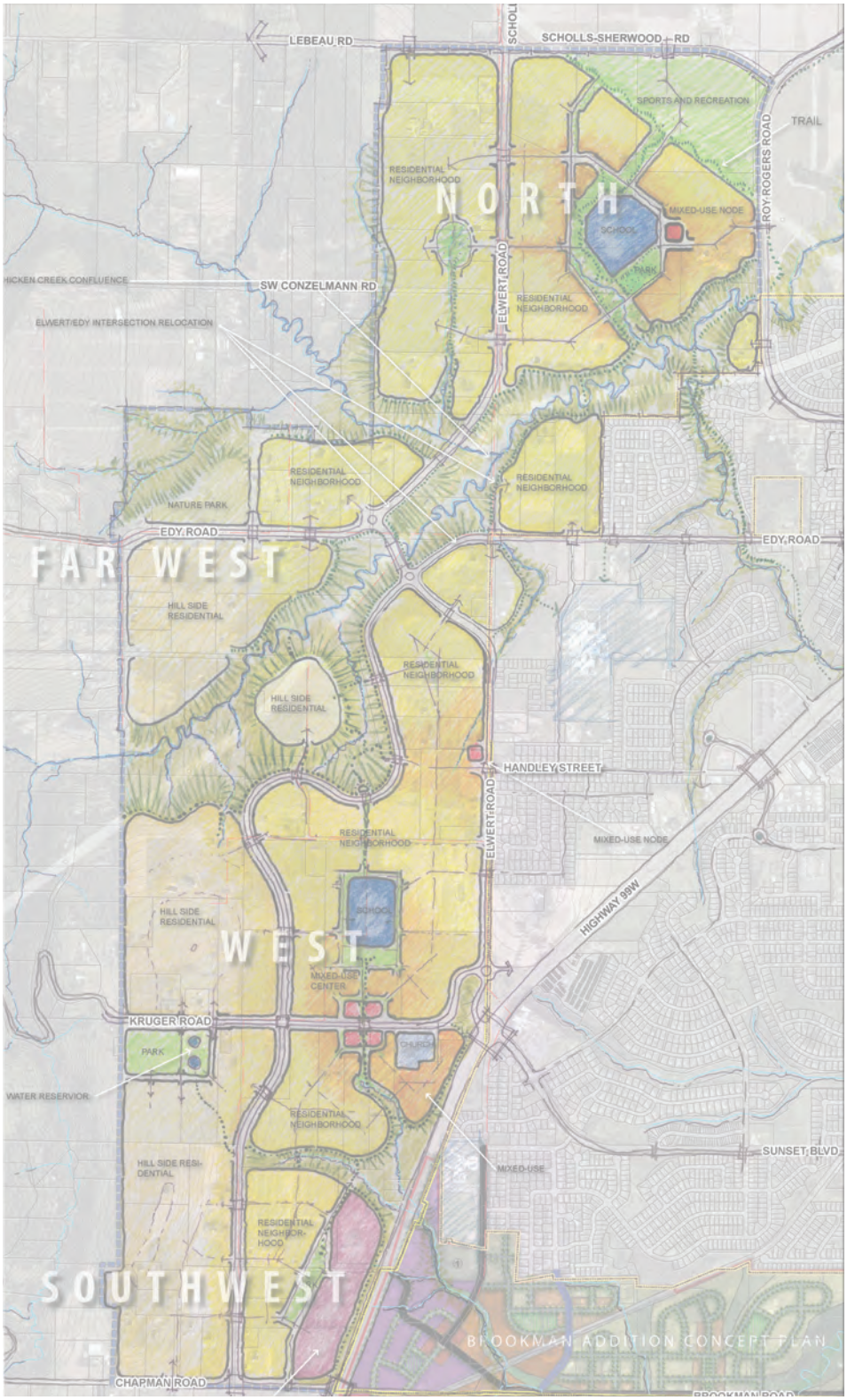

City of Sherwood Oregon

Sherwood West
Preliminary Concept Plan

A long range look at our future.

December 8, 2015

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Executive Summary

The Sherwood West Preliminary Concept Plan was developed as a long-range planning tool to help guide future community discussions and decisions about how our community could grow over the next 50 years. The Plan illustrates how the Sherwood West area, Metro's Urban Reserve Area 5b, could be incorporated into the fabric of the City over time in a manner that respects and reflects the strong sense of community and livable neighborhoods. By thinking about where best to build housing, where to protect farmland and where to build or expand roads and utilities today, we hope to keep Sherwood a safe, thriving and healthy community tomorrow.

The Preliminary Concept Plan is the culmination of a 14-month planning process involving residents and property owners within the City and study area, community service providers, and City staff. The following community vision statement guided the planning process:

> *"Sherwood West complements the City's form and small town character through an integrated and continued pattern of the community's most valued neighborhoods. Through a range of well-designed housing options and protected natural areas, Sherwood West is a great place for families. It helps satisfy the City's need for well-planned growth and other community needs. Designed as a complete community, development is orderly, attractive and protects views. The area is well-administered and development contributes to the fiscal health of Sherwood."*

The vision and ecologically-based design of Sherwood West was informed by the great community attributes that make Sherwood's existing neighborhoods special. Of particular note:

- **Scale:** Understanding how natural features such as creeks, valleys and hills have influenced Sherwood's existing neighborhood form helped reveal the importance of scale. The quarter-mile radius that is typical of these existing neighborhoods contributes to Sherwood's "small-town feel." This scale of organization is reflected in the walkable, "ten-minute neighborhoods" of Sherwood West.
- **Access to nature, trails:** Sherwood's livability is in part defined by its access to nature, open space and regional attributes such as the Tualatin National Wildlife Refuge. Sherwood West highlights the importance of access by incorporating a connected network of walking trails, neighborhood parks and nature preserves.
- **Schools:** Sherwood is known for its excellent school system. Sherwood West provides the opportunity to expand school facilities, in addition to regional athletic facilities in order to support growing demand.
- **Neighborhood serving retail**: Sherwood West communities support local, neighborhood retail so that residents of all ages can take advantage of these assets, partly reducing the need to use a car for all trips.

Guided by these principles and specifc goals and objectives, the project team and community members explored the opportunities and constraints to create a viable framework for the future growth of Sherwood, developed and evaluated three distinct alternatives, and ultimately selected a preferred hybrid alternative that has become the basis for the Sherwood West Preliminary Concept Plan. For discussion purposes, four primary sub-areas have been identified within Sherwood West:

- **The North District**: Located south of Scholl-Sherwood Road and north of Chicken Creek, this area is characterized by a mixed housing neighborhood organized around a new school, neighborhood park and mixed-use node. Residential intensities transition from the center to the edge of the neighborhood. A sports and recreation area is envisioned at the corner of Schools-Sherwood and Roy Rogers roads. The area is supported by a system of interconnected trails.
- **The West District:** Located in the middle of the planning area, directly west of Elwert Road and east of Chicken Creek, this area is characterized by a mixed housing district organized around a new school, neighborhood park, and mixed-use center. Housing intensities transition out from the mixed-use center with hillside residential on the higher and steeper slopes. A new neighborhood collector road paralleling Elwert Road winds through the center, following the natural break in topography. Large corridors along Chicken Creek are planned for protection with complementary trails connecting the future residents with the natural environment.
- **The Far West District:** Located west of Chicken Creek and adjacent to Edy Road, this area is characterized by a mixed residential neighborhood with hillside residential envisioned on the steeper and higher elevations. The northeast corner is set aside for a nature park to capitalize on the existing habitat values and sensitive topography. Stream corridor buffers are generous to reflect community priorities for natural feature protection, recreation and connectivity. The Far West District includes two options for improving the intersection of Edy and Elwert roads, described in more detail below.
- **The Southwest District:** Located north of Chapman Road and south of Goose Creek, a tributary to Cedar Creek, this area is characterized by residential development of varying intensities with hillside residential on the steeper slopes and higher elevations on the west. The district includes a "Gateway to Wine Country" node that is envisioned to capitalize on Sherwood's location and proximity to the surrounding wineries by providing opportunities for lodging, restaurants, tourism, and agriculture-related businesses. Parks and trail systems throughout the district provide non-motorized connectivity and access to parks and nature areas.

Transportation is a key concern for current Sherwood and study area residents alike. The vertical alignment condition of Elwert Road, a two-lane rural county road, combined with heavy traffic volumes and the confluence of the Chicken Creek at the intersection with Edy Road is a significant existing condition that requires a thoughtful solution. Due to the extensive public improvement that will be required to support future development, two alternatives are proposed in this Plan. The preferred alternative calls for a realignment of the intersection to reduce the impacts of infrastructure improvements on the sensitive creek confluences. The realignment is likely to discourage regional freight traffic from utilizing Elwert Road as a north-south by-pass to Highway 99W, the designated freight corridor. Initial cost estimates show that this alternative is more cost effective than improving the existing road in its current alignment. As this alternative warrants additional study and discussion, we have included a second alternative, improving the roadway in its current alignment.

Water and sanitary sewer service will need to be extended to serve future development in Sherwood West. Water service can be extended to the majority of the study area by extending the existing 380- and 455-Zone distribution mains. Future service to the higher elevations along the western edge of the study area could be served by a proposed Kruger Pump Station or future Edy Road Pump Station. Existing sanitary sewer facilities adjacent to the study area are limited. The Sherwood Interceptor crosses the study area near the northeast corner at Cedar and Chicken creeks; any sewer mainlines would need to cross these creeks to connect to Sherwood West. The Sherwood Trunk Line has been extended to the northern boundary of the Brookman area. Plans call for this line to be extended through the Brookman area to the east side of 99W. This line could be extended across 99W to serve the West and Southwest Districts. There are no existing stromwater infrastructure in the study area. New stromwater infrastructure, preferably regional facilities, would need to be evaluated and constructed with development.

In response to the preliminary nature of the Plan, the high-level phasing and funding strategy is not prescriptive and specific, but instead: 1) identifies a place for a more detailed implementation strategy when a concept or master plan is developed; and 2) identifies financial and other barriers or challengers to implementation and preliminary approaches to overcome them. Development and infrastructure cannot advance without the willing participation of property owners.

Once accepted by the City Council, this Preliminary Concept Plan will serve as a resource for future discussion about regional Urban Growth Boundary expansions. It will help decision-makers decide what areas make the most sense for expansion, considering the availability of infrastructure, the costs associated with extension of public services and property owner sentiment. The timing for the need for Sherwood West to accommodate the City's growing population is uncertain. As such, attention to the details outlined in this strategy and near-term action to continue to prepare for implementation will be important.

I. Introduction

The City of Sherwood conducted a long-range community planning process, designed to help us manage growth and protect the things we love about this place. The City received a grant from Metro to prepare a concept plan for the regional Urban Reserve Area 5B, approximately 1,291 acres we have identified as Sherwood West. The goal in developing a "preliminary concept plan" is to identify how we grow and provide quality places to live, work and play over the next five decades. This long-range planning process helps us all think about where best to build housing, where to protect farmland and where to build or expand roads and utilities—all with a goal of keeping Sherwood a safe, thriving and healthy community.

Why are we planning for Sherwood West?

Growth is happening.

The City of Sherwood is growing along with the rest of the Portland region. Since 1990, we have added hundreds of people every year, with annual growth rates between 3-8%. People are drawn here for our quality of life, our great schools and our vibrant neighborhoods. While that's a good thing—it provides economic growth and jobs for all of us—it also puts pressure on the city in terms of housing.

We're running out of places for people to live.

Sherwood has a shortage of land available for housing. If we don't add more land for new housing, people will still move here, but housing prices will start to rise and our community will experience more pressure for infill development at higher densities. This could result in three things: rising housing costs may price many people out of the market, including young families, single people and older people on fixed incomes; pressure on the City to rezone for residential uses; and infill development pressures could result in higher density housing which could change the character of existing neighborhoods. Increasing the land supply for residential development in a thoughtful manner is one way to help relieve this upward price pressure and make sure our community remains vibrant and affordable.

We need all kinds of housing.

As we grow, we're going to need to provide a variety of housing choices for people who want to live here, including large and small single-family housing, townhouses, duplexes and multifamily units. Providing housing choices makes it possible for people who have lived here a long time to stay in Sherwood as they age, while creating new opportunities for families and keeping housing in our city affordable.

Planned communities grow better.

Our challenge as a community remains growing in a way that preserves our small town character, our surrounding forests and farms, our thriving businesses and our parks and public spaces. The City of Sherwood is committed to a long-range process that manages growth in a planned and cost-effective way so that Sherwood can remain the thriving and welcoming community that we all love.

Context

Sherwood West is one of the designated "urban reserve" areas that surround Sherwood. Urban reserves are areas designated by Metro in coordination with its partner cities and counties. These reserves identify land that will be considered for addition to the region's Urban Growth Boundary (UGB) for urbanization over the next 50 years. The City of Sherwood is located within Metro's UGB. An urban reserve designation does not change current zoning or restrict a landowners' currently allowed use of their land. Designations are intended to provide greater certainty regarding long-term expected uses of the land, allowing public and private landowners to make long-term investments with better information.

Sherwood West is the largest urban reserve area adjacent to Sherwood, and given the location of existing utilities, the area that is logically the best direction for the City to consider growing in the future. It may grow faster or more slowly than projected, and in the end of the 50-year plan horizon, may not necessarily be the only direction in which we grow. It is not a given that the entire area will be absorbed into the City.

This Preliminary Concept Plan (Plan) is a tool that purposely does not speak to urban densities or design of a particular area within Sherwood West. It is a high-level, long-range study that we expect to be refined; community values and needs may shift and tastes in housing may change before any land is brought into the regional UGB. Densities and neighborhood form will be established and shaped through future refinement planning processes as areas are brought into the UGB.

The Preliminary Concept Plan is intended to be:

- A tool for future citizens and decision makers to rely on as they make decisions about expanding the urban growth boundary.
- A foundation for future refinement plans that occur within the area.
- An opportunity to discuss growth well in advance of it actually occurring with both the property owners within the study area and the Sherwood community.

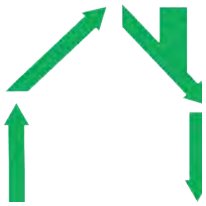
This document is laid out in seven sections.

I. Introduction

This section provides an overview and describes the purpose of this planning project.

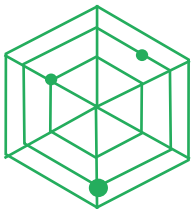
II. The Planning Process

This section summarizes the background of the project and discusses the formation of various stakeholder groups and community outreach efforts.



III. The Sherwood Growth Story

This section provides historic context for the project by recounting the history of growth in Sherwood, and the implications of this changing landscape on land use and planning, particularly for housing policy.



IV. Sherwood West

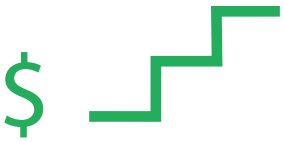
This section summarizes land use, public utilities and environmental conditions within Sherwood West, and presents an analysis of the landform and how it relates to planning for the area.

V. Sherwood West Preliminary Concept Plan

This section presents a high-level conceptual plan for the Sherwood West area that builds upon the landform analysis and emphasizes complete community attributes.

VI. Funding and Phasing Strategy

This section describes an approach to funding and phasing infrastructure, services and other community elements as a means to inform decisions regarding possible future urban growth in Sherwood West.



VII. Recommendations and Next Steps

This section provides thoughts about how to approach implementation for City staff and recommendations on how to move forward given the information provided by this plan.

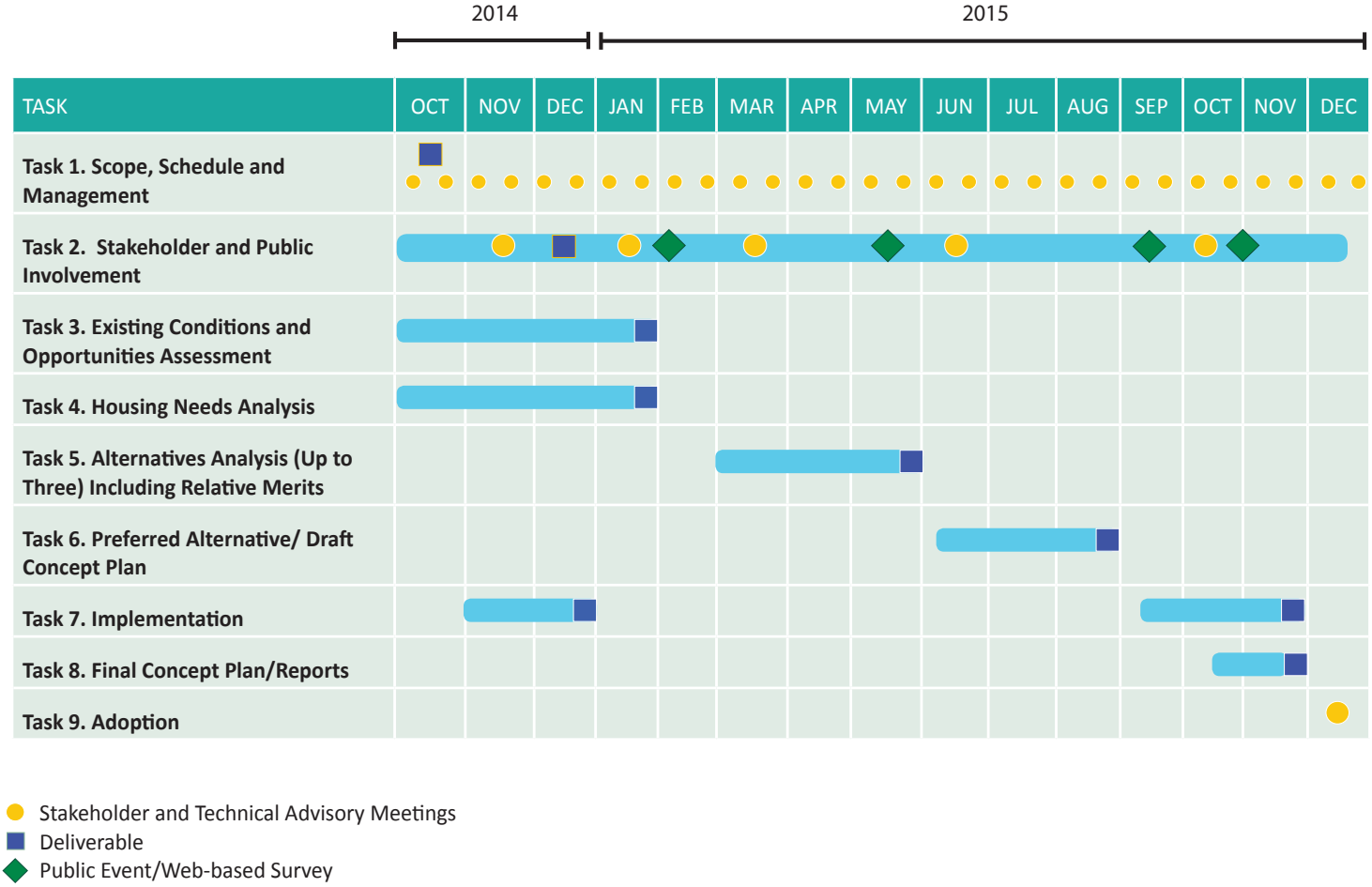
II. Planning Process

This planning process began in November 2014 and wrapped up in December 2015. The project was completed through a series of nine tasks within the timeline shown below (Figure 1).

