, affordable single-family

units (many of which may be ownership units) and for affordable multifamily units (many of which may be rental units).

No amount of analysis is likely to make the distant future completely certain: the purpose of the housing forecasting in this study is to get an approximate idea about the future so policy choices can be made today. Economic forecasters regard any economic forecast more than three (or at most five) years out as highly speculative. At one year, one is protected from being disastrously wrong by the sheer inertia of the economic machine. But a variety of factors or events could cause growth forecasts to be substantially different.

5. Housing Need in King City

Project New Housing Units Needed in the Next 20 Years

The results of the housing needs analysis are based on: (1) the official population forecast for growth in King City over the 20-year planning period, (2) information about King City's housing market relative to nearby cities, Washington County and the Portland Region, and (3) the demographic composition of King City's existing population and expected long-term changes in the demographics of the Portland Region.

Forecast for Housing Growth

Exhibit 39 presents Metro's forecast for King City for the 2015 to 2040 period.[16] The Metro Council adopted this forecast as the official coordinated population forecast on October 12, 2016 in Ordinance Number 16-1371.

ECONorthwest used this forecast to extrapolate King City's forecast for 2018 to 2038.

King City will grow by 980 households between 2018 and 2038.

Exhibit 39. Forecast of Household Growth, King City, 2018 to 2038
Source: Metro 2040 Household Distributed Forecast, July 12, 2016.
Note: AAGR is Average Annual Growth Rate.
Green shading highlights the household forecast for 2018 and 2038.

Year	Households
2015	2,005
2018	2,122
2038	3,102
2040	3,222
Change 2018 to 2038	
Number	980
Percent	46%
AAGR	1.9%

[16] The forecasts can be accessed at: https://www.oregonmetro.gov/2040-distributed-forecast

New Housing Units Needed Over the Next 20 years

Exhibit 39 presents a forecast of new households in King City for the 2018-2038 period. We assume each new household represents the need for an additional dwelling unit. This section determines the needed mix and density for new housing developed over this 20-year period in King City.

Exhibit 40 shows that, in the future, the need for new housing developed in King City will include more housing that is generally more affordable, with some housing located in walkable areas with access to services. This assumption is based on the following findings in the previous chapters:

- Demographic changes suggest moderate increases in the demand for attached single-family housing and multifamily housing. The key demographic trends that will affect King City's future housing needs are: (1) the aging of the Baby Boomers, (2) aging of the Millennials, and (3) continued growth in the Hispanic and Latino population. Growth of these groups has the following implications for housing need in King City:
    - *Baby Boomers.* Growth in the number of seniors in the Portland Region will have an impact on the demand for new housing through the demand for housing types specific to seniors, such as assisted living facilities or age-restricted developments. These households will make a variety of housing choices, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached) or multifamily units, moving into age-restricted manufactured home parks (if space is available), or moving into group housing (such as assisted living facilities or nursing homes) as their health fails. Minor increases in the share of Baby Boomers who downsize to smaller housing will result in an increased demand for single-family attached and multifamily housing. Some Baby Boomers may prefer housing in walkable neighborhoods, with access to services.
    - *Millennials.* Growth in Millennial households in the Portland Region will drive the demand for housing. King City currently has a smaller population of people under 40 years old (as well as under 60 years old) than the average in the Portland Region. People between 20 and 39 years old are expected to grow by 78,000 in the Portland Region between 2017 and 2035, and people 40 and 59 years old are expected to grow by about 117,000 during the same period. To the extent that Millennials move to King City, this growth will result in an increased demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable. Some Millennials may prefer to locate in traditional single-family detached housing, and some will prefer to locate in walkable neighborhoods, possibly choosing small single-family detached houses, cottage houses, townhouses, or multifamily houses.
    - *Hispanic and Latino population.* Growth in the number of Hispanic and Latino households will result in an increased demand for housing of all types, both for ownership and rentals, with an emphasis on housing that is comparatively

affordable. Hispanic and Latino households are more likely to be larger than average, with more children and possibly with multigenerational households. The types of housing that are most likely to be affordable to the majority of Hispanic and Latino households are existing lower-cost single-family housing, single-family housing with an accessory dwelling unit, and multifamily housing. In addition, growth in the number of farmworkers will increase the need for affordable housing for farmworkers.