Engaging with Sherwood residents was considered essential for producing a plan that reflects community values with integrity and foresight. To help guide the project, two stakeholder committees were formed to include a broad range of interests: the Community Advisory Committee (CAC) and the Technical Advisory Committee (TAC). Together, these committees worked to help shape the direction and result of this process.

The CAC was made up of 18 community members who live or own property within the city as well as those in the study area, and representatives from the City's Parks Board, Planning Commission, City Council, the Sherwood School District, and Washington County Citizen's Participation Organization (CPO). They were charged with: reviewing materials from the consultant team, providing broad perspectives to ensure the Sherwood West Concept Plan reflects diverse needs, participating in public outreach regarding the plan, and providing recommendations on plan alternatives. They were recruited and selected by the City Council through an open application process. 41 people applied to be on the CAC and 18 were selected.

Figure 1. Sherwood West Project TImeline



The TAC was comprised of essential public service provider representatives: City Public Works, Engineering, Community Services, the Police department, Clean Water Services, Tualatin River National Wildlife Refuge, Tualatin Valley Fire and Rescue, the Sherwood School District, the Oregon Department of Transportation (ODOT) and Metro. TAC members reviewed project deliverables for technical adequacy, policy and regulatory compliance.

Every step of the way, Sherwood community members provided meaningful guidance and feedback, gathered through interviews, public events, community workshops, questionnaires and online surveys. This guidance has been essential to the Sherwood West planning process. The design of the Plan is a reflection of this work. Together, we:

1. Developed a vision, set goals and proposed evaluation criteria. The planning process began with articulating a vision for Sherwood West. We solicited community guidance on goals and evaluation criteria through one on one interviews and meetings, public workshops and online surveys, and underwent multiple iterations in review by the TAC, CAC and community members. The resulting vision statement is as follows:

Vision Statement

Sherwood West complements the City's form and small town character through an integrated and continued pattern of the community's most valued neighborhoods. Through a range of well-designed housing options and protected natural areas, Sherwood West is a great place for families. It helps satisfy the City's need for well-planned growth and other community needs. Designed as a complete community, development is orderly, attractive and protects views. The area is well administered and development contributes to the fiscal health of Sherwood.

Figure 2. Goals and Evaluation Criteria for Sherwood West

Goal	Evaluation Criteria for Comparison of Alternatives
Growth is well -planned	• Neighborhoods are phased adjacent to existing development • Well phased extension of services • Connectivity
Design includes complete community attributes	• Incorporates nature • Neighborhood retail
Development respects and recognizes Sherwood pattern, heritage and small town feel	• Walkable • Integrates with existing Sherwood • View corridors, natural features retained
Concepts promote health	• Easy to walk, bike and access other recreational activities
Development protects and provides access to nature	• View corridor, other assets protected • Walking trails along heritage resources
Implementation is pragmatic	• Options minimize cost of infrastructure • Balance of benefits and burdens of development

2. Identified existing conditions and key opportunities. We developed a draft and revised assessment of existing and future conditions for Sherwood West. In addition to infrastructure and public services, we considered the area's landform and natural features. Guidance from the community helped identify missing elements and further opportunities.

3. Designed alternative concept plan scenarios. Based on community core values, vision, and existing conditions, we worked with the CAC and TAC to develop three draft alternative concept plan scenarios in order to explore a variety of ideas for comparison.

Community Engagement Activities

- Community Advisory Committee Meetings
- Project Website
- E-Newsletter Subscription & Social Media
- Project Video
- Property Owner Mailing and Meetings (March-April)
- Community Workshop (May)
- Online Survey – Vision and Values (May-June)
- Ice Cream Social & Open House June 2015
- Online Survey – Draft Alternatives (July-August)
- Music on the Green (July-August)
- Movies in the Park (August)
- Community Group Presentations
- Online Survey – Preferred Alternatives (October)
- Property Owner Mailing and Community Open House (October)
- Sherwood Rotary
- Chamber of Commerce

4. Considered the relative merits of each scenario and the key features that best represent the goals and objectives of Sherwood West. Through interactive workshops, community events and online surveys, the CAC, TAC, staff and consultant team worked to identify preferences for individual and collective plan elements using the evaluation criteria they helped develop.

5. Designed a Preliminary Concept Plan that builds upon community feedback, technical guidance and a landform analysis. The preliminary concept plan is a hybrid of the three alternatives, combining the preferred elements into a recommended draft "hybrid" Preliminary Concept Plan.

Each step of the planning process incorporated a variety of community engagement activities, as listed in the call out box above, designed to reach a broad spectrum of Sherwood residents. Appendix 1: Community Engagement Plan and Evaluation describes the process, objectives and outcomes as agreed upon by the CAC.

Staff, consultants and Sherwood residents at the final community Open House in October, 2015.

Stella Olson Memorial Park, Sherwood Oregon
Photo by Alyse Vordermark

IV. The Sherwood Growth Story

History and Pattern of Urban Growth

Understanding Sherwood's past is key to planning Sherwood's future. Sherwood as it exists today did not just happen; it is the result of many years of small and big, individual and collective decisions. By understanding the history and pattern of growth in Sherwood, we obtain valuable insights into the local identity and values that help to guide future urban growth.

Pre-settler era

Prior to the arrival of immigrants, the Sherwood area was inhabited by the Atfalati band of the Kalapuya nation, who ranged across the valley in a hunter-gather style. They are known to have used deliberate burns to clear the valley floor to encourage the growth of the camas plant and to maintain habitat beneficial to deer and elk.

Smockville

In 1885 founders James and Mary Smock settled on nearly flat pasture along the east bank of Cedar Creek. They platted "Smock Ville" in 1889, after donating a right-of-way across their property to the Portland and Willamette Valley Railway, providing access to the larger region for people and cargo. Unlike most newly-platted towns from this period, Sherwood's streets were platted with a 40 degree rotation relative to the cardinal points. The diagonal route of the railway explains the orientation of Sherwood's original nine block plat.

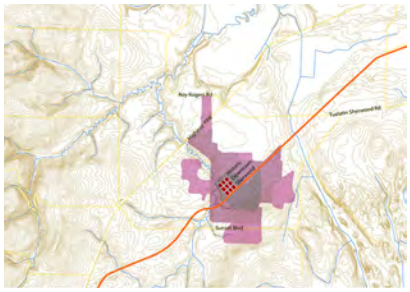
1889-1960

During the first decade, Sherwood's footprint on the landscape was largely contained within the original nine block town plat. In the later decades up to 1960, Sherwood grew modestly, but some expansion took place towards the southeast around the train depot and up the hill along Pine Street. All destinations in town were in close walkable proximity to each other. The population in 1960 was around 680 people.

1960-1970

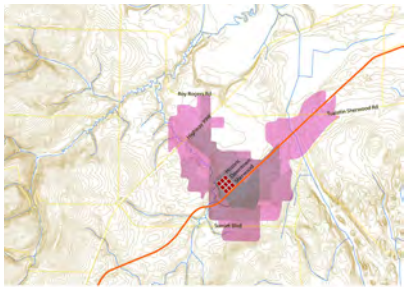
Around 1960, the automobile started affecting urban settlement patterns across the nation, resulting in more dispersed settlement patterns that are also reflected in Sherwood's expanding urban footprint. A series of annexations took place over the the next 50 years that changed the landscape and the community. The first annexation accommodated growth along the east bank of Cedar Creek towards Highway 99W. In ten years' time, the population doubled to 1,396 residents.

1970-1980



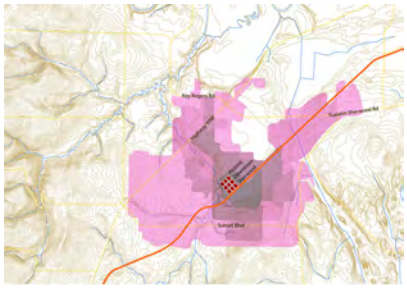
Sherwood continued to attract newcomers and the next decade saw growth across Cedar Creek for the first time with the new High School forming an important component. Growth also occurred towards the southeast, on hillsides facing north and west. In this decade the population grew by nearly 1,000 to 2,386 people.

1980-1990



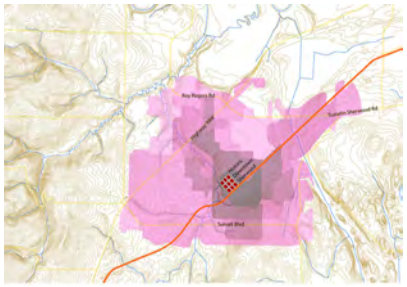
Between 1980 and 1990, the pace of development dropped a little due to recession but the population still grew by about 700 people to 3,093. To accommodate this increase, the town continued to expand around Cedar Creek and, for the first time, north of Highway 99. Employment areas were developed in the northeast, along the railway.

1990-2000



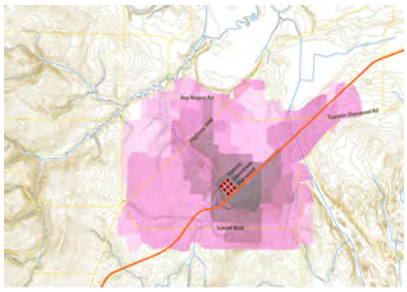
During the last decade of the twentieth century, Sherwood experienced a real boom in population and expansion. Fueled by a strong regional and national economy, the population grew by nearly 9,000 to 11,791 in 2000 for a 380% population increase. The physical imprint on the landscape expanded significantly with the realization of large subdivisions such as Woodhaven. During this decade, urban development also took place northwest of Highway 99W, and into the hills southeast and southwest of town.

2000-2010



The first decade of the twenty-first century saw continued but slightly more tempered growth. A 154% population increase over ten years added approximately 6,000 people to Sherwood, bringing the total to 18,194 by the end of the decade. This growth is accommodated mostly in areas in the northwest area of town along Cedar Creek (Roy Rogers Road) and between the historic Old Town and Tualatin-Sherwood Road.

2010-2014



US census data takes us only four years farther to 2014, when Sherwood hovers around a population of 19,000 with a lower population increase compared to the two decades prior, most likely as an effect of the Great Recession. Most of the growth that did occur took place along the ever expanding edges of Sherwood in the north and southeast.

During its short 125 years of urbanization, Sherwood has experienced significant growth in both population and physical size (Figure 3 and 4). Yet somehow, Sherwood has kept its “small town” appeal. It remains a desirable place to live, as demonstrated by appearances in national “Best Places to Live” listings.

Figure 3. City of Sherwood Land Area and Population Growth Map, 1889-2014

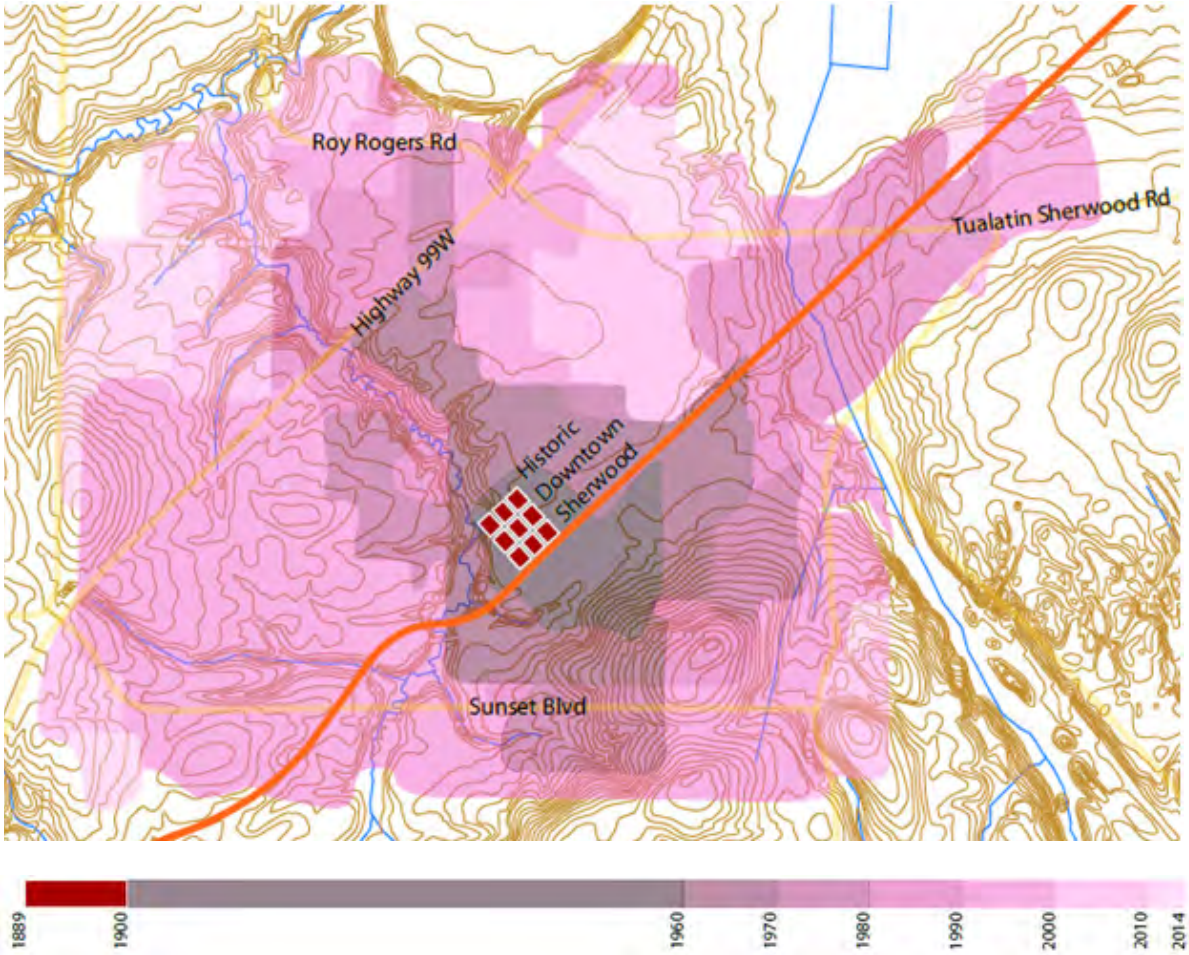
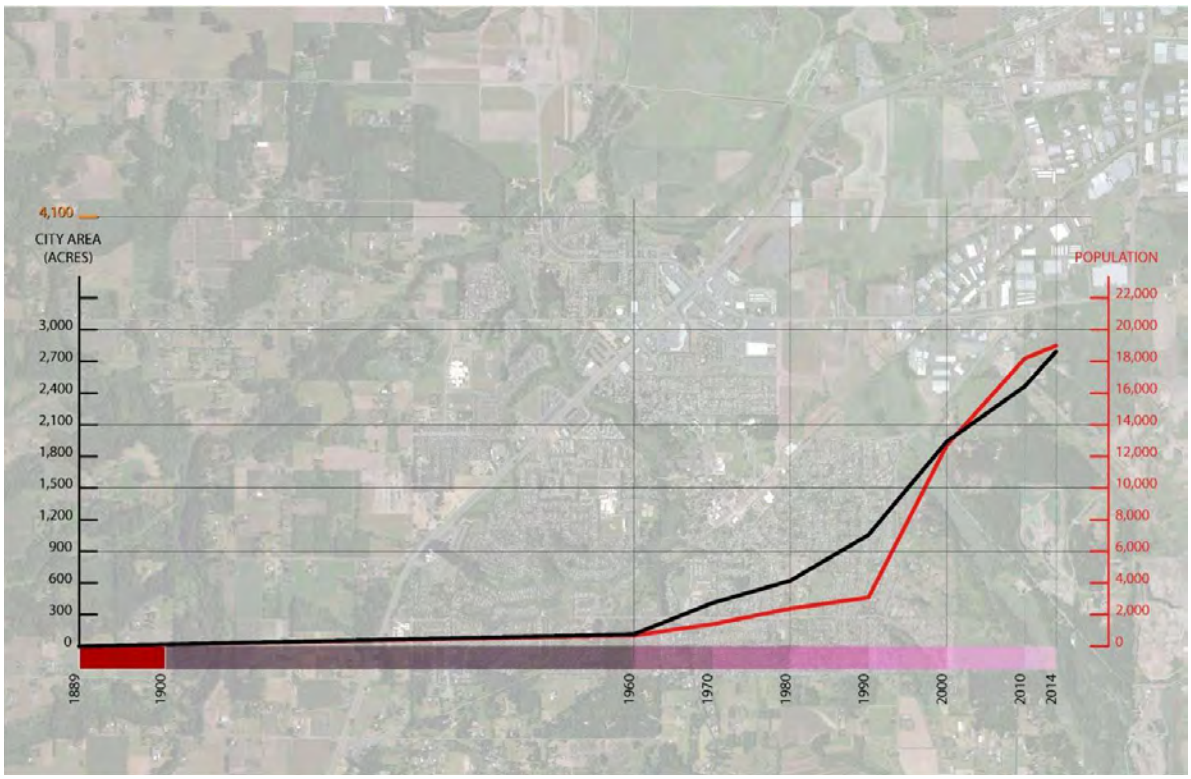


Figure 4. City of Sherwood Land Area and Population Growth Chart, 1889-2014



Scale

One of the possible explanations for the "small town" identity lies in the neighborhood scale of individual developments. Analysis reveals a pattern of walkable (quarter mile radius) neighborhoods circling the historic downtown. It appears that Sherwood was deliberately planned around the concept of the walkable neighborhood as the building block of the community as a whole. Taken together, the entire town fits within an imaginary circle with a radius of only one mile: all local destinations are close and potentially within walking and biking distance from any residence.