- About 39% of King City's households are cost burdened and have affordability problems, indicating a need for more affordable housing types. More than half of King City's households could not afford a two-bedroom apartment at HUD's fair market rent level of $1,242. A household earning median family income ($74,400) could afford a home valued up to about $261,500, which is considerably below the median sales price for single-family housing of about $352,000 in King City.

  In addition, King City has a small supply of multifamily housing, which accounts for less than one-fifth of the city's housing stock. As a result, there are few choices for market-rate multifamily housing opportunities in King City.

  Continued increases in housing costs may increase the demand for denser housing (e.g., multifamily housing or smaller single-family housing) or locating in less expensive areas of the Portland Region or nearby areas, farther from employment centers. To the extent that denser housing types are more affordable than larger housing types, continued increases in housing costs will increase the demand for denser housing.

These findings suggest that King City's needed housing mix is for a broader range of housing types than are currently available in King City's housing stock. The types of housing that King City will need to provide opportunity for development of over the next 20 years are described above: smaller single-family detached housing (e.g., cottages or small single-family detached units), accessory dwelling units, "traditional" single-family detached housing, townhouses, duplexes and quadplexes, apartments, and mixed-use multifamily housing in the town center.

Exhibit 40 shows a forecast of needed housing in King City during the 2018 to 2038 period. The projection is based on the following assumptions:[17]

- Fifty percent of new housing will be single-family detached, including cottage housing. Exhibit 6 shows that 72% of King City's housing was single-family detached in the 2011–2015 period, an increase in single-family detached housing since 2000.

[17] While OAR 660-007 does not apply the regional housing mix standards to King City (OAR 660-007-0035 [4]), much of King City's housing need will result from overall growth in the Portland Region. As King City grows, the city will become more like other cities in the westside of the Portland Region, both in terms of demographic characteristics and the need for a wider range of housing types. The housing mix in Exhibit 40 is a reflection of the need for a wider range of housing types in the Portland Region and in King City to meet the increasingly diverse need of households at every level of income.

- Fifteen percent of new housing will be single-family attached, which includes duplexes. Exhibit 6 shows that 12% of King City's housing was single-family attached in the 2011–2015 period, with little change since 2000.
- Thirty-five percent of new housing will be multifamily. Exhibit 6 shows that 16% of King City's housing was multifamily in the 2011–2015 period, a sharp decrease from 2000.

King City will have demand for 980 new dwelling units over the 20-year period, with an annual average of 49 dwelling units.

Exhibit 40. Forecast of Demand for New Dwelling Units, King City, 2018 to 2038
Source: Calculations by ECONorthwest.

Needed new dwelling units (2018–2038)	980
Dwelling units by structure type	
Single-Family detached	
Percent single-family detached DU	50%
equals Total new single-family detached DU	490
Single-Family attached	
Percent single-family attached DU	15%
equals Total new single-family attached DU	147
Multifamily	
Percent multifamily detached DU	35%
equals Total new multifamily DU	343
Total new dwelling units (2018–2038)	980

The forecast of new units does not include dwellings that will be demolished and replaced. This analysis does not factor those units in; it assumes they will be replaced at the same site and will not create additional demand for residential land.

Exhibit 41 allocates needed housing to plan designations in King City. The allocation is based, in part, on the types of housing allowed in the zoning designations in each plan designation.

The buildable lands inventory (Exhibit 3) shows that King City only has 3.8 acres of vacant buildable lands. As a result, King City will need to expand its city limits, based on an expansion of the Metro urban growth boundary, to accommodate new housing. The allocation in Exhibit 41 assumes that this new land will use the current zoning designations as are currently in use in King City. The allocation of new units will likely change when the City identifies land to bring into the city limits and the King City Comprehensive Plan designations are applied to the land.

Exhibit 41 shows:

- **SF Single Family** will accommodate new single-family detached housing.
- **SF Single Family** will accommodate new single-family detached housing and a small amount of single-family attached housing.
- **Multifamily Designations** will accommodate all types of housing, with a focus on single-family attached housing and multifamily housing. These designations include: R-12 Attached Residential, R-15 Multifamily, R-24 Multifamily, and AT Apartment Townhouse. They all allow the same type of housing and, since King City has nearly no vacant land in these plan designations, they are grouped together in Exhibit 41.
- **LC- Limited Commercial** will accommodate multifamily housing, which it allows outright along with commercial uses. King City has about two acres of vacant unconstrained land zoned LC. If an expansion of the city limits includes a designation of more land for LC, then a larger share of King City's housing could be located in LC, as part of mixed-use development.