A Size Comparison

From a pure physical standpoint, Sherwood's size compares to places like Forest Grove and Cornelius. Even with Sherwood West included, the physical dimension of the entire town would be small enough to fit inside an imaginary circle with a radius of 1.5 miles. The City's physical dimension would then be comparable to cities like Woodburn and Canby.

The urban growth history presented here attempts to build a deeper appreciation of the aspect of time, population size, urban growth and scale, and how they are all interrelated. This is a subjective interpretation and as such, does not claim to be complete or highly detailed.[1] As this historic growth analysis shows, tremendous change can and possibly will occur. A proper appreciation of this dynamic past is crucial as we lay the foundation for planning the next 50 years of Sherwood's evolution.

Implications for Policy [2]

Not only has Sherwood seen significant growth in terms of size and population, but it is also witnessing a change in the demographics of the population. Understanding these characteristics is crucial for determining community needs and analyzing demand for services and infrastructure. Of these demands, housing plays an important role, as it is often the catalyst for the development of roads, utilities, schools, parks and other services.[3]

How has Sherwood's Population Changed in Recent Years?

Sherwood's population grew relatively fast in recent years. Sherwood's population increased from 3,000 people in 1990 to nearly 18,600 people in 2013, averaging 8% annual growth. Sherwood's fastest period of growth was during the 1990s, consistent with statewide trends. Since 2000, Sherwood grew by 6,600 people, at an average rate of nearly 3.5% per year. For comparison, Washington County grew at 2.5% annually between 1990-2013 and the Portland Region grew at 1.6% per year.

Sherwood's population is aging. People aged 45 years and older were the fastest growing age group in Sherwood between 2000 and 2010, consistent with state and national trends. By 2035, people 60 years and older will account for 24% of the population in Washington County (up from 18% in 2015) and 25% in the Portland Region (up from 19% in 2015). It is reasonable to assume that the share of people 60 years and older will grow relatively quickly in Sherwood as well.

[1] This is a subjective interpretation based on an analysis of a variety of sources, including Google Earth, Lab Rat Revenge, The Oregon Atlas, Sherwood City Annexation Map, Smockville Original Plat and Wikipedia.
[2] This section comes from the City of Sherwood's Housing Needs Analysis (HNA), conducted in 2015. The HNA was used solely for purposes of data analysis rather than policy creation, and as such was not a publicly-vetted document in the Sherwood West planning process. See Appendix 2 for the executive summary of this report. The complete HNA can be accessed at: http://www.sherwoodoregon.gov/sites/default/files/fileattachments/Planning/page/3740/sherwood_hna_june_25.pdf
[3] The majority of data quoted in this analysis is from the US Census American Community survey, with population data from the Population Research Center at Portland State University and development data from the City's Building Permit database.

Sherwood is attracting younger people and more households with children. In 2010, the median age in Sherwood was 34.3 years old, compared to Washington County's median age of 35.3 years and the State median of 38.4. Sherwood has a larger share of households with children (47% of households), compared with Washington County (33%) or the Portland Region (29%). The Millennial generation—people born roughly between 1980 to 2000—are the largest age group in Oregon and will account for the majority of household growth in Sherwood over the next 20 years

Sherwood's population is becoming more ethnically diverse. About 6% of Sherwood's population identify as Latino, an increase from 4.7% in 2000. In comparison to Washington County and the Portland Region, Sherwood is less ethnically diverse. In the 2009-2013 period, 16% of Washington County residents and 12% Portland Region residents identify as Latino.

What Factors May Affect Future Growth in Sherwood?

These trends are likely to create a change in the types of housing Sherwood will need in the future. This has implications for the City's housing and land use policies.

The aging of the population is likely to result in increased demand for smaller single-family housing, multifamily housing, and housing for seniors. People over 65 years old will make a variety of housing choices as they age, including: remaining in their homes as long as they are able, downsizing to smaller single-family homes (detached and attached, including one-story homes or homes with first-floor master bedrooms), cottage housing and multifamily units, or moving into group housing (such as assisted living facilities or nursing homes).

> *"The city needs to provide [for] a diversity of housing types so that our older residents and younger residents can afford to stay and move here."*
>
> *-Survey Respondent*

The growth of younger and diverse households is likely to result in increased demand for a wider variety of affordable housing options appropriate for families with children, such as small single-family homes, townhouses, duplexes, and multifamily housing. If Sherwood continues to attract young residents, then it will continue to have demand for housing for families, especially housing affordable to younger families with moderate incomes. Growth in this population will result in increased demand for both ownership and rental opportunities, with an emphasis on housing that is comparatively affordable.[4]

Changes in commuting patterns could affect future growth in Sherwood. Sherwood is part of a complex, interconnected regional economy. Demand for housing by workers at businesses in Sherwood may change with significant fluctuations in fuel and commuting costs, as well as substantial decreases in the capacity of highways to accommodate commuting.

Sherwood households have relatively high income, which affects the type of housing that is affordable. Income is a key determinant of housing choice. In 2010, Sherwood's median household income ($81,000) was more than 20% higher than Washington County's median household income ($60,963). In addition, Sherwood had a smaller share of population below the federal poverty line (7.6%) than the averages of Washington County (11.4%) and the Portland Region (13.9%).

[4] The HNA assumes that housing is affordable if housing costs are less than 30% of a household's gross income. For a household earning $6,500 (the median household income in Sherwood), monthly housing costs of less than $1,960 are considered affordable.

The City of Sherwood: A Snapshot

As of the 2010 US Census, there were 18,194 people living in the City of Sherwood. The City accounts for about 3.4% of Washington County's total population of 531,335. Covering an area of approximately 4.3 square miles, Sherwood's population density is about 4,217.2 per square mile. Relative to the nearby cities of Tualatin, Wilsonville and Newberg, Sherwood has a slightly higher population density per square mile. As shown in Table 1, Sherwood also has a greater number of family households and a higher median household value, as compared to Washington County.

Table 1. City of Sherwood and Washington County, 2010

	City of Sherwood	Washington County
Median Home Value[1]	$340,450	$307,350
Median Household Income	$81,000	$60,963
Family Households	77.7%	67.1%
Average Commute Time	26 minutes	24 minutes
Gender (female)	50.3%	50.8%
Median age	34.2 years	35 years
Hispanic or Latino	7.0%	15.7%

Source: US Census Survey, 2010
[1]Zillow, September 2015

What are the Implications for Sherwood's Housing Policies?

Determining demand for housing is based on coordinated forecasts of household growth, provided by Metro. Between 2015 and 2035, Metro forecasts an additional 1,156 new households in Sherwood as a response to demand from population growth and demographic shifts.

Not only does the forecast provide an estimate of the number of homes required to respond to population growth, but also where this demand will be generated. The forecast includes growth within city limits as well as areas currently outside of these limits but within the UGB and planned for annexation and development for residential uses. For the City of Sherwood, this is primarily the Brookman Area. Under this combined land base, Sherwood's land capacity analysis shows that can accommodate Metro's entire forecast for growth with the buildable land currently zoned for residential in the City limits and within the UGB (Brookman Area). However, to ensure there is an adequate land supply as required by state law, the Brookman area would need to be annexed by Sherwood voters, or land within the City would need to be rezoned to accommodate increased residential development.

The results of Sherwood's 2015 Housing Needs Analysis (HNA) highlight questions for the update of the City's Comprehensive Plan and the Sherwood West Preliminary Concept Planning process, such as:

- Changes in demographics and income for Sherwood and regional residents will require accommodating a wider range of housing types. Providing housing opportunities for first time home buyers and community elders (who prefer to age in place or downsize their housing) will require housing options such as smaller lots, clustered housing, cottages or townhomes. Where should Sherwood consider providing a wider range of housing types? What types of housing should Sherwood plan for? How many of Sherwood's needed units should the city plan to accommodate within the city limits? How much of Sherwood's needed units should be accommodated in the Brookman Area and in Sherwood West?

- What design features and greenspaces would be important to consider for new housing? What other design standards would be needed to "keep Sherwood *Sherwood*"?

These questions touch upon larger, broader policy issues that need to be discussed and vetted through the City's Comprehensive Plan Update. The Sherwood West Preliminary Concept Plan is not an attempt to address all these issues. Rather, this process provides some preliminary data and begins to assess community values in order to help answer these questions and determine future goals, policies and strategies in the City's Comprehensive Plan.

The Brookman Addition Concept Plan

The Brookman Addition Concept Plan was developed as a guide for the creation of a new 250-acre community in Sherwood. Planning for the area followed a 2002 decision by Metro to bring the land into the regional Urban Growth Boundary (UGB) in response to an identified regional need for additional land to meet the 20-year growth projections. The Brookman Addition area is bound on the north by the existing city limits, by Brookman Road to the south, Highway 99W to the west, and properties located due east of Ladd Hill Road. The Concept Plan was developed in coordination with many community, local government and agency parties.

Adopted by the City Council in June 2009, the Concept Plan identifies the general location and intensity of future land uses, including medium-low to high density residential, mixed use commercial, employment, parks and open space. Integrated with future land uses is a conceptual layout of basic infrastructure systems including transportation, trails, and utilities.

The intent is for the area to be annexed into the City, with City zoning being applied at the time of annexation. To date, Sherwood voters have rejected annexation requests for the entire Brookman area, and portions of it, on three separate occasions. Most recently, a request to annex 103 acres of land was rejected during the November 3, 2015 election. Until annexation occurs, the Brookman area will remain in unincorporated Washington County, subject to County zoning.

V. Sherwood West

Existing Conditions

Study Area

Sherwood West encompasses approximately 1,291 acres located along the western side of the current city limits (Figure 5). The area is bounded on the east by Hwy 99W, SW Elwert Road, and SW Roy Rogers Road. It is bounded by SW Chapman Road on the south and SW Lebeau Rd and SW Scholls-Sherwood Rd to the north. Site topography generally slopes from west to east, with an elevation difference of approximately 150 to 200 feet.

Figure 5. Sherwood West Study Area

Land Use and Zoning

Whereas City acreage is 2,757.8 (4.3 square miles), the Sherwood West study area encompasses 1,291 acres across 126 tax lots and existing right-of-way (Table 2). Besides residential uses, the majority of the land use is designated as agricultural or forest. For more detailed information, see Appendix 3B for the study area buildable land inventory by taxlot and Appendix 4: Boundaries and Buildable Lands Inventory Information for the methodology.

Table 2. Sherwood West Study Area Buildable Lands

Total Acreage	1,291
Total Tax Lots	126
Total Tax Lot Acreage (excludes non-taxable area)	1,234
Total Right-of-Way (ROW) Acreage	57
Vacant Lots	39 (263.5 buildable acres)
Partially Vacant Lots with dwellings	83 (406.8 buildable acres)
Committed Lots	4 (0 buildable acres)
Total Buildable Land** Acreage	670.3

**Buildable land calculation includes removal of constrained land, deduction of 0.25-acre from lots greater than 0.5-acre with a dwelling unit, and a percent deduction for future streets.

Public Facilities [5,6]

WATER SYSTEM

Existing Conditions

The current Water System Master Plan was adopted in May 2015. The Master Plan considers all areas within the city limits, the UGB and the Sherwood West study area. The City's primary water supply is from the Wilsonville Water Treatment Plant, supplemented by groundwater wells. The City maintains an emergency connection and transmission piping to the Tualatin-Portland supply main. The City's distribution system includes three service zones supplied by three storage reservoirs and two pumping stations. The majority of Sherwood customers are served from the 380 Pressure Zone which is supplied by gravity from the City's Sunset Reservoirs. The 535 Pressure Zone, serving the area around the Sunset Reservoirs, is supplied constant pressure by the Sunset Pump Station, and the 455 Pressure Zone serves higher elevation customers on the western edge of the City by gravity from the Kruger Reservoir.

Opportunities and Constraints

Initial anticipated growth in Sherwood West will be served by extending existing 380- and 455-Zone distribution mains. Future customers along the ridge north and south of the existing Kruger Reservoir will be served by constant pressure from the proposed Kruger Pump Station at the existing reservoir site. Some future customers in Sherwood West may need to be served through a Pressure Relief Valve (PRV)-controlled sub-zone or through individual

[5] At the time the plan was prepared, updates to the City Sewer and Stormwater Master Plans were in process, therefore all information should be verified
[6] See Appendix 3 for the full text from the Existing Conditions Report.

PRVs on each service in order to maintain required service pressures. A small area on the western edge of the Sherwood West Urban Reserve, along Edy Road near Eastview Road, is too high in elevation to receive adequate service pressure from the adjacent 380 Zone. This area will be served by constant pressure from the proposed Edy Road Pump Station. An additional pump station would potentially be needed to serve this area. Extensive large diameter mains will be needed to expand the City's water service area to supply weater to Sherwood West as development occurs. See Appendix 3C for pressure zone boundaries and existing and proposed reservoir, pump station and water line locations identified in the Water System Master Plan.

SANITARY SEWER SYSTEM

Existing Conditions

The existing Sanitary Sewer Master Plan was completed in July 2007 and is currently being updated. The Master Plan considers all areas within the city limits and the urban growth boundary, but not Sherwood West.

The City of Sherwood is served by two sanitary sewer trunk lines, the Sherwood Trunk Sewer (24-inch) which conveys sewage from the Cedar Creek sewage collection basin and the Rock Creek Trunk (18-inch) which conveys sewage from the Rock Creek sewage collection basin. Both trunk lines convey flows to the Sherwood Pump Station, owned by Clean Water Services (CWS), which sends sewage to the Durham Advanced Wastewater Treatment Plant via the Upper Tualatin Interceptor, also owned by CWS.

Opportunities and Constraints

Existing sanitary sewer facilities adjacent to or near this site are limited. The Sherwood Interceptor crosses the study area near the northeast corner at Cedar and Chicken Creeks; and any sewer mainlines would need to cross these creeks in order to connect. Brookman is an area within the UGB on the south end of Sherwood between the city limits and SW Brookman Road. The City recently constructed a sewer mainline to the northern boundary of Brookman. Future projects, which would occur with the development of Brookman, would extend the sewer line into Brookman, providing sewer access for Sherwood West at Brookman Road, east of Hwy 99W. Capacity of the Sherwood Trunk Line Sewer and the Sherwood Pump Station will need to be evaluated as part of the Master Plan update. See Appendix 3D for a map of existing sanitary sewer facilities.

STORMWATER

Existing Conditions

The existing Stormwater Master Plan was completed in June 2007 and is currently being updated. The Master Plan considers all areas within the city limits and the urban growth boundary, but not Sherwood West.

The Sherwood West study area lies primarily within the Chicken Creek Drainage Basin. The basin flows north and northeast along Chicken Creek, which bisects the site. Cedar Creek flows into Chicken Creek at the northeast corner of the study area, west of SW Roy Rogers Road. West Fork Chicken Creek enters the site near the northwest boundary, and flows east into Chicken Creek. A small portion of the study area in the southeastern corner is part of the Cedar Creek Drainage Basin. On-site runoff enters Goose Creek, which flows from west to east, crosses under Hwy 99W and reaches Cedar Creek.

The Stormwater Master Plan notes that Chicken and Cedar Creeks have been identified by the Environmental Protection Agency (EPA) as providing habitat for anadromous fish that are listed as threatened under the Federal Endangered Species Act. The study area in the vicinity of Chicken and Cedar Creeks and their tributaries have been designated by Metro as riparian corridors, upland wildlife habitat, and aquatic impact areas. Some areas within the riparian corridors are also shown on the National Wetland Inventory

Opportunities and Constraints
Because the study area is undeveloped, there is no existing stormwater infrastructure on-site. As development occurs in the future, stormwater would likely be discharged into the floodplain of the adjacent creeks and tributaries. The City of Sherwood requires that all stormwater facilities meet the requirements of Clean Water Services Design and Construction Standards for conveyance, water quality treatment, and water quantity treatment. The City has indicated that they prefer to use regional stormwater facilities where possible within this study area. See Appendix 3E for a map of storm drainage basins, creeks, and existing stormwater facilities.