Exhibit 41. Allocation of Needed Housing by Housing Type and Plan Designation, King City, 2018 to 2038

Source: ECONorthwest
Note: Multifamily plan designations include R-12 Attached Residential, R-24 Multifamily, and AT Apartment Townhouse. These plan designations all allow the same types of housing.

	Residential Plan Designations				
Comprehensive Plan Designation	SF - Single-Family	R-9 Residential	Multifamily Designations (R-12, R-15, R-24, AT)	LC - Limited Commercial	Total
Dwelling Units					
Single-family detached	217	216	57	-	490
Single-family attached		47	100	-	147
Multifamily	-	-	315	28	343
Total	217	263	472	28	980
Percent of Units					
Single-family detached	22%	22%	6%	0%	50%
Single-family attached	0%	5%	10%	0%	15%
Multifamily	0%	0%	32%	3%	35%
Total	22%	27%	48%	3%	100%

Needed Housing by Income Level

The next step in the housing needs analysis is to develop an estimate of need for housing by income and housing type. This requires an estimate of the income distribution of current and future households in the community. These estimates presented in this section are based on (1) secondary data from the Census, and (2) analysis by ECONorthwest.

The analysis in Exhibit 42. Estimate of Needed New Dwelling Units by Income Level, by Median Family Income (MFI) for Washington County ($74,700), King City, 2018–2038

Source: U.S. Department of Housing and Urban Development.
US Census Bureau, 2015 ACS Table 19001.

is based on American Community Survey data about income levels in King City, using information shown in Exhibit 37. Income is categorized into market segments consistent with HUD income level categories, using Washington County's 2017 Median Family Income (MFI) of $74,700. Exhibit 42. Estimate of Needed New Dwelling Units by Income Level, by Median Family Income (MFI) for Washington County ($74,700), King City, 2018–2038

Source: U.S. Department of Housing and Urban Development.
US Census Bureau, 2015 ACS Table 19001.

is based on current household income distribution, assuming approximately that the same percentage of households will be in each market segment in the future.

About two-thirds of King City's households currently have income below 80% of Washington County's median family income (less than $59,760 in 2017 dollars). In comparison, about half of the Portland Region's households have income below 80% of the median family income.

Given the expectation that King County's households will become more like the Portland Region's population, the share of income below 80% of median family income may decrease somewhat.

Even with a change in income distribution, King City households will have a substantial need for affordable housing types, such as government-subsidized affordable housing, manufactured homes, apartments, townhomes, duplexes, and small single-family homes.

Exhibit 42. Estimate of Needed New Dwelling Units by Income Level, by Median Family Income (MFI) for Washington County ($74,700), King City, 2018–2038

Source: U.S. Department of Housing and Urban Development.
US Census Bureau, 2015 ACS Table 19001.

% of Wa. Co. MFI	<30%	30%–50%	50%–80%	80%–120%	>120%
Annual Income	<$22,410	$22,410–$37,350	$37,350–$59,760	$59,760–$89,640	> $89,640
2015 Monthly Affdble. Housing Cost	<$560	$560–$934	$934–$1,494	$1,494–$2,241	> $2,241
Percent of King City House-holds	16%	32%	16%	16%	20%
New House-holds 2018-2038	**158**	**312**	**161**	**153**	**197**
Attainable Owner Housing Types	None	Manufact. in parks	Manufact. in parks Manufact. on lot Duplex	Townhome Single-family house Cottage	All housing types
Attainable Renter Housing Types	Subsidized housing	Subsidized housing Apartment Manufact. in parks	Apartment Duplex Townhome Single-Family house	Most Single-Family houses	All housing types

Need for Government Assisted and Manufactured Housing

ORS 197.303 requires cities to plan for government-assisted housing, manufactured housing on lots, and manufactured housing in parks.

- **Government-subsidized housing.** Government subsidies can apply to all housing types (e.g., single family detached, apartments, etc.). King City allows development of government-assisted housing in all residential plan designations, with the same development standards for market-rate housing. This analysis assumes that King City will continue to allow government housing in all of its residential plan designations. Because government assisted housing is similar in character to other housing (with the exception being the subsidies), it is not necessary to develop separate forecasts for government-subsidized housing.