Transportation

Elwert Road from Highway 99W to Scholls-Sherwood Road is currently functioning as a two lane rural arterial. Elwert Road historically was a rural road used primarily for providing transportation access for farm equipment and rural residents. Over time, Elwert Road has become a secondary bypass route for commuter traffic (through trips) traveling between Highway 99W and Scholls-Sherwood Road and Roy Rogers Road, avoiding the intersection signals along the Highway 99W route.

Elwert Road's physical characteristics consist of two 11-foot paved lanes, a straight horizontal alignment, and a vertical alignment consisting of rolling hills that include acute vertical sags and crests which result in poor vertical sight distances and intersection sight distances. Access points onto Elwert Road include several private driveways and seven street intersections (both local and collector). The intersecting streets and their classifications are listed below.

- Kruger Road – Local
- Orchard Hill Road – Local
- Edy Road – Collector
- Schroeder Road – Local
- Haide Road – Local
- Handley Road – Collector
- Conzelmann Road – Local
- Lebeau Road - Local

The City of Sherwood's Transportation System Plan (COS TSP) and Washington County's Transportation System Plan (WACO TSP) coordinated the analysis and results for Elwert Road from the intersection of Highway 99W to the Scholls-Sherwood Road intersection.

Both WACO's and COS's TSP's identify the future build-out condition of Elwert Road as a 3-lane arterial which will include sidewalks and bike lanes on both sides of the road. Appropriately sized arterial roads will allow through trips to remain on the arterial system and discourage use of local streets for cut-through freight traffic routes.

Due to the current adverse vertical alignment condition of Elwert Road, it is anticipated that large cut and fill sections and associated acquisition of additional right-of-way may be needed to bring Elwert Road's alignment (both vertical and horizontal) into conformance with adopted roadway design standards.

The Kruger/Elwert/Sunset Boulevard/Highway 99W intersection is identified in the current Major Streets Transportation Improvement Plan (MSTIP) for reconstruction as a roundabout. This improvement is intended to alleviate the congestion created by inadequate stacking distance and restricted traffic by-pass flow off Highway 99W towards Scholls-Sherwood Road. The intersection improvements are currently scheduled for construction in 2017-2019.

Existing Roundabout Design from the MSTIP

Roadway Access onto Elwert Road. Development of the Sherwood West area would require the creation of a secondary collector road paralleling Elwert Road to provide access for businesses and residential developments. This secondary road alignment could potentially run from Chapman Road north to Edy Road. The crossing of Chicken Creek would be a major obstacle for any road extension to Scholls-Sherwood Road. Ideally, any parallel collector road would reconnect to Elwert Road prior to the Elwert Road/Edy Road intersection. From that point on, the Elwert Road vertical alignment would be reconstructed to correct the vertical curve and sight distance issues. The intersections north of Edy Road include Schroeder Road, Conzelmann Road and Scholls-Sherwood Road. These intersections would likely need to be reconfigured to meet appropriate design standards.

Highway 99W is a state designated freight corridor and limited access highway. It is identified as a principal arterial in both the WACO TSP and COS TSP. Access onto Highway 99W would be coordinated with the Oregon Department of Transportation. The intersections of SW Chapman, SW Brookman and SW Elwert roads will all need to be studied and possibly reconfigured or signalized depending on the amount of traffic generated by future land uses within the area.

Scholls-Sherwood Road is designated as an arterial within the WACO TSP. According to Washington County, 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. Rather, arterials are intended to provide freight movement in support of principal arterials. Arterials have strong access control for cross streets and driveways. There are two intersections along Scholls-Sherwood Road within the study area. As mentioned earlier, the intersection with Elwert Road will require additional study, reconfiguration, and eventual signalization as Sherwood West is developed. The intersection of Roy Rogers Road was recently reconfigured and signalized as a Washington County transportation improvement. Per the current COS TSP standards for arterial roads, new access should be spaced between 600 to 1,000 feet apart.

"I would like to be able to walk to a commercial area - please be sure you plan for a safe pedestrian crossing of Elwert Rd so that my neighbors and I can safely access this area."

-Survey Respondent

Roy Rogers Road is designated as an arterial within the WACO TSP. The same standards that apply to Scholls-Sherwood Road would apply to Roy Rogers Road as well.

Both Edy and Chapman roads are classified as collectors within WACO TSP. Edy Road is also designated a collector street within the COS TSP. Collector streets provide both access and circulation between residential, commercial, industrial and agricultural community areas and the arterial system. 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. Generally, collector status roads are intended to connect neighborhoods to nearby centers, corridors, station areas, main streets and nearby destinations in the urban area. 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 moderate, and direct driveway connections are discouraged.

The remaining streets within the study area are classified as local streets within the WACO TSP. Local streets primarily provide direct access to adjacent land. While local streets are not intended to serve through-traffic, the aggregate effect of local street design can impact the effectiveness of the arterial and collector system when local trips are forced onto the arterial street network due to a lack of adequate local street connectivity. Rural local roads have traditionally provided access to a variety of rural land uses including agriculture, forestry, quarry activities, low-density rural residential uses as well as rural commercial and industrial uses. The local streets within the study area are paved with narrow lane widths and roadside ditches to provide drainage. These streets do not include traffic calming measures, sidewalks, or lighting.

Given the terrain, the presence of existing significant natural areas, and the current parcelization of the area, there are likely to be significant costs and challenges with constructing and connecting roadways within the study area. The Street Functional Classification Maps from the WACO TSP and COS TSP are shown in Appendix 3F and 3G, respectively.

Sherwood West: Potential Impacts on the Regional Transportation System

The Sherwood West Concept Plan identifies land use development patterns and associated transportation facilities that are expected within the bounds of the plan area. More work is required to better understand how urban development in Sherwood West will influence regional travel patterns and how growth in this area might change current regional transportation plans. The following provides some preliminary thoughts about the issues and challenges that lie ahead.

Regional Travel Patterns

The primary land use type within the Sherwood West plan area is residential, so commuting traffic will be significant as workers travel to and from their respective job locations. A snapshot of commuter travel patterns was taken from US Census data as of 2013. Today, Sherwood residents primarily travel in the northeast direction to Tigard, Tualatin and Portland, and, to a lesser extent, to the north, to Beaverton, Aloha and Hillsboro for work trips. Far less commuters travel to the south and southwest.

Significant Congestion on Regional Routes

The regional corridors that serve Sherwood's primary commute patterns include SW Roy Rogers Road, Highway 99W and SW Tualatin-Sherwood Road. Each of these facilities operate with heavy congestion during many hours of the day. Continued land development in the south end of the Portland Metro area and, to a lesser extent, Yamhill County, will extend the congested periods on these regional routes to occur for more hours of the day. So, traffic congestion will likely start earlier and last longer.

Some travelers opt to use more rural roads to get to their destinations. For example, SW River Road, SW 175th Avenue and SW Clark Road are popular rural routes into the Aloha and Hillsboro areas from Sherwood. However, these facilities are not intended to be used by high vehicle traffic volumes, and any design constraints often result in safety concerns when heavily used (for example sharp corners on SW 175th Avenue). Washington County is challenged to keep up with growth in urban traffic using rural facilities. For example, the County recently installed traffic signals at several intersections on SW Roy Rogers Road to address safety concerns on that corridor. Transit services are available only on Highway 99W at this time. However, buses are subject to the same congestion and delays that are experienced by other regional travelers, which makes it a less attractive travel option. No additional transit services are planned on other regional routes in this area.

Future Solutions

As the region grows, long-range transportation plans have considered a variety of solutions to address the severe congestion on regional highways and arterials in the south Metro area. Oregon land use law restricts the options available to include only new or expanded travel facilities within the Urban Growth Boundary. Increasing roadway capacity for autos and trucks can be prohibitively expensive. Transportation service providers are turning to better system management tools, such as the travel time displays on Highway 99W to inform travelers of real time traffic conditions.

High capacity transit services were considered on the Highway 99W corridor as part of the SW Corridor Planning work led by Metro and ODOT. At this time, the most promising option is to upgrade transit service frequency and quality to be more competitive with general auto travel.

Parks and Trails

Adopted in October 2006, the Parks and Recreation Master Plan conducted a comprehensive review of existing recreation facilities and land resources, and developed goals, objectives, and actions to implement long term strategies for future park development, preservation, design, and funding mechanisms. Key recommendations of the plan include completion of the community trail system and expansion of recreation opportunities such as construction of a skate park.

The Master Plan analyzed lands and facilities in the Sherwood city limits and includes mention of the Tualatin River National Wildlife Refuge (about 1 mile north of the city). At its nearest point, the Wildlife Refuge is less than a quarter-mile from the northeast point of the Sherwood West study area. Within the city limits, Sherwood manages over 300 acres of open space including most of the 100-year floodplain along Cedar Creek and portions along Rock Creek.

In total, 6.5 miles of paved multi-use trails are present in the City's existing open space system. Existing hard surface trails terminate at Highway 99 just south of Sunset Boulevard and approximately 600 feet to the north at Highway 99 in the greenway north of the Sherwood YMCA. These are the closest multi-use trail connections to the Sherwood West study area. The planned Ice Age Tonquin Trail alignment will parallel Roy Rodgers Road at the northeast edge of the study area. The future trail will traverse through Sherwood along Cedar Creek and connect to the Tualatin River National Wildlife Refuge. The completed Tonquin Trail system will link the cities of Sherwood, Tualatin, and Wilsonville.

Stella Olson Memorial Park, Sherwood Oregon

There are no formal multi-use trails or parks in Sherwood West. Chicken Creek forms a natural greenway flowing southwest to northeast through the study area, eventually draining to the Tualatin River via Cedar Creek. The Cedar Creek greenway through the city connects at Chicken Creek. West Fork Chicken Creek and Goose Creek form smaller natural greenways in the central and southeast portions of the study area, respectively. Upper Chicken Creek, a 38-acre Metro-owned natural area, is located just outside the study area and abuts its western edge south of Kruger Road.

While the Parks Master Plan does not detail needs for the Sherwood West area, Chapter 5 of the Sherwood Comprehensive Plan establishes minimum standards for parks and open space. Those minimum standards are summarized in the following Table 3.

Table 3. Guidelines for Providing Parks, Recreation and Trail Facilities in Sherwood

TYPE	SIZE	LEVEL OF SERVICE
Tot Lots/ Mini-Parks	2,400 sq. ft. to 1 acre in size	Minimum of 1 acre to serve needs of 1,000 people
Neighborhood Parks	2-5 acres in size	Minimum of 1 acre to serve needs of 500 people or 1 park to a neighborhood of 2,000 to 4,000 people
Community Park	10-25 acres in size	Minimum of 1 acre to serve needs of 1,000 people or 1 park to a community of 20-25,000 people
General Open Space – Greenway	variable depending on location	Acres per population density is variable but intended to serve entire community
Natural Trails and Scenic Pathways	average of 1-2 miles long use intensity ~50 people/day	These typically border transportation and utility corridors, floodplains and other areas of natural and scenic value
Conservation Management Area	not specified	These generally consist of areas within the 100-year flood plain that are described as wetlands, marsh, bogs, and ponds, and includes all creek and natural drainage ways

The Comprehensive Plan emphasizes that park facilities must be accessible and central to the population it serves. For example, the service area of a neighborhood park is considered to be ½-mile in radius.

Cedar Creek Trail

The Cedar Creek Trail is a planned off-street multi-modal hard surface trail approximately 12 feet wide that begins on the eastern edge of Sherwood at the Murdock/Oregon Street roundabout and runs parallel to the Cedar Creek Trail generally through the center of town and the Cedar Creek corridor north to SW Roy Rogers Road. The City received a federal Regional Flexible Fund grant for design and construction of portions of trail. The project segment from Oregon Street to the SW Meinecke-99W intersection is in the design phase and will be constructed in 2017. Funds are available to include an additional pedestrian/bicycle marked at-grade crossing at the signal at SW Meinecke-Highway 99W, to serve as a short-term solution to better connect pedestrians and bicyclists on both sides of 99W.

The long-term plans for the Cedar Creek Trail include a direct connection with an over or undercrossing of 99W within the Cedar Creek corridor, seamlessly connecting both sides of the Highway with a multi-modal shared use pathway. The City is planning the final alignment within the Cedar Creek corridor north of Highway 99W to Roy Rogers, but construction funds have not been allocated for this segment at this time. The Cedar Creek Trail is a section of the Metro Regional Ice Age Tonquin Trail, a 15-mile planned trail that will one day pass through Wilsonville, Tualatin, Sherwood and parts of Washington and Clackamas County

Ultimately, the intention is to connect the Cedar Creek Trail to the Tualatin River National Wildlife Refuge western parking area, just outside of city limits to the north. The Cedar Creek Trail will be able to connect with the planned trail network within the Sherwood West planning area. Specifically, Cedar Creek flows into Chicken Creek and there is an opportunity to connect the trail system near their confluence with a multi-modal trail linking the City's trail network to Sherwood West. By adding this integral connection point, the entire Sherwood West community may safely walk or bike to all points within the City using the trail network within Sherwood West by linking to the Cedar Creek Trail.

Environment and Natural Resources

FLOODPLAINS

There is a defined 100-year floodplain for a portion of Chicken Creek and West Fork Chicken Creek within Sherwood West (Figure 6). The floodplain for Cedar Creek at its intersection with Chicken Creek is also defined. These floodplain areas currently appear to be natural greenways within the study area. The upper reaches of Chicken Creek and Goose Creek do not have available flood study data.

WETLANDS

National Wetland Inventory (NWI)-mapped wetlands in the study area are most prominent along the riparian corridor of Chicken Creek. Three smaller wetland areas are also shown outside this corridor—two near Chicken Creek and one near the headwaters of Goose Creek. In total, the NWI-mapped wetlands comprise just over 31 acres within the study area. The local wetland inventory from Metro is identical to the NWI.

Additional areas of wetlands are also likely present within the study area. These wetlands would most likely occur along smaller tributaries of Chicken Creek, Cedar Creek and Goose Creek as well as in areas of mapped hydric soils. The Natural Resources Conservation Service (NRCS) maps three hydric soil series within the study area: Wapato silty clay loam, Huberly silt loam, and Delena silt loam. Wapato soils occur within the floodplains of the major streams within the study area; Huberly soils occur on stream terraces and in the agricultural fields in the northern portion of the study area; and Delena soils occur in swales in the upper portions of the watersheds. Additional wetlands are likely present within areas of mapped hydric soils. An inventory would be necessary to determine the likely extent of these wetlands. Wetlands, streams, and natural waterbodies would also have a buffer regulated by Clean Water Services (CWS). These buffers generally extend up to 50 feet from the boundary of the sensitive area, but may extend farther in areas where slopes greater than 25% occur adjacent to the sensitive area.

SLOPE HAZARD

Steep slopes (25% and greater) in Sherwood West are defined along drainage corridors for Chicken Creek, West Fork Chicken Creek, Goose Creek, and their tributaries (Figure 7). The steeper slopes are linear along the banks of these drainage ways. In addition, a higher point in the southwest portion of the study area has slopes that exceed 25%. Generally, the study area has an undulating form but not drastic changes in terrain relief. Slope analysis in GIS calculated the results shown below in Table 4 (acreages clipped to the Sherwood West boundary).

Table 4. Summary of Slope Hazard Area within the Study Area

SLOPE (%)	AREA (acres)	PORTION OF STUDY AREA (%)
0-10	862	67
10-15	220	17
15-20	92	7
20-25	54	4
>25	63	5
TOTAL	1,291	100

ENDANGERED AND THREATENED SPECIES

Endangered and threatened species may occur within the study area if suitable habitat is present. Data from the Oregon Biodiversity Information Center (ORBIC) indicates that one federally listed fish and one state-listed plant have been documented within two miles of the study area. Steelhead (Oncorhynchus mykiss), which is federally listed as threatened, is known to occur in Chicken Creek and Cedar Creek. White rock larkspur (Delphinium leucophaeum), which is state-listed as endangered, is known to occur to the south of the study area and could occur within the study area if suitable habitat exists.

The U.S. Fish and Wildlife Service (USFWS) lists nine additional federally listed endangered, threatened, and candidate species that are known or suspected to occur in Washington County (Table 5). None of these species are known to occur within the study area, but they could occur if suitable habitat is present. An inventory of the study area would be necessary to document the occurrence of these species or the presence/absence of suitable habitat within the study area.