- **Manufactured housing on lots.** King City allows manufactured homes on lots in all of its residential zones. King City does not have special siting requirements for manufactured homes. Since manufactured homes are subject to the same siting requirements as site-built homes, it is not necessary to develop separate forecasts for manufactured housing on lots.
- **Manufactured housing in parks.** ORS 197.480(4) requires cities to inventory the mobile home or manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial, or high density residential development. King City has one manufactured home park within the city limits, Mountain View on Beef Bend Road, with a Washington County zoning of R-6.

  ORS 197.480(2) requires King City to project the need for mobile home or manufactured dwelling parks based on: (1) population projections, (2) household income levels, (3) housing market trends, and (4) an inventory of manufactured dwelling parks sited in areas planned and zoned or generally used for commercial, industrial, or high density residential.

  - Exhibit 39 shows that the King City area will grow by 980 dwelling units over the 2018 to 2038 period.
  - Analysis of housing affordability (in Exhibit 42. Estimate of Needed New Dwelling Units by Income Level, by Median Family Income (MFI) for Washington County ($74,700), King City, 2018–2038

Source: U.S. Department of Housing and Urban Development.
US Census Bureau, 2015 ACS Table 19001.

  -) shows that nearly half (and possibly less) of King County's new households will be low income, earning 50% or less of the region's median family income. One type of housing affordable to these households is manufactured housing.
  - National, state, and regional trends since 2000 showed that manufactured housing parks were closing, rather than being created. For example, between 2000 and 2015, Oregon had 68 manufactured parks close, with more than 2,700 spaces. Discussions with several stakeholders familiar with manufactured home park trends suggest that over the same period, few to no new manufactured home parks have opened in Oregon.
  - Given the fact that King City only has one manufactured home park and that manufactured home parks have been closing, rather than newly opening, it is highly unlikely that King City will have future need for manufactured home parks. Lower income households will need different opportunities for housing, such as government-subsidized housing or lower-cost apartments.

    However, manufactured home parks are allowed in the R-9, R-12, R-15, R-24, and AT plan designations. If the city brings more land into the city limits, through a Metro urban growth boundary expansion, and designates some of that land with any of these designations, then King City will provide the opportunity for development of new manufactured home parks.

6. Residential Land Sufficiency within King City

This chapter presents an evaluation of the sufficiency of vacant residential land in King City to accommodate expected residential growth over the 2018 to 2038 period. This chapter includes an estimate of residential development capacity (measured in new dwelling units) and an estimate of King City's ability to accommodate needed new housing units for the 2018 to 2038 period, based on the analysis in the housing needs analysis. The chapter ends with a discussion of the conclusions and recommendations for the housing needs analysis.

Land Capacity Analysis

The buildable lands inventory summarized in Chapter 2 provides a *supply* analysis (buildable land by type), and Chapter 5 provided a *demand* analysis (household growth leading to a demand for more residential development). The comparison of supply and demand allows the determination of land sufficiency.

There are two ways to get estimates of supply and demand into common units of measurement so that they can be compared: (1) housing demand can be converted into acres, or (2) residential land supply can be converted into dwelling units. A complication of either approach is that not all land has the same characteristics. Factors such as zone, slope, parcel size, and shape, can all affect the ability of land to accommodate housing. Methods that recognize this fact are more robust and produce more realistic results. This analysis uses the second approach: it estimates the ability of vacant residential lands within the UGB to accommodate new housing. This analysis, sometimes called a "capacity analysis,"[18] can be used to evaluate different ways that vacant residential land may build out by applying different assumptions.

The capacity analysis estimates the development potential of vacant residential land to accommodate new housing based on the small amount of vacant land within the city limits and the densities allowed in the City's zoning code.

Exhibit 43 shows that **King City vacant residential land has capacity to accommodate approximately 12 new dwelling units**, based on the following assumptions:

[18] There is ambiguity in the term *capacity analysis*. It would not be unreasonable for one to say that the "capacity" of vacant land is the maximum number of dwellings that could be built based on density limits defined legally by plan designation or zoning, and that development usually occurs—for physical and market reasons—at something less than full capacity. For that reason, we have used the longer phrase to describe our analysis: "estimating how many new dwelling units the vacant residential land in the UGB is likely to accommodate." That phrase is, however, cumbersome, and it is common in Oregon and elsewhere to refer to that type of analysis as "capacity analysis," so we use that shorthand occasionally in this memorandum.

- **Buildable residential land.** The capacity estimates start with the number of buildable acres in residential Plan Designations as shown in Chapter 2. King City has 1.5 acres of vacant, unconstrained land in residential plan designations.
- **Needed densities.** OAR 660-007 does not specify a minimum needed density for King City. Exhibit 43 and Exhibit 44 assume that the future density of vacant land will be 90% of the maximum density allowed in each Plan Designation.[19]

Exhibit 43. Estimated Housing Development Potential on Vacant Residential Lands, Number of Dwelling Units, King City
Source: Buildable Lands Inventory; Calculations by ECONorthwest.
Note: DU is dwelling unit.

Plan Designation	Unconstrained Buildable Acres	Density (Dwelling Units per Acre)	Dwelling Units
R-9 Small Lot Attached Reside	1.4	8.1	11
R-12 Attached Residential	0.1	11.1	1
Total	**1.5**		**12**

King City has 2.3 acres of vacant land in the LC (Limited Commercial) Plan Designation. While multifamily housing is allowed in LC, other commercial development is allowed in this Plan Designation. Exhibit 44 shows the potential capacity on vacant unconstrained LC land, ranging from 56 dwelling units (if all vacant LC land is developed with multifamily housing) to zero dwelling units (if no vacant LC land is developed with multifamily housing).

In this analysis, we assume that half of the vacant LC land will develop with multifamily housing, resulting in a capacity of 28 dwelling units.

Exhibit 44. Estimated Housing Development Potential on Vacant Limited Commercial Land, Number of Dwelling Units, King City
Source: Buildable Lands Inventory; Calculations by ECONorthwest.
Note: DU is dwelling unit.

Plan Designation	Unconstrained Buildable Acres	Density (Dwelling Units per Acre)	Dwelling Units
LC - Limited Commercial	2.3	24.5	
All Residential, no Com.	2.3	24.5	56
Mixture of Res. and Com.	1.2	24.5	28
All Commercial, no Res.	0	24.5	0

The estimated capacity in Exhibit 43 and Exhibit 44 do not include assumptions about redevelopment opportunities.

[19] Note that the capacity analysis does not make assumptions about land needed for rights-of-ways because King City's vacant land is all infill, where vacant land is in parcels with existing rights-of-ways.

Residential Land Sufficiency

The next step in the analysis of the sufficiency of residential land within King City is to compare the demand for housing by Plan Designation (Exhibit 41) with the capacity of land by Plan Designation (Exhibit 43 and Exhibit 44).

Exhibit 45 shows that King City has a deficit of capacity in most residential plan designations:

- **SF Single Family** has a deficit of capacity for about 217 dwelling units to accommodate growth over the 2018–2038 period.
- **SF Single Family** has a deficit of capacity for about 252 dwelling units to accommodate growth.
- **Multifamily Designations** have a deficit of capacity for about 471 dwelling units to accommodate growth.
- **LC- Limited Commercial** can accommodate 28 multifamily units. If the City Designates more land LC in areas brought into the city limits (through a Metro UGB expansion), then more multifamily housing may locate in LC, especially multifamily in mixed-use development.

Exhibit 45. Comparison of Capacity of Existing Residential Land with Demand for New Dwelling Units and Land Deficit, King City, 2018–2038
Source: Buildable Lands Inventory; Calculations by ECONorthwest.

Housing Type	Capacity (Dwelling Units)	Demand for New Housing (Dwelling Units)	Comparison (Supply minus Demand)
SF - Single- Family	0	217	-217
R-9 Residential	11	263	-252
MF Designations (R-12, R-24, AT)	1	472	-471
LC - Limited Commercial	28	28	0

Conclusions and Recommendations

The key findings of the Housing Needs Analysis are that:

- **King City is planning for 980 new dwelling units.** Metro forecasts that King City will grow by 980 new dwelling units over the 2018 to 2038 period, averaging 49 new dwelling units annually. However, the vacant residential land within city limits can accommodate considerably fewer new dwelling units, as discussed below.
- **King City is meeting its obligation to plan for needed housing types for households at all income levels.** King City's residential development policies include those that allow for development of a range of housing types (e.g., duplexes, manufactured housing, and apartments) and that allow government-subsidized housing. This conclusion is supported by the fact that Metro's 2016 *Compliance Report* concluded that King City was in compliance with Metro Functional Plan and Title 7 (Housing Choice). King City will have an ongoing need for providing affordable housing to lower-income households. King City's ability to plan for needed housing types to accommodate growth depends on the expansion of the Metro urban growth boundary, as described below.
- **King City will need to plan for more single-family attached and multifamily dwelling units in the future to meet the City's housing needs.** Historically, about 72% of King City's housing was single-family detached. While 50% of new housing in King City is forecast to be single-family detached, the City will need to provide opportunities for development of new single-family attached (15% of new housing) and new multifamily housing (35% of new housing). This housing mix will be similar to King City's housing mix in 2000, before the rapid growth of single-family housing over the last decade or so.
    - The factors driving the shift in types of housing needed in King City include changes in demographics and decreases in housing affordability. The aging of the Baby Boomers and the household formation of the Millennials will drive the demand for renter- and owner-occupied housing such as small single-family detached housing, townhouses, cottage housing, duplexes, and apartments. Both groups may prefer housing in walkable neighborhoods, with access to services.
    - King City's existing deficit of housing affordable for low- and middle-income households indicates a need for a wider range of housing types, especially for renters. About 39% of King City's households have affordability problems, including a cost burden rate of 56% for renter households.
    - Growth of housing in King City will be driven by growth of housing across the Portland Region. As King City grows, the demographic characteristics of King City will become more like the Portland Region: a balance of older and younger households. King City has and will continue to have housing affordability problems similar to other cities on the Portland Region's westside.
- **King City has very little vacant, unconstrained buildable residential land.** King City has 3.8 acres of vacant, unconstrained buildable land. Of this, 2.3 acres is in the Limited Commercial Plan Designation, where multifamily housing is permitted but commercial

development is also permitted. The remaining 1.5 acres is in residential Plan Designations. This land has capacity for a total of 40 new dwelling units.

- **King City has a deficit of land for housing.** King City can only accommodate about 4% of the forecast for new housing on areas within the city limits. King City has a deficit of land for 940 dwelling units. The deficits are: 217 dwelling unit deficit in the Single-Family Designation, 252 dwelling unit in the R-9 Residential Designation, and 471 dwelling units in multifamily Designations (including the R-12, R-24, and AT Designations).
- **King City will need an expansion of the Metro urban growth boundary to accommodate its forecast of housing.** Given the limited supply of land within King City, the city needs an expansion of the urban growth boundary to accommodate the forecast of growth. King City is developing a Concept Plan for development in Urban Reserve Area 6D (URA 6D), which can accommodate King City's forecast of growth, with room for additional growth.

ECONorthwest's recommendations based on the Housing Needs Analysis are:

- **The City should work with regional partners to provide land for development as soon as possible.** The City is essentially out of land for development, with less than four vacant, unconstrained acres of land where residential development is allowed. Aside from redevelopment opportunities, King City has no substantial land for development. The City should continue to work with Metro and other regional partners to bring land in URA 6D into the urban growth boundary as soon as possible. Without URA 6D, King City will be unable to accommodate expected growth.
- **King City should plan to provide opportunities for development of the housing need identified in this report.** This analysis found that King City's housing needs are for more development of single-family attached housing and multifamily housing. The City should be planning for the development of: single-family detached housing at a range of lot sizes, accessory dwelling units, cottage housing, townhouses, duplexes, tri- and quad-plexes, apartment buildings, and mixed-use buildings. The City's housing needs will largely be met in URA 6D. While the City does not generally have a direct role in housing development, the City's planning framework sets the context for housing development. plans for development of URA 6D should include these housing types, integrated into broader neighborhood plans that include amenities such as parks, natural spaces, commercial centers, and a range of transportation options.
- **The City should consider changes to its residential policies to encourage development of more attached and multifamily housing.** These changes include designation of sufficient land to allow attached and multifamily housing types, development of zoning codes to allow and encourage cottage housing development, and policies such as an exclusive multifamily zone that ensures opportunities for development of multifamily housing through not allowing single-family housing development in the zone.
- **The City should consider implementing policies to encourage development of affordable housing.** Affordable housing can include government-subsidized housing (generally housing affordable to households with income below 50% of Median Family