Table 5. Endangered and Threatened Species

Common Name	Scientific Name	Status	Comments
Yellow-billed cuckoo	Coccyzus americanus	Threatened	
Northern spotted owl	Strix occidentalis caurinus	Threatened	Habitat not present
Marbled murrelet	Brachyrhamphus marmoratus	Threatened	Habitat not present
Streaked horned lark	Eremophila alpestris strigata	Threatened	
Nelson's checkermallow	Sidalcea nelsoniana	Threatened	
Willamette daisy	Erigeron decumbens var. decumbens	Endangered	
Kincaid's lupine	Lupinus sulphureus ssp. kincaidii	Threatened	
Fender's blue butterfly	Icaricia icarioides fender	Endangered	
Red tree vole	Arborimus longicaudus	Candidate	

Figure 6. Floodplains and Wetlands (Title 13 Lands Inventory), Sherwood West

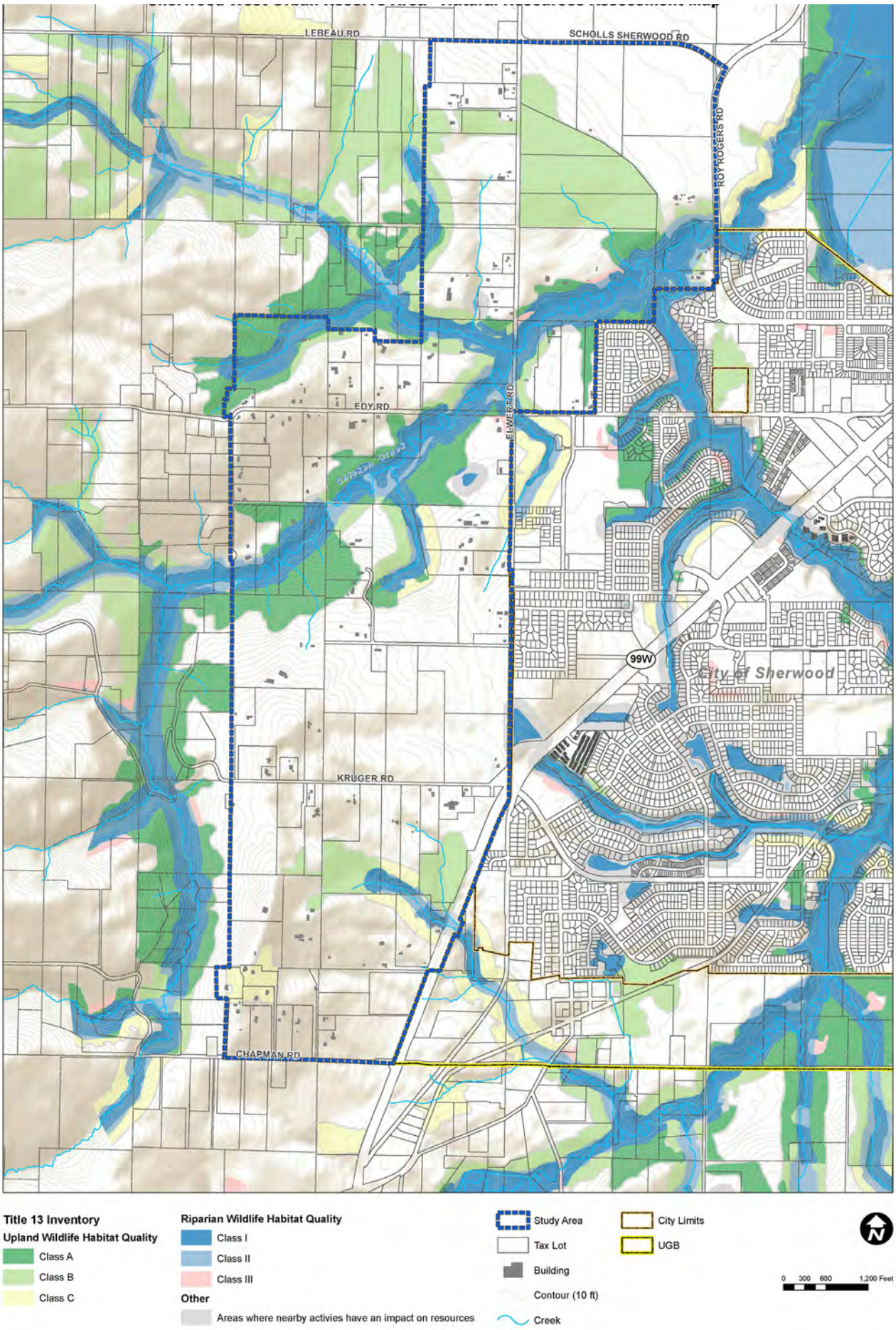
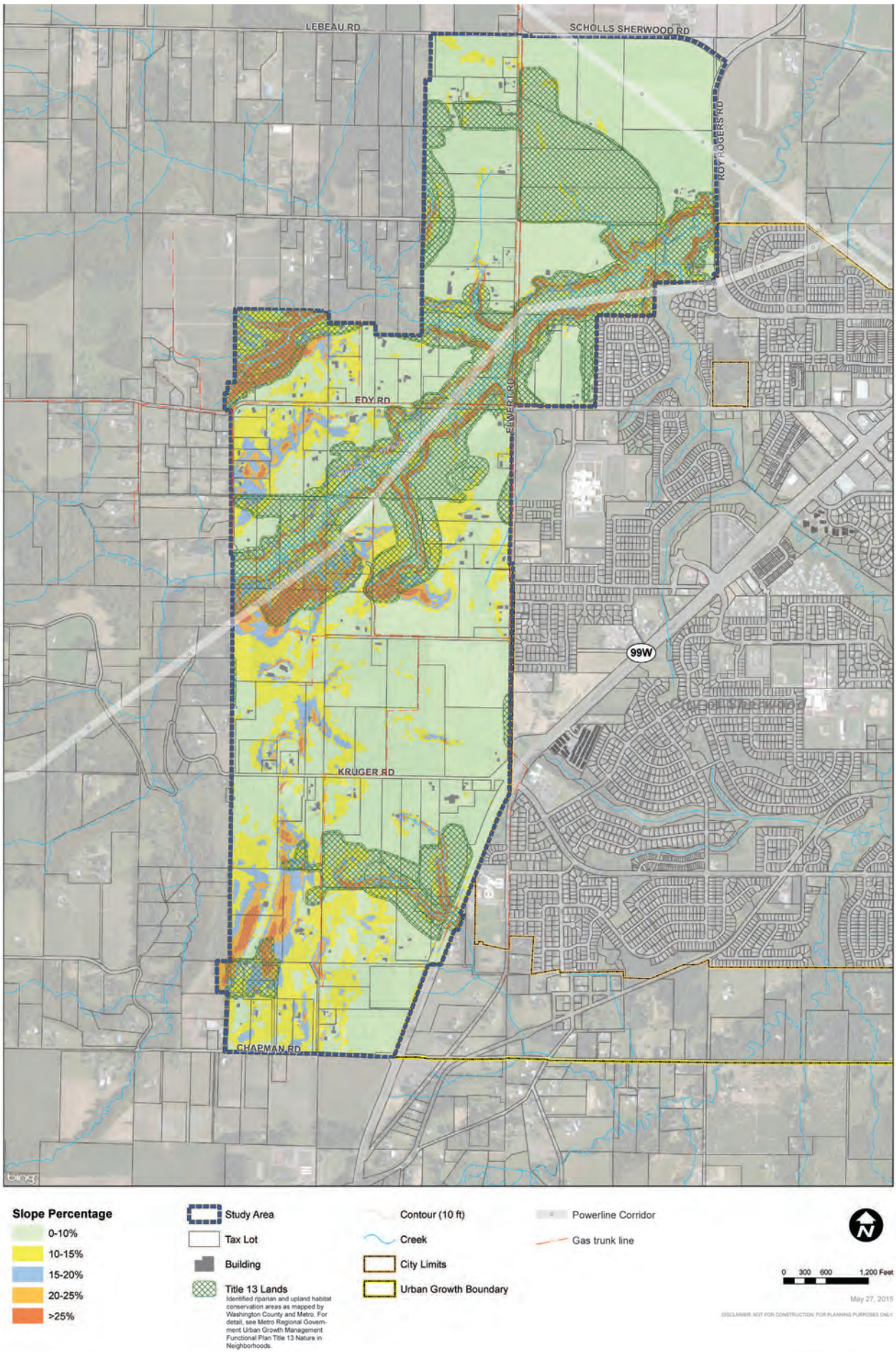


Figure 7. Slope Hazard, Sherwood West



Landform Analysis

Throughout the Sherwood West Planning Process, citizens and stakeholders have highlighted Sherwood's small-town character as the leading identifier to help describe the quality of life. In Section III, The Sherwood Growth Story, we raised the idea that this character could be related to the fact that Sherwood is comprised of a series of walkable neighborhoods. In the following chapter we explore this idea further as we take a closer look at the landscape upon which the community was built. The paradox we attempted to explain is this: How is it possible that the Sherwood community consistently describes itself as "small-town", despite its booming expansion from 3,000 to nearly 19,000 people in just over 20 years? How can Sherwood hold on to this identity, character and quality as it continues to grow?

DOMINANT LANDFORMS

To better understand the underlying topography we first studied a variety of maps at different scales. The first map we looked at came from the State of Oregon's ESRI data viewer. The map shows Sherwood in a slightly larger context to include the surrounding communities of Newberg, Wilsonville and Tualatin. There is a clear separation between the cities and dramatic landforms in between. The shaded relief character of the map clearly shows a wide variety of topographies: rivers, flat flood plains, creeks and hills. These landscape forms play a crucial role in Sherwood's location relative to its neighbors. We recognize four main land forms, as shown in Figure 8. FIgure 4 shows 10 foot contour lines, streams, vegetation, roads, railways, powerlines, structures etc. By accentuating the hillsides with shading, a pattern of steep hillsides, moderate hillsides and flat lands appears. From this particular map it is clear to see that Sherwood settled on a flat plain adjacent to Cedar Creek and is surrounded by hills to the east, west and south, and the flat floodplain of the Tualatin River to the north. Creeks carve canyons and valleys out of hillsides as

The Chehalem Mountains to the West, as seen from Synder Park

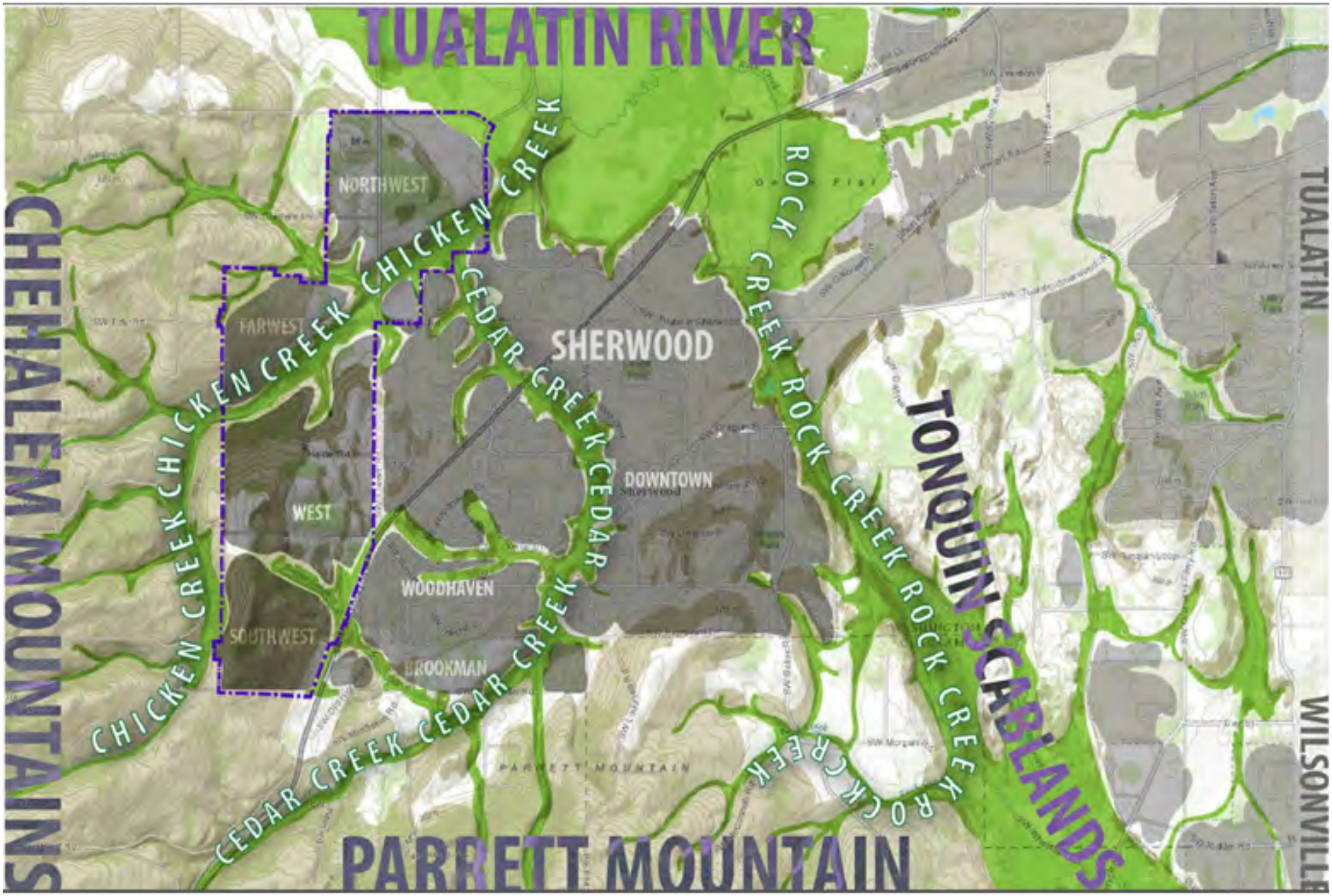
Tonquin Scablands to the east, as seen from Tualatin/ Sherwood Road

Tualatin River as seen from Roy Rogers Road

Parrett Mountain, as seen driving south on Highway 99W at Chapman Road

Images from Google

Figure 8. Sherwood's Dominant Landforms



precipitation finds its way to the lowest point. Sherwood settled in the middle of a landscape that is highly varied and quite stunning in its characteristics.

What unites these four landforms is water. Precipitation falling on the landscape finds its way to the lowest point of the Tualatin Valley, carving out canyons and stream beds along the way. This process provides the final key landscape ingredient: creeks. Sherwood is characterized by its relationship with three significant creeks:

1. Cedar Creek: providing the origin of Sherwood. It runs through the entire town, providing distinct places along the way such as Stella Olson Park and the "gateways" into Sherwood where it crosses 99W.

2. Rock Creek: the natural organic boundary to the east side of Sherwood. It runs through the Tonquin Scablands, a valley that resulted from erosion and scouring during seasons of thawing and freezing in the last ice-age. Crossing Rock Creek creates several distinct gateways, like at the Oregon Street/Murdock Road Roundabout.

3. Chicken Creek: on the west side of Sherwood and an important part of the Sherwood West Study area. Chicken Creek provides extremely valuable fish habitat and is very visible from Elwert Road but also from Roy Rogers Road where it creates another natural "gateway".

Eventually all three creeks find their way to the Tualatin River. The river's floodplain is relatively flat, forming a wide open landscape with territorial views of Mount Hood and the Cascade Range.

A LANDSCAPE BASED URBAN FORM

Over time, Sherwood nestled itself into this landscape, by occupying pockets between creek branches and bounded by steeper hillsides. The resulting urban form is broken up into smaller, neighborhood-sized fragments, connected by stream corridors and adjacent trails. Nearly every resident is only a short walk away from nature, thus defining a connection with nature as the most dominant sense of place.

Sherwood West offers similar conditions for neighborhood-sized, landform based "place-making" that is in line with Sherwood's existing identity. The interface between future urban areas and existing natural environment will be a defining quality of Sherwood. How we plan for this interface today will have major implications on the character of our community tomorrow.

PLANNING AREA LANDFORM BASED SUB-DISTRICTS

In the Sherwood West Area, four distinct sub-areas are recognized within the dramatic landscape of the creeks, hills and valleys. For the purpose of identification only, they have been given the following working-titles:

- **The North District:** south of Scholls-Sherwood road, north of Chicken Creek
- **The West District:** in the middle of the planning area, directly west of Elwert Road and east of Chicken Creek
- **The Far West District:** west of Chicken Creek and adjacent to Edy Road
- **The Southwest District:** north of Chapman Road and south of Goose Creek (a tributary to Cedar Creek)

Each of these districts is defined by strong landforms, but the most significant feature is Chicken Creek. Chicken Creek forms the western edge of the southwest and west districts, before it turns east to cross and divide the entire Sherwood West planning area. The northwest and far-west districts are on the other side of Chicken Creek, compared to the rest of Sherwood. Crossing Chicken Creek for urban development is not only challenging from an infrastructure point of view, it also presents a psychological threshold of sorts. By crossing the natural topographical boundary, Sherwood would quite literally jump over a threshold and move into territory that has less clear (and near) boundaries. The decision to expand across Chicken Creek should be carefully considered as such development could open the door to future urban expansions beyond Sherwood West, which could challenge Sherwood's small-scale character.

IDENTITY

Sherwood is special. It is not like any other place in the Portland Metropolitan Area. Its landscape setting truly sets it apart from anywhere else: Newberg is on the other side of the Chehalem Mountains; Wilsonville is across Parrot Mountain; Tualatin is across the Tonquin Scablands, and Tigard and Beaverton are across the Tualatin River and its associated floodplain.

It is this sense of separation that creates the unique character and identity of Sherwood. This character was expressed and valued by the majority of the people that engaged with this project. Throughout the process it has become clear that this is the identity that should form the blue print for the future of Sherwood.

For over a century, Sherwood has been uniquely shaped by its relationship to the landscape and the creeks in particular. As Sherwood evolves and grows, it seems prudent to continue cultivating the quality of life that this relationship brings to the community. These geographic and quality of life assets are the foundation of Sherwood's special identity. These assets deserve to be retained and celebrated.

Sunset Boulevard, Sherwood Oregon

VI. Sherwood West Preliminary Concept Plan

The Sherwood West Preliminary Concept Plan is the result of significant input from the community, technical advisors, stakeholders and City staff. The Plan builds upon a collective process in which we:

- Identified existing conditions and key opportunities;
- Developed a vision, set goals and proposed evaluation criteria;
- Designed alternative concept plan scenarios;
- And considered the relative merits of each scenario and the key features that best represent the goals and objectives of Sherwood West.