Income [$37,000]) and middle-income housing (generally housing affordable to households with income of 60% to 80% of Median Family Income [$37,000 to $60,000] and sometimes as much as 120% of Median Family Income [up to $90,000]). Examples of these policies include:

- *Reduced Parking Requirements.* Parking is one of the more expensive parts of project development. To the extent that code requires more parking than a developer would otherwise want to provide, the cost of meeting these requirements creates financial burden. A city can adjust the zoning requirements for parking production relative to unit production, specifically for affordable housing projects. This reduces the construction and development costs of a project, especially for higher density projects with structured parking.
- *Financing building permit and planning fees or SDCs.* These programs reduce the impact of development fees and systems development charges (SDCs) on the development cost of the project by allowing the developer to avoid the upfront cost and finance the fees over time. A financing program can be used as an incentive to induce qualifying types of development or building features (in this case, affordable housing). The city still receives fees and SDCs, but at a later date. This can, however, create cash flow challenges.
- *Tax exemption program.* There are multiple tax exemption programs that cities can implement. The tax exceptions allow the city to incentivize diverse housing options in town centers.
- *Land Banking*. Land banks support affordable housing development by reducing or eliminating land cost from development. Cities can partner with nonprofits or sometimes manage their own land banks. Cities may also donate, sell, or lease publicly owned land for the development of affordable housing—even without a formal "land bank" organization.

- **King City should work with regional partners to understand the potential for additional residential growth over the planning period.** King City's growth is based, in large part, on growth of the westside of the Portland Region. Although Metro's forecast shows demand for King City to grow by 980 new households over the 20-year planning period, King City could be in a position to grow more over the next 20 years. On-going projects of regional significance, such as planning for the Southwest Corridor, may increase development in and around King City. If King City has sufficient land and the ability to make infrastructure investments to support development, the City could grow faster than Metro's forecast. We recommend that the City continue to work with Metro and other regional partners to plan for growth, considering key infrastructure investments made in and around the city.
- **King City should monitor residential land development.** Monitoring residential land development will help the City ensure that there is enough residential land to accommodate the long-term forecast for population growth. We recommend that the City develop and implement a system to monitor the supply of residential land. This includes monitoring residential development (through permits) as well as land

consumption (e.g., development on vacant, or redevelopable lands). Monitoring the City's land supply puts the City in a better position to work with its regional partners to plan for and accommodate regional growth in King City.

Appendix A: Buildable Lands Inventory Methodology

This appendix lists the data layers and data processing steps used for the buildable lands inventory. The results of the buildable lands inventory are summarized in Chapter 2.

Data Layers

Exhibit A- 1 lists data layers used for the residential buildable lands inventory. All data layers were bundled with Metro's Regional Land Information System (RLIS) data product.

Exhibit A- 1. Data Layers used for the Residential Buildable Lands Inventory

Data source	Dataset category	Dataset (type)	Description (from RLIS metadata)	Maps	Map date
Metro RLIS Q3 2017 Release (August)	Steep Slopes	slope_25.shp	Area with slope equal to or greater than 25%	Vacant land constraints by plan	1/18/2018
Metro RLIS Q3 2017 Release (August)	Steep Slopes	slope_10.shp	Area with slope equal to or greater than 10%	Vacant land constraints by plan	1/18/2018
Metro RLIS Q3 2017 Release (August)	Title 3 constraints	title3.shp (feature layer)	The Title 3 Land data delineates areas protected by the Stream and Floodplain Protection Plan, which aims to protect the region's health and public safety by reducing flood and landslide hazards, controlling soil erosion, and reducing pollution of the region's waterways. This data specifically delineates areas impacted by Title 3 for the following purposes: 1. protect against flooding, 2. enhance water quality in the region's streams, rivers, and wetlands, and 3. protect regionally significant fish and wildlife habitat areas.	Vacant land constraints by plan	1/18/2018
Metro RLIS Q3 2017 Release (August)	Title 13 constraints	title13_inventory.shp (feature layer)	The chief mapping data for the Metro Title 13 Resource Inventory adopted by the metro council in September of 2005. Combines Regionally Significant Riparian & Upland Wildlife habitat, Habitats of Concern, and impact areas into one integrated layer. Based on Metro's GIS models for mapping riparian functions and wildlife values. The precursor for the Metro Title 13 Habitat Conservation Areas. To comply with title 13 local jurisdictions may have developed their own maps and programs.	Vacant land constraints by plan	1/18/2018
Metro RLIS Q3 2017	Floodplains	floodplain.shp (feature layer)	100 Year Flood Plain as delineated by the Federal Emergency Management Association (FEMA). Digitized by the	Vacant land constraints by plan	1/18/2018