Development of Alternatives

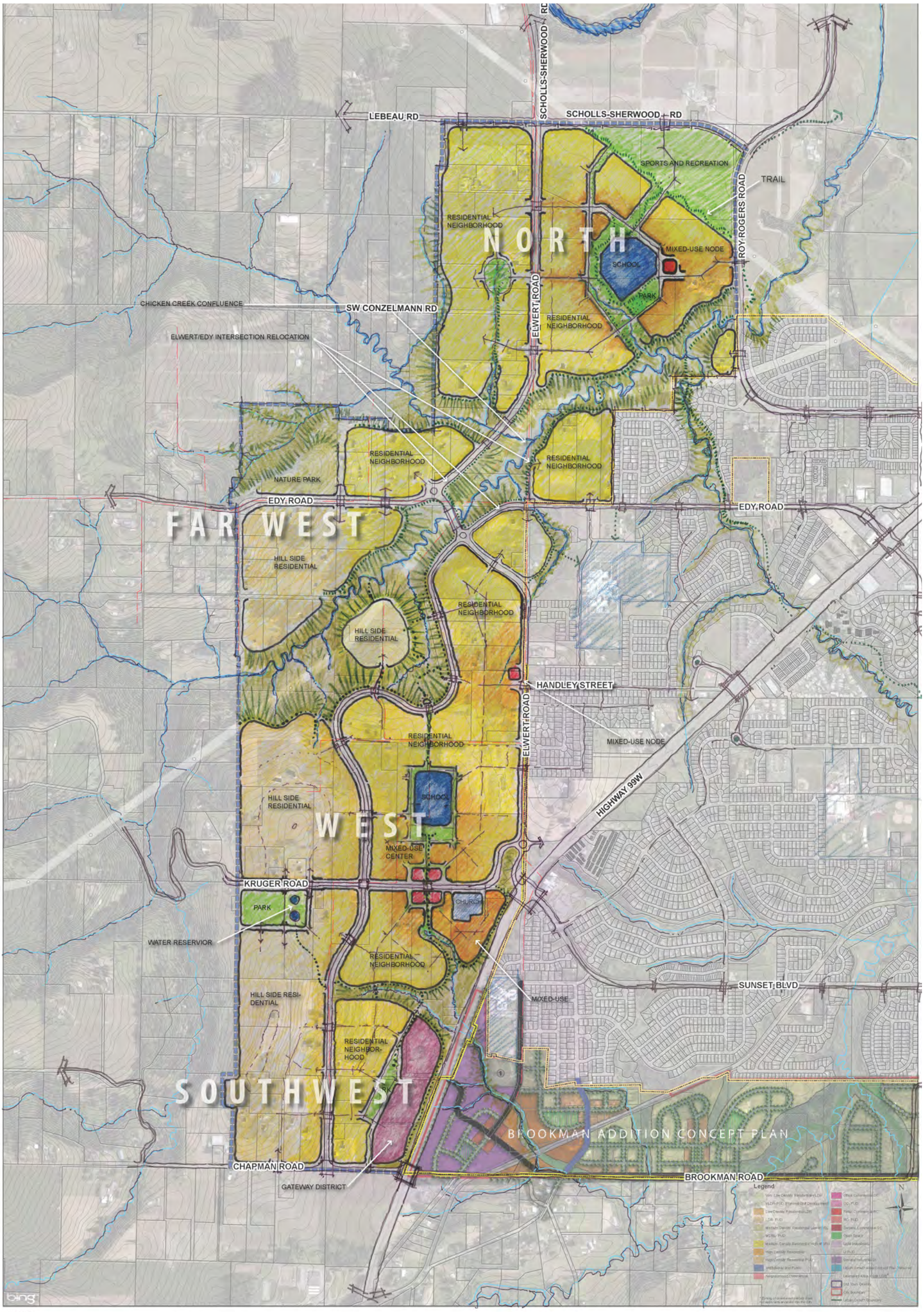
We crafted three draft alternatives to reflect a wide range of ideas in collaboration with the Community Advisory Committee, the Technical Advisory Committee, City staff and the community. The alternatives were intended to explore and compare a variety of ideas in order to solicit preferences for individual and collective plan elements to be combined and advanced into a single preferred alternative. Each alternative recognized the four distinct sub-areas: the North District, West District, Far West District and the Southwest District. See Appendix 5 for a map of each alternative and their supporting narrative.

Preferred Alternative

The resulting Preferred Alternative is crafted in response to guidance received from stakeholders, technical advisers, City staff and the community on the three alternatives. The Plan directly builds upon the landform analysis and the area's existing conditions. Recognizing that the Plan may be subject to revisions over time, it is illustrated in a way that emphasizes its fludity and conceptual nature. The Plan carries forward two transportation alternatives (Option 1 and 2) to reflect the impact of the intersection alignment of SW Edy and SW Elwert Roads, which is the largest potential transportation development in Sherwood West (Figure 9.1 and 9.2).

CAC members and Sherwood residents at the final community Open House in October, 2015.

Figure 9.1 Sherwood West Preliminary Concept Plan, Option 1



LEGEND

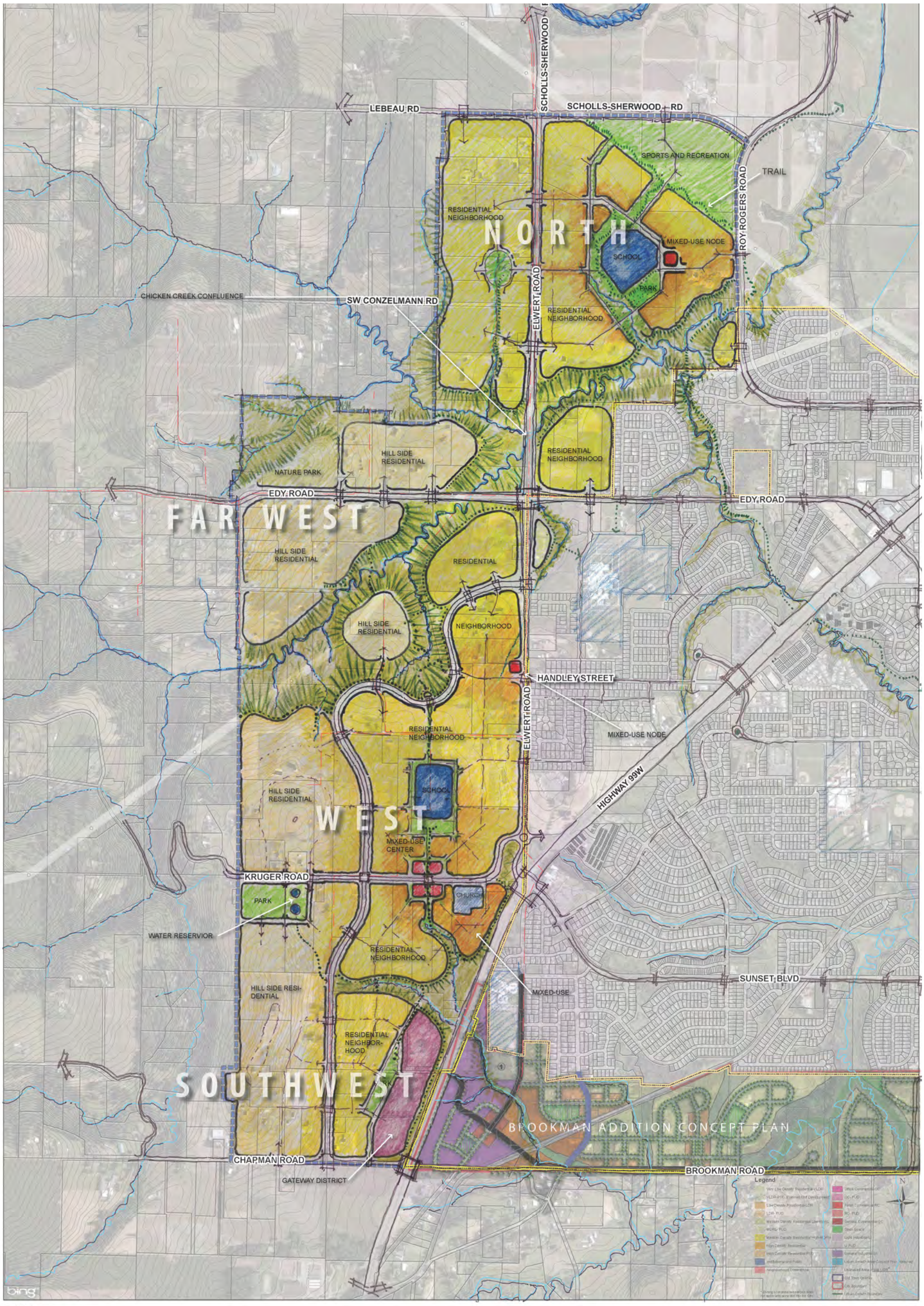
- RESIDENTIAL - HILLSIDE
- RESIDENTIAL - NEIGHBORHOOD
- RESIDENTIAL - NEIGHBORHOOD
- RESIDENTIAL - MIXED-USE
- MIXED USE COMMERCIAL
- GATEWAY DISTRICT
- SCHOOL
- CHURCH
- PARK/OPEN SPACE
- CREEK CORRIDOR OPEN SPACE
- TRAIL

SHERWOOD WEST PRELIMINARY CONCEPT PLAN, OPTION 1

Disclaimer: This is a preliminary concept plan only and subject to change and future refinement. This drawing is illustrative and for planning purposes only. This plan should not be relied upon as a representation express or implied, of the final size, location or dimensions of any particular land use or future City of Sherwood zoning designations.

Note the color legend differs for the Brookman Addition Concept Plan

Figure 9.2 Sherwood West Preliminary Concept Plan, Option 2



LEGEND

- RESIDENTIAL - HILLSIDE
- RESIDENTIAL - NEIGHBORHOOD
- RESIDENTIAL - NEIGHBORHOOD
- RESIDENTIAL - MIXED-USE
- MIXED USE COMMERCIAL
- GATEWAY DISTRICT
- SCHOOL
- CHURCH
- PARK/OPEN SPACE
- CREEK CORRIDOR OPEN SPACE
- TRAIL

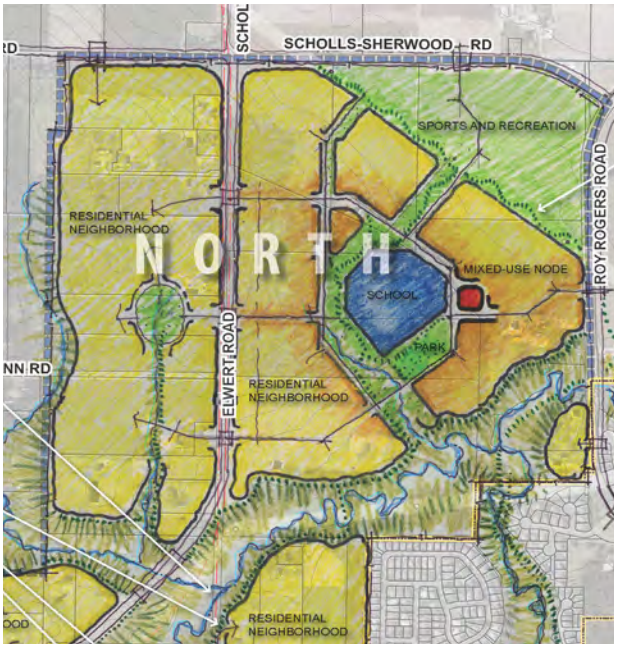
0' 600' 1200' 2400'

SHERWOOD WEST PRELIMINARY CONCEPT PLAN, OPTION 2

Disclaimer: This is a preliminary concept plan only and subject to change and future refinement. This drawing is illustrative and for planning purposes only. This plan should not be relied upon as a representation express or implied, of the final size, location or dimensions of any particular land use or future City of Sherwood zoning designations.

Note the color legend differs for the Brookman Addition Concept Plan

In Sherwood West, each of the four (4) distinct sub-areas is recognized as having unique qualities within the dramatic landscape of these creeks, hills and valleys. These districts are discussed below as they are shown in Option 1 of the Sherwood West Preliminary Concept Plan (Figure 9.1).



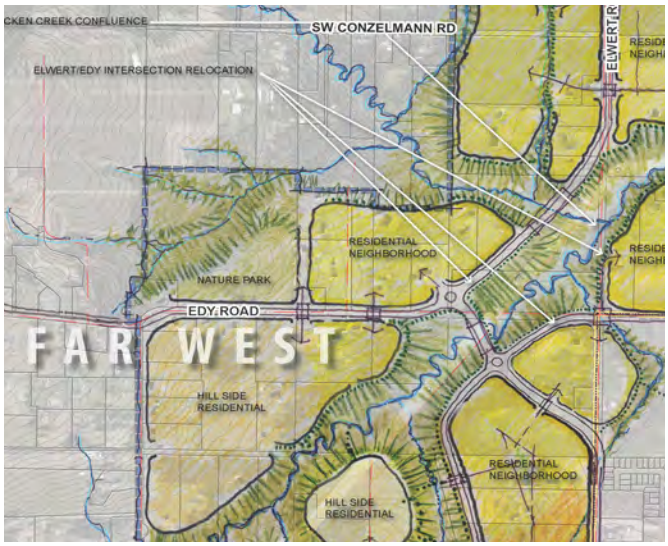
The North District is a mixed-housing neighborhood organized around a new school, neighborhood park and mixed-use node. Residential intensities transition from center to edge of the neighborhood. The corner of Roy Rogers and Scholls/Sherwood Road is envisioned as a sports and recreation area that serves the City of Sherwood but allows easy access to visiting athletes from elsewhere in the region. This center could include many services, such as indoor and outdoor sports facilities and arenas, a community pool and other recreational spaces that cater to both children and adults.

The location of the sports and recreation area on the edge of town offers both local (non-motorized) access from the adjacent neighborhood, as well as vehicular access from the adjacent arterial network. The neighborhood park connects the sports and recreation area with the school and a trail along a Chicken Creek branch. Residential housing is oriented towards the collective open space. West of Elwert Road, residences are organized around a smaller neighborhood park that marks the high point of a topographic ridge. The headwaters provide the terminus for a second Chicken Creek branch trail. These trails connect to parks, other natural features and the larger, city wide trails system.

" I love the community surrounding the school and park and really like the athletic fields - this is needed in Sherwood. I also like the trail connectivity between the schools, homes and athletic fields." -Survey Respondent

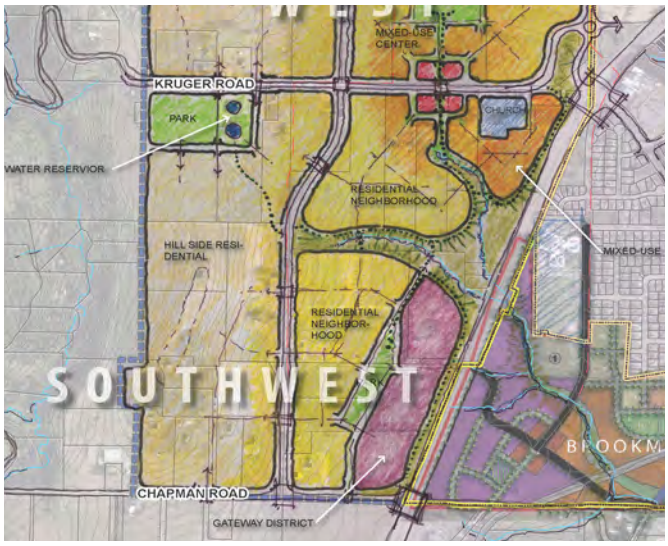
The West District is a mixed-housing district organized around a new school, neighborhood park and mixed-use center. A new neighborhood connector street paralleling Elwert serves the neighborhood from the west side. The road follows the break in topography to create an area for residential develipment that is anchored by the school site. Housing intensities transition out from this mixed-use center (high to low) with hillside residential on the higher and steeper slopes. Elwert Road is envisioned to be a multi-modal boulevard and extension of Sunset Boulevard, east of Highway 99W. The intersection of Kruger, Elwert and Highway 99W is reconfigured with a roundabout that conforms to the existing City of Sherwood and Washington County Transportation System Plans.

The Far West District includes a mixed residential neighborhood with the higher and steeper elevations envisioned to be hillside residential. The northeast corner of this district is set aside for a nature park to capitalize on the existing habitat values and sensitive topography. Stream corridor buffers are generous to reflect community priorities for natural feature protection, recreation and connectivity. While the width of these corridors may be reduced in refinement planning stages to reflect regulatory constraints, the recreational features such as trails would remain within the corridor.



Option 1 of the Plan shows the intersection of Edy and Elwert Road in a new proposed location to reduce the impact of infrastructure improvements (road widening) on sensitive creek confluences, as shown in the adjacent graphic. This shift offers the additional benefit of potentially discouraging regional freight traffic that seeks an alternative north-south route to Highway 99W. Initial cost estimates for improvements to the Edy/Elwert intersection show that the proposed realignment would be more cost-effective than improving the existing roads in their current location. However, because this realignment requires further study, Option 2 of the Plan shows the intersection in its original location for purposes of comparison.

The Southwest District is a mostly residential neighborhood with varying intensities and hillside residential on the higher and steeper elevations slopes. This district includes a "Gateway to Wine Country" adjacent to Highway 99W that could facilitate unique opportunities based on Sherwood's geographic location relative to surrounding wineries: tourism, lodging, a visitor center and other wine industry and agricultural-related commercial uses. An integral trail system is included to provide safe, convenient and comfortable non-motorized connections between all districts and existing Sherwood destinations, including the historic downtown.



Gateway to Wine Country

The Gateway District shown in the Sherwood West Preliminary Concept Plan is appropriately named: along Highway 99, Sherwood transitions the Portland metropolitan area into the Willamette Valley's wine country. Situated at this entry point, Sherwood has an opportunity to capitalize on visitors entering or leaving wine country on Highway 99, and draw more heavily on the regional tourist market. To tailor services to the growing wine and specialty agriculture tourism industry, the Gateway District could have lodging appropriate for tourists, tasting rooms, a restaurant, coffee shop and boutique oriented around a central plaza. In Walla Walla, Washington, the Walla Walla Incubators provide an interesting example of the kind of development that could be paired with restaurants, lodging, and small retail shops to comprise Sherwood's Gateway District.

Because this specific opportunity has not been studied, more market analysis and building design will be necessary before planning and implementation of the Gateway District. See Appendix 7: Retail/Commercial Implementation for more information.

SW Edy/SW Elwert Road Interception Pros and Cons

The intersection alignment of SW Edy and SW Elwert Roads is the largest potential transportation development in the Sherwood West Preliminary Concept Plan. An analysis of how this intersection will be handled was predicated on the development of realistic options and a comparison of the pros and cons of any developed alternative. Two preferred options were identified and analyzed with respect to constructability, construction costs, and environmental impacts.

Option 1

Option 1 consists of realigning SW Elwert Road and SW Edy Road to cross two Chicken Creek tributary streams at the narrowest points in order to reduce or eliminate wetland mitigation issues. The realignment also eliminates the excessive fills within the SW Elwert/SW Edy Road intersection and follows the existing terrain. Option 1 will require construction of structural bridging and acquisition of right-of-way to accommodate the realignment of SW Elwert Road.

The realignment of SW Elwert Road will include the construction of roundabouts at major intersections, such as with SW Edy Road. The combination of roundabouts and curved alignments would likely discourage freight traffic usage of the road and reduce speeds of commuter traffic while still allowing significant local residential and commuter traffic flow.

Option 1

This option has the benefit of flexibility relative to site development. The need to initiate this project would be predicated on the development of the North District. The North District has significant site development items (e.g. school, regional athletic facility) that would require and be able to cover the majority of the cost of constructing the improvements due to the availability of government funding options. The realignment has the benefit of taking advantage of minimizing environmental impacts and impeding the use of the route to freight traffic. Construction of this option will also allow the existing SW Elwert/SW Edy Road alignments and intersection to remain in use until construction of the realigned roadway is nearly complete. Analysis of the estimated construction costs indicate that this option, although expensive, has the least cost and impact to local and commuter traffic during construction.

Option 2

Option 2 consists of correcting the vertical alignment of the SW Edy/SW Elwert Road intersection to meet American Association of State Highway and Transportation Officials (ASSHTO) design standards. This means raising the road elevation (approximately 10-20 feet) to flatten the rolling topography for safer stopping sight distances at intersections. The impacts from the intersection along SW Elwert Road from this action extend for approximately 2,050 feet, and approximately 790 feet along SW Edy Road.

Option 2

By raising the road along this length, there would be impacts to the existing right-of-way and adjacent wetlands due to the need for additional fill. It is estimated that an additional 20 to 40 feet (30 foot average) of right-of-way would be required to account for fill slope. Additionally, the existing culvert crossing would most likely need to be updated to meet future Clean Water Services (CWS), Environmental Protection Agency (EPA), United States Army Corps of Engineers (USACE) and Oregon Department of Fish and Wildlife (ODFW) requirements.

Option 2 does lend itself to phased development in conjunction with the North District for the same reasoning as Option 1. However, reconstruction of SW Elwert Road would likely require complete closure of the roadway to through traffic until the roadway completion. This would have a definite negative impact to local and commuter traffic during the anticipated 1 to 2 year construction phase.

Analysis of the estimated construction costs indicate that this option is the most expensive due to the required mitigation of environmental impacts, and would have the greatest impact to local and commuter traffic during construction. Please see Appendix 8 for the full Transportation Options Alternative Analysis Report.

Evaluating the Preferred Alternative

The planning process began with crafting a vision for Sherwood West. With careful guidance from the community, a set of goals and evaluation criteria were created to help weigh the relative merits of each alternative concept plan and the key features that best represent the vision for Sherwood West. The vision is shown below:

> *"Sherwood West complements the City's form and small town character through an integrated and continued pattern of the community's most valued neighborhoods. Through a range of well-designed housing options and protected natural areas, Sherwood West is a great place for families. It helps satisfy the City's need for well-planned growth and other community needs. Designed as a complete community, development is orderly, attractive and protects views. The area is well administered and development contributes to the fiscal health of Sherwood."*

Table 6 shows how well the Preferred Alternative meets each of the six goals for Sherwood West, as well as the criteria used to evaluate the Plan's performance. A high mark indicates outstanding performance, going above and beyond the evaluation criteria to meet the goal. A medium mark indicates good performance, where the Plan meets the criteria but may need more work to meet the goal. Finally, a low mark indicates that the Plan's performance is satisfactory but it must incorporate additional considerations to meet the goal.

CAC Members discussing Sherwood West using a hands-on map activity

Table 6. Evaluation of Preferred Concept Plan

GOAL	Evaluation Criteria	High	Med	Low	Comments
Growth is well-planned	• Neighborhoods are phased adjacent to existing development • Well phased extension of services • Connectivity		■		• Neighborhoods are well connected and build upon adjacent development, yet will rely on a coordinated extension of infrastructure services.
Design includes complete community attributes	• Incorporates nature • Neighborhood retail • Provides amenities that cannot be located in existing Sherwood	■			• A "Gateway to Wine Country" could help facilitate tourism opportunities through lodging, a visitor center and wine-related commercial uses. • Small scale retail serves neighborhoods within walking distance • An integral trail system provides safe, convenient and comfortable non-motorized connections between all districts, the existing Sherwood trail system and historic downtown
Development respects and recognizes Sherwood pattern, heritage and small town feel	• Walkable • Integrates with existing Sherwood • View corridors, natural features retained	■			• Development is "nestled" into the rich landscape of creeks, valleys and hillsides. • Neighborhoods are walkable and accessible.
Concepts promote health	• Easy to walk, bike and access other recreational oppportunities	■			• Walking trails connect neighborhoods to parks, schools and the Sports and Recreation area. • Neighborhoods are organized around nature. • Roads are multimodal boulevards serving pedestrians, cyclists and motorists.
Development protects and provides access to nature	• View corridor, other assets protected •Walking trails along heritage resources	■			• Edy/Elwert realignment avoids the sensitive confluence of streams. • Development respects topography and wide riparian buffers.
Implementation is pragmatic	• Options minimze cost of infrastructure • Balance of benefits and burdens of development		■		• Realigning the Edy/Elwert intersection appears to be more cost-effective than bringing the current facilities up to standard.

VII. Sherwood West Phasing and Funding Strategy

This chapter provides a high-level Phasing and Funding strategy that accompanies the Sherwood West Preliminary Concept Plan. Broadly, the purpose of this strategy is to inform decisions regarding possible future urban development in Sherwood West by providing preliminary information regarding an approach to funding and phasing infrastructure, services, and the other elements of the complete community envisioned in the Plan.

In response to the preliminary nature of the Plan itself, the strategy is not prescriptive and specific, but instead: (1) identifies a place for a more detailed implementation strategy when a concept or master plan is developed; and (2) identifies financial and other barriers or challenges to implementation and preliminary approaches to overcome them. Development and infrastructure cannot advance without the willing participation of property owners.

This Funding and Phasing Strategy was completed in two major steps. Early in the process of developing the pre-concept plan, key City staff and other stakeholders were interviewed regarding infrastructure and service provisions in the area. Key findings from the interviews helped the consultant team and City staff to understand current financial constraints and opportunities associated with the provision of infrastructure; these constraints and opportunities created a foundation for the development of the land use alternatives (see Appendix 6: Service Provider Interviews for more information). Then, once the Preferred Alternative was identified, a framework was developed for phasing and funding that considers appropriate timing for development and funding sources. City staff provided cost estimates and recommended phasing criteria for consideration. In addition to comments from the consultant team and City staff, this Phasing and Funding Strategy also incorporates input from the Technical Advisory Committee (TAC) and Community Advisory Committee (CAC).

Phasing

Development in Sherwood West will require infrastructure investments to bring rural roads to urban standards, cross creeks and other natural habitat areas, and address topography that creates challenges for stormwater drainage and sewer and water provision. These complications are anticipated to carry relatively high costs, and require that the City consider phasing in infrastructure to match a development timeline, rather than building infrastructure all at once. Overall, phasing will be dependent on many variables, including the willingness of property owners, funding availability, the availability of buildable lands, and growth in the City of Sherwood as a whole. With input from interviews with local service providers and analysis completed by City Engineer, the consultant team created an initial phasing plan for the Plan, which will be considered in more detail if and when Sherwood West is brought into the regional UGB and is preparing to allow urban-level development.

Because the approach to addressing the Edy-Elwert alignment will affect phasing boundaries, two phasing boundary maps are shown (similar to the Sherwood West Preliminary Concept Plan maps). Figure 10.1 and 10.2 show the two phasing options to reflect the Edy-Elwert realignment alternatives, as well as an order of magnitude for estimated costs associated with each identified area. The area numbers correspond with the desired phasing timeline. Note that the boundaries for the phasing strategy are not intended to align with the district boundaries put forth in the Sherwood West Preliminary Concept Plan.

Figure 10.1 Sherwood West Preliminary Concept Plan Phasing, Option 1

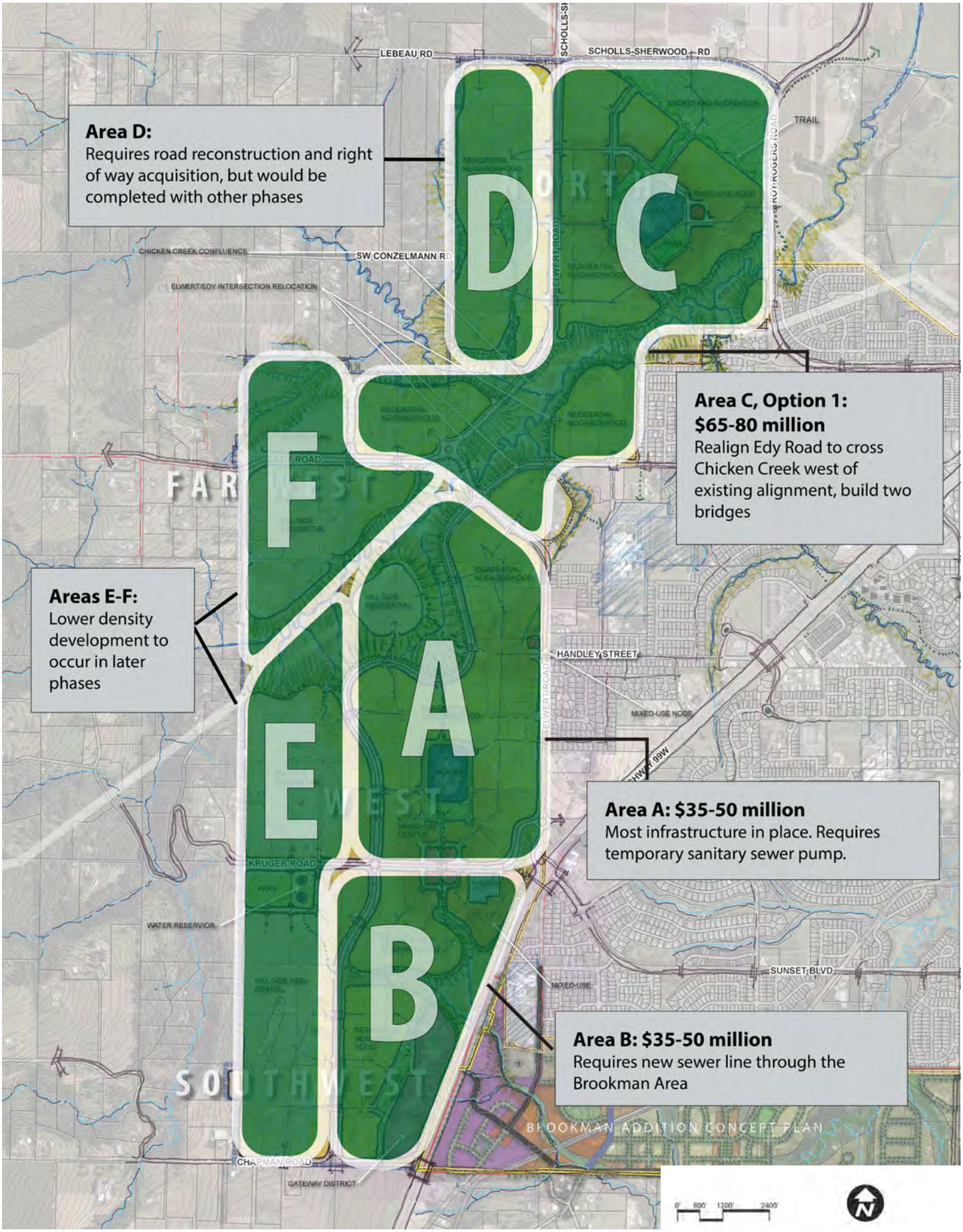
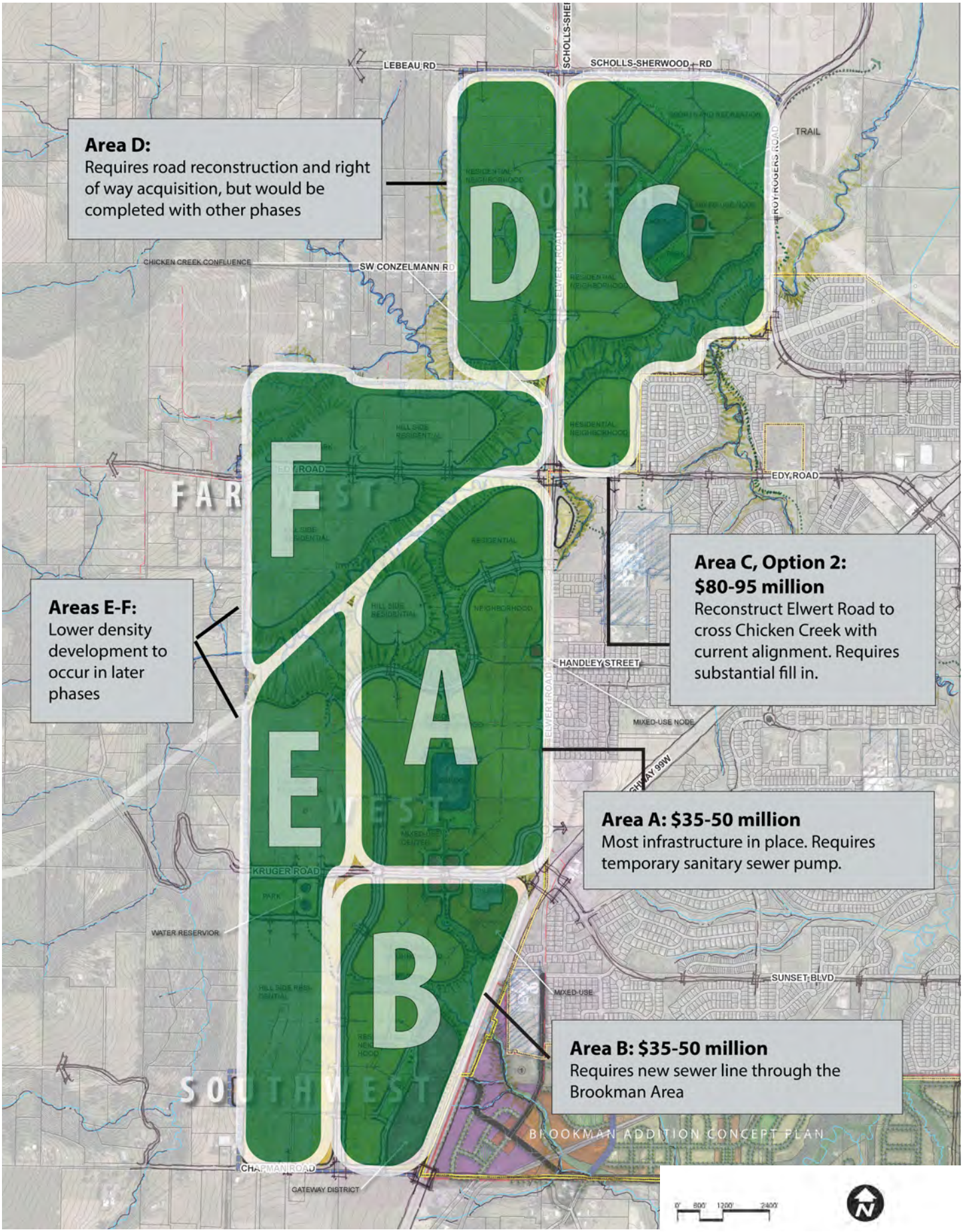


Figure 10.2 Sherwood West Preliminary Concept Plan Phasing, Option 2



Phasing and Costs for Roads, Sanitary Sewer, Water and Stormwater

The project team, with support from outside engineers, evaluated phasing and costs for city-controlled hard infrastructure (roads, sanitary sewer, water, stormwater, site preparation, traffic elements, and right-of-way acquisition). Generally, Area A has good development potential: it is relatively flat, adjacent to existing Sherwood development and already contains city-owned land that can be leveraged for right-of-way or for development. It includes planned transportation improvements at the roundabout intersection of Elwert Road and Kruger Road, and unlike other parts of Sherwood West, could be served with a temporary sanitary sewer pump station (though Clean Water Services has expressed concerns over the installation of a temporary pump station). Alternatively, the area could be served with a new sewer trunk line through the Brookman area (as described below), which would serve both Areas A and B. Overall, Area A presents the best near-term opportunity for development in Sherwood West.

After Area A, development could either move to the north or south, but both areas require major infrastructure improvements to be ready for development. The area to the south, Area B, will require approximately 8,000 linear feet of new sewer line through the Brookman area to accommodate new development, by itself estimated to cost approximately $1.7 million. Developing to the north, Area C, requires crossing Chicken Creek, which would be a large and expensive infrastructure project. Given preliminary cost estimates, Area B is less expensive to serve than Area C, especially if Brookman is annexed, as the sewer line would also serve the Brookman area. If Brookman is annexed and develops, it is likely that developers in the Brookman area would cover the proportionate cost of the sewer line that serves Area B.