Release (August)			Portland Office of the Army Corps of Engineers. Updated with local input.		
Metro RLIS Q3 2017 Release (August)	Wetlands	wetlands.shp (feature layer)	Summary: The fundamental idea behind the layer is to assemble the best available information about the regions wetlands in one place so it can be a convenient resource to consultants, planners, and resource managers. It is mainly for planning purposes and does not constitute an exhaustive and fully complete collection of the regions wetlands. Description: This layer is based on the 1998 National Wetlands Inventory, finished and in-progress local wetland inventories conducted by local jurisdictions, and information/documentation collected during the development of Metro's Title 13 Nature in Neighborhoods program. The information source for individual wetland polygons are available in the layer attributes. The layer covers Multnomah, Washington and Clackamas counties in Oregon.	Vacant land constraints by plan	1/18/2018
Metro RLIS Q3 2017 Release (August)	Vacant land	vacant.shp	Summary: Area appearing unimproved on most recent aerial photography, without regard to developability and accessibility. On partially developed parcels, only undeveloped areas 1/2 acre or larger are included. Vacant tax lots are those that have no building, improvements or identifiable land use. Lots under site development are only considered developed if structure is evident. For example, earthwork and grading are considered vacant but buildings under construction (foundation or more) are considered developed. Parks and open spaces are treated as developed. During the assessment of each tax lot, no consideration is given to constrained land, suitability for building, or to redevelopment potential. Description: The current vacant land dataset represents the foundation for measuring buildable lands and analyzing carrying capacity within the region. Data is used in measuring buildable lands and analyzing carrying capacity with the region. Data also feeds into MetroScope forecasting model as part of the buildable lands dataset. The inventory reflects the status of vacant land on the date the photos were flown. No conclusions regarding capability or availability for development should be made.	Vacant land constraints by plan	1/18/2018

Metro RLIS Q3 2017 Release (August)	Plan designation	plan.shp	Summary: Land use plan designation boundaries from local comprehensive plans. This layer has been reviewed by each jurisdiction, and corrections were made by Metro where advised. Some errors are likely to remain and the jurisdiction should be used as the ultimate source for plan designations. In jurisdictions that use one map for comprehensive land use plan designations and zoning designations, the plan and zoning files are the same. Description: For use by planners and citizens to check land use plan designation boundaries from local comprehensive plans.	Vacant land constraints by plan	1/18/2018

Data Processing Steps

Following are the data processing steps used to analyze the Metro RLIS data (August 2017, Q3) and create the King City residential buildable land inventory.

- Intersected vacant land layer with King City city limit (Source: RLIS GIS data – August 2017, Q3). This layer is based on a combination of Metro's previous BLI results and aerial imagery. Metro is currently undergoing a BLI process, but the updated results were not available at the time of this analysis. The vacant land layer used for this analysis reflects the previous data, though the updated results of the Metro BLI would likely be similar in King City.
- Compiled development constraints using the following layers:
    - Landslide polygons (Source: SLIDO-3.0, DOGAMI)
    - Steep slopes 25%+ (Source: RLIS August 2017)
    - Public Facilities, based on zoning layer (Source: RLIS August 2017)
    - Floodplains, 100-year floodplain (Source: RLIS August 2017)
    - Title 3 Land, includes Water Resource Conservation Areas (Source: RLIS August 2017)
    - Title 13 Inventory, includes Habitat Conservation Areas Class I, II, A, and B (Source: RLIS August 2017)
    - Wetlands (Source: RLIS August 2017)
- Calculated constrained and unconstrained vacant land using the union and intersect tools. The union tool identified areas where vacant land and constraints overlapped. The intersect tool removed nonvacant constraint polygons.

- Added an attribute for vacancy status based on GIS analysis and comments from King City on recent development or errors in the data.
- For each layer—King City vacant land and all land in King City—calculated the following:
    - Calculated plan designation (plan layer, source: RLIS August 2017) for each area using the intersect tool.
    - Calculated acreage for each land area by vacancy status and plan designation.