Development of Areas D, E, and F should occur after Areas A, B, and C. The infrastructure required for development in Area D will occur in Phase C and therefore, the City Engineer identified infrastructure costs in Area D as insignificant. Areas E and F, to be developed last, face significant topographical issues that will require a water tower upgrade and pump system for upper elevations. The new system will be a large and expensive undertaking for the City. Costs will be identified during future refinement plans.

Several variables could affect the order in which the areas develop. For example, development in Area C may be driven largely by the need for a new school facility to accommodate city-wide growth. If the City needs a new school early in the phasing strategy, Area C could potentially develop before other areas. The possible future development of the Brookman area would also affect the costs for infrastructure as well as the timeline for development.

The preliminary costs showing in Figure 10.1 and 10.2 are estimates of the TOTAL costs for infrastructure development in the area, regardless of the funding source. Some of those costs are likely to be covered by developers, some by the City of Sherwood, and some by partner service districts, such as Clean Water Services or Washington County. The following categories of infrastructure and expenses are included in the cost estimates for both phasing options:

- ***Site Preparation.*** Includes mobilization, erosion control, clearing and grubbing, temporary protection and traffic control, and removal of structures and obstructions.

- ***Roadway Elements.*** Includes asphalt pavement, curb and gutter, sidewalk, retaining wall, general excavation, street tree, and planter strip landscape planting. Roadway elements would conform to the City standards for a 3-lane arterial classification.

- ***Storm, Sanitary and Water.*** Includes sanitary sewer construction, sanitary sewer pump station, storm water sewer construction, water system construction, and stormwater quality treatment facility. 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

- ***Right of Way Acquisition.*** Includes the land needed for construction of the final roadway improvements, including cut/fill slope and retaining wall areas, public utility easements outside the public right-of-way, and temporary construction easements.

- ***Traffic Elements.*** Includes Traffic signals, rectangular rapid flash beacons, striping, signage, and street lighting.

- ***Other Construction Items and Contingency.*** May include costs such as landscaping, monuments, pedestrian amenities, and specialized street lighting.

All costs are provided in 2015 dollars, with high-end estimates including large contingencies to help to account for possible inflation.

Other Service Needs

In addition to transportation, water and sewer, and stormwater, the City of Sherwood must also consider other service needs. For more detail, please see Appendix 5: Service Provider Interviews. In summary:

- ***Schools.*** Given the current capacity of schools near Sherwood West, the Sherwood School District identified a likely need for two new schools and improvements to Laurel Ridge Middle School to accommodate population growth in Sherwood West depending on the amount of land annexed. All costs associated with the construction of new schools and improvements to existing schools, including land acquisition costs, should be considered.

- ***Public Safety.*** As Sherwood West develops, the City will need to have increased capacity for additional fire and police service in the area. Appropriate fire and police response times and general access to the area will rely on transportation connectivity that will be addressed through more detailed planning work. The City is currently working to establish level of service standards that will help to clarify those costs in the coming months.

- ***Other City Services.*** The City should also consider increased costs for services that will grow as the population grows, for example, library and social services.

"Roads should be planned so that they discourage freight traffic, respect environmental conditions and keep our kids safe." -Survey Respondent

Funding Development in Sherwood West

New infrastructure in Sherwood West will require a mix of new and existing funding sources, and will likely draw from local (City and private developer) and regional (County and possibly Metro) sources. We will seek to maximize the revenue from existing sources (described in summary below) before turning to new sources.

Existing Funding Sources

The City of Sherwood already has access to mechanisms to fund infrastructure in Sherwood West. These tools will lay the foundation of the future funding plan.

Transportation Development Tax (TDT)
Washington County's TDT is a tax on all new development in Washington County based on the development's impact on the transportation system. Expected impact is based on average daily trips generated for various land uses. TDT revenue funds pre-determined transit and road projects that provide additional capacity. Several infrastructure projects in Sherwood West will be eligible to receive TDT funds. Once development begins in Sherwood West, the development will contribute to the TDT.

Systems Development Charge (SDC)
In addition to the County's TDT, the City of Sherwood also has a citywide SDC that charges new development. Funds help pay for water, sewer, storm, parks, and street costs. Sherwood West will be eligible to receive SDC funds.

Major Streets Transportation Improvement Program (MSTIP)
Washington County property taxes fund major transportation projects in the County through the MSTIP program. Since the late 1990's, the MSTIP tax has been part of the Washington County's fixed tax rate. Because the proposed realignment in Sherwood West will relieve pressure along Highway 99, considerable MSTIP funds may be available for the realignment.

Metropolitan Transportation Improvement Program (MTIP)
The MTIP is a "federally mandated four year schedule of expenditures of federal transportation funds as well as significant state and local funds in the Portland metropolitan region."[6] Sherwood West's transportation infrastructure may be eligible for various MTIP funds.

[6] http://www.oregonmetro.gov/sites/default/files/mtip-pubdraft_fy15-18_pb032014.pdf

Evaluation of New Funding Tools

Once infrastructure costs are finalized and revenues from the existing tools identified above are estimated, the City will be able to establish a funding "gap" for infrastructure in Sherwood West. The gap will be the amount of funding not available from existing sources that must come from new funding tools. Nearly every UGB expansion area in the Portland Metro Area has had a funding gap, and has required the use of new tools to fill that gap. Anticipating this outcome for Sherwood West, a wide range of potential new funding tools were evaluated against eight established criteria to identify a list of preferred tools that should be considered as a starting place for filling funding gaps, if and when the area develops (see Appendix 9: Initial Evaluation of Funding Tools). The evaluation began by identifying "fatal flaws," or constraints of tools that make them very unlikely candidates for Sherwood West. After setting aside all of the tools with fatal flaws, the consultant team identified a much shorter list of four preferred tools most applicable to and best for Sherwood West for further analysis in later stages of planning.

The final funding plan will likely rely on a combination of tools to fill any funding gaps, and could include both preferred tools and other tools with lower revenue capacity. The tools identified as preferred tools are considered potential cornerstone tools of the ultimate funding plan: they are not "silver bullets" that can individually fund the entirety of Sherwood West's infrastructure. Table 7 identifies four preferred tools (in green), based on ratings. Each preferred tool has capacity, is often used for similar infrastructure types, and is often part of funding plans for expansion areas.

- ***Property Tax:*** General Obligation (GO) Bonds. Local property taxes are committed to pay debt service on a city-issued GO Bond. GO bond levies typically last for 15 to 30 years for capital projects, and must be approved by a public vote. The effective property tax levied to support GO bond obligations can vary over time, based on the total assessed value of property within the jurisdiction that issued the bonds and the scheduled GO bond payment obligations.

- ***Supplemental System Development Charge (SDC).*** Supplemental SDCs are additional SDCs charged on a specific sub-area of a city and are supplemental to the city's existing SDC.

- ***Local Improvement District (LID).*** An LID is a special assessment district where property owners are assessed a fee to pay for capital improvements, such as streetscape enhancements, underground utilities, or shared open space. LIDs must be supported by a majority of affected property owners.

- ***Utility Fee.*** A utility fee is a fee assessed to all businesses and households in the jurisdiction for use of specified types of infrastructure or public utilities, based on the amount of use (either measured or estimated). Most jurisdictions charge water and sewer utility fees, but utility fees can be applied to other types of government activities as well (both capital projects and operations and maintenance). A utility fee could be applied citywide or in a smaller area within a city.

Table 7. Initial Evaluation of New Funding Tools for Sherwood West

		Efficiency					Fairness	Legality	Political Acceptability
		Capacity	Timing	Administrative Ease	Stablilty/ Predictability	Flexibility			
Citywide Tools	Property Tax: General Obligation (GO) Bonds	+	+	+	+	+	✓	✓	✓
Development Derived	Sole Source SDC	✓	-	+	-	✓	+	✓	+
	Supplemental SDC	+	-	✓	-	+	+	✓	✓
	Local Improvement District (LID)	-	✓	✓	✓	+	+	✓	+
	Urban Renewal	+	-	✓	✓	+	✓	✓	-
	Construction Excise Tax (CET)	✓	-	✓	-	?	+	-	+
Other	Utility Fee	+	✓	+	+	+	✓	✓	✓
	Transient Lodging Tax	-	-	✓	✓	✓	-	✓	+
	Special Service District	+	+	✓	-	+	-	✓	-

LEGEND	
Good	+
OK	✓
Unknown	?
Bad	-
Preferred Tool	+

Synder Park, Sherwood Oregon
Photo by Alyse Vordermark

VIII. Next Steps and Recommendations

Recommendations

The timing for the need of Sherwood West to accommodate the City's growing population is uncertain. As such, attention to the details outlined in this strategy and near-term actions to continue to prepare for implementation will be important.

Implemented carefully, Sherwood residents and public entities will benefit from more urban-level development in Sherwood. Community members would gain additional housing choice and the community would receive increased public revenues from population growth in Sherwood West that will help keep pace with growing costs of providing public services. Additionally, as land supply in the current City limits dwindles, housing prices will continue to increase, making it more difficult for Sherwood's next generation to find housing in the area, or resulting in increased density.

Staff will work with the community to consider the following short-term actions:

- **Build upon partnerships with Washington County so that road improvements made now anticipate future development and upgrades.** County transportation projects that consider future Sherwood West development will lead to the most efficient infrastructure development in the future.

- **Continue conversations with Metro.** City staff already interacts with Metro regularly on a range of issues. Moving forward, keeping information about land needs and issues in Sherwood West will smooth conversations about adding Sherwood West when the time comes.

- **Continue engaging with property owners and the Sherwood community about Sherwood West.** These stakeholders are critical to the success of Sherwood West development, especially given the voter-approved annexation laws applicable in Sherwood. By tracking other annexation projects, the City can better understand when Sherwood West may be needed, what issues are important to the community, and how they may support the incorporation of Sherwood West.

- **Carefully consider acquisition of right-of-way, school and park sites as those opportunities arise.** While more planning work is needed to identify all potential sites that could be acquired, some elements of the Preliminary Concept Plan may be certain enough that site acquisition could occur even before the area is included in the Urban Growth Boundary. Because Sherwood West land is less expensive now than it will be in the future, public agencies seeking land for facilities in the future could save money by acquiring the land now and holding it for future development. This is particularly true for school facilities.

Finally, as Sherwood undergoes future planning projects and processes, the following actions are recommended:

- **Comprehensive Plan:** Review and amend the City's Comprehensive Plan policies to address issues in the community and Sherwood West.

- **Zoning and Community Development Code:** Consider a special overlay district with unique performance and design guidelines to ensure high quality development and construction.

- **SW Edy/SW Elwert Roads:** Continue to model the feasibility and cost of realigning the intersection of SW Edy and SW Elwert Road.

- **Plan for Transportation Choice:** Continue to provide transportation options for Sherwood residents over time, consider all options for mobility and accessibility. Continue to focus on "complete street" design to accommodate travelers of all ages and abilities as well as public transit users. These include children, non-drivers, older adults and persons with disabilities. Consider options with TriMet as well as potential sub-regional, more localized options such as the South Metro Area Regional Transit (SMART) model in Wilsonville. Comparable to SMART but even more localized in scale, "neighborhood connector" services can provide local connections between schools, libraries, community centers, shopping areas and recreational facilities. Providing these kinds of transportation options help alleviate local traffic and offers greater mobility for people of all ages, particularly children and seniors.

- **Housing Needs Analysis:** Continue a community discussion regarding the types and amount of housing that should be accommodated within different areas of the City, including Sherwood West. Use that information to refine potential Plan districts for Sherwood West.

- **Economic Opportunities Analysis:** Identify home based business and also commercial/retail employment in Sherwood West associated with an updated Economic Opportunity Analysis. Consider concepts for a tourism-oriented Gateway district.

- **Public Facility Plans**: Refine water and sewer master plans as needed.

- **Sherwood School District**: Work closely with the school district to assess school capacity and demand in order to identify facility needs.

- **Parks and Trails:** Coordinate existing and planned facilities to preserve open space, expand the trail network and provide recreational opportunities that suit the needs of the community.

Next Steps

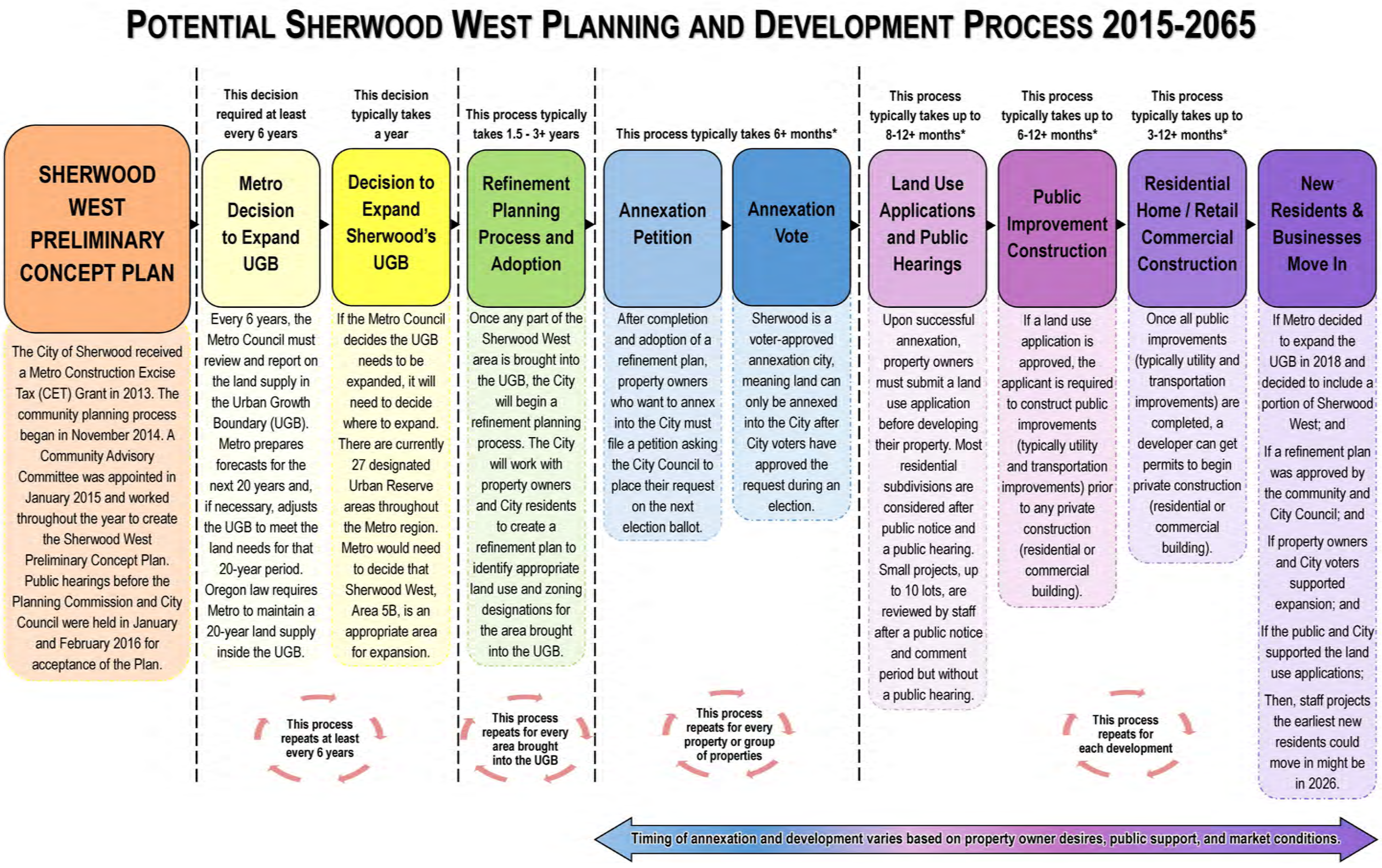
Once accepted by the Sherwood City Council, this Preliminary Concept Plan will serve as a resource for future discussion about regional Urban Growth Boundary (UGB) expansions. It will help decision makers decide what areas make the most sense for expansion, given:

- The availability of infrastructure
- The costs associated with the extensions of public services
- Property owner sentiment as it relates to growth and the expansion of the City into Sherwood West

Figure 11 illustrates the variety of key decision points and processes necessary before land can be developed at urban standards (city-level development) in the Sherwood West study area.
Should the Metro Council decide to expand the UGB into any part of the Sherwood West area, this Plan identifies the opportunities and issues that need to be addressed in a refinement planning process. During the refinement planning process, the City will again reach out to affected property owners and the larger community to develop a plan and associated zoning for the specific area. Upon adoption of a refinement plan, the property owners could petition the City Council to be annexed into Sherwood. As Sherwood is a voter-approved annexation community, Sherwood voters are ultimately in control of what and when land is brought into the city.

After successful annexation into the City, property owners are able to submit land use applications for development proposals consistent with the adopted refinement plan and associated zoning. Building permits and construction activities can be expected to follow land use approval.

Figure 11. Planning and Development Process



IX. Appendices

1. **Community Engagement Plan and Evaluation**
2. **Housing Needs Analysis Executive Summary**
3. **Existing Conditions Report**
   A. City of Sherwood Plan and Zoning Map, 2014
   B. Sherwood West Buildable Lands
   C. Sherwood West Water System
   D. City of Sherwood Sanitary and Sewer Systems
   E. Sherwood West Stormwater System
   F Washington County Street Classification Map
   G. City of Sherwood Street Functional Classification
4. **Boundaries and Buildable Lands Inventory Information**
5. **Draft Alternative Concept Plans**
6. **Service Provider Interviews**
7. **Retail/Commercial Implementation**
8. **Transportation Options Alternative Analysis Report**
9. **Sherwood West Initial Evaluation of Funding Tools**