EXHIBIT A

WESTSIDE PLANNING PROGRAM REFINEMENT PLAN

Adopted August 14, 2017
Ordinance 2017-04

FOREST GROVE OREGON

Metro

SCJ ALLIANCE
CONSULTING SERVICES

urbsworks

FCS GROUP
Solutions-Oriented Consulting

PBS
Engineering + Environmental

Preface

With a strong sense of place and community pride, the City of Forest Grove continues to experience steady and sustained development activity. The City is ideally situated at the western edge of the Portland region with recreational, employment and educational opportunities nearby making Forest Grove a wonderful place to live or start a business. As development continues and approved lots are built upon there will be pressure for new subdivision activity. This is especially true within the areas of the urban growth boundary north of David Hill Road. Little advance planning work has taken place within these areas. A framework to guide development is necessary to ensure future development meets community expectations and needed infrastructure is provided in a cost-efficient manner for both property owners and the City.

This Westside Refinement Plan provides a blueprint to guide public and private land use decisions and infrastructure investments in developable areas primarily north of David Hill Road. This includes decisions related to traffic circulation, water and sewer line sizes and locations, and zoning with an eye toward creating sustainable and complete neighborhoods. It is with this in mind that the Westside Refinement Plan provides a direction to further the City's Vision Statement and City Council goal to *"Promote Safe, Livable and Sustainable Neighborhoods and a Prosperous Dynamic Green City".* This goal will be achieved in the Westside Planning area by:

- Supporting a land efficient development pattern that minimizes infrastructure cost and environmental impact as described in Chapter 4: Land Use and Chapter 12: Funding Strategy;
- Identifying opportunities to cluster development to increase development densities within the project area while minimizing environmental impacts of development as described in the Chapter 7: Natural Hazards and Chapter 14: Implementation Actions;
- Promoting a transportation network that minimizes out of direction travel and vehicle miles traveled and enables multiple modes of travel and described in the Chapter 8: Transportation;
- Providing opportunities so that residents are able to shop and work close to their place of residence if desired as described in Chapter 4: Land Use;
- Establish a land use pattern supportive of transit and described in the Chapter 4: Land Use and Chapter 8: Transportation; and
- Encourage a transition from outer-neighborhood suburban residential to a more walkable environment as described in the Chapter 8: Transportation.

The Westside Planning Program Refinement Plan also addresses regional planning requirements contained in the Metro Regional Urban Growth Management Functional Plan and Regional Transportation System Functional Plan. This includes planning for new collector roadways to serve development and identifying land use designations to guide development as property is annexed into the City.

The Westside Planning project was funded through a Metro planning grant. The City wishes to thank Metro for partnering with the City and funding this important project.

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Westside Refinement Plan

Chapter 1 – Introduction

Purpose

The Westside Refinement Plan provides a conceptual framework to guide public and private development decisions in two largely undeveloped areas within the urban growth boundary. The Refinement Plan also provides policy direction for implementation actions necessary to carry-out the Plan. The Plan addresses land use, natural resources, recreation, cultural and open space resources, natural hazards, transportation, and public services. In addition, the Plan includes an approach for funding the "backbone" infrastructure necessary to serve future development.

The Plan will be implemented through amendments to the Forest Grove Comprehensive Plan Map, zoning map, Development Code, Transportation System Plan and updates to the City's infrastructure master plans. A collective effort between property owners, developers, the City, Washington County and Metro is paramount to realizing the vision outlined in the Plan.

Setting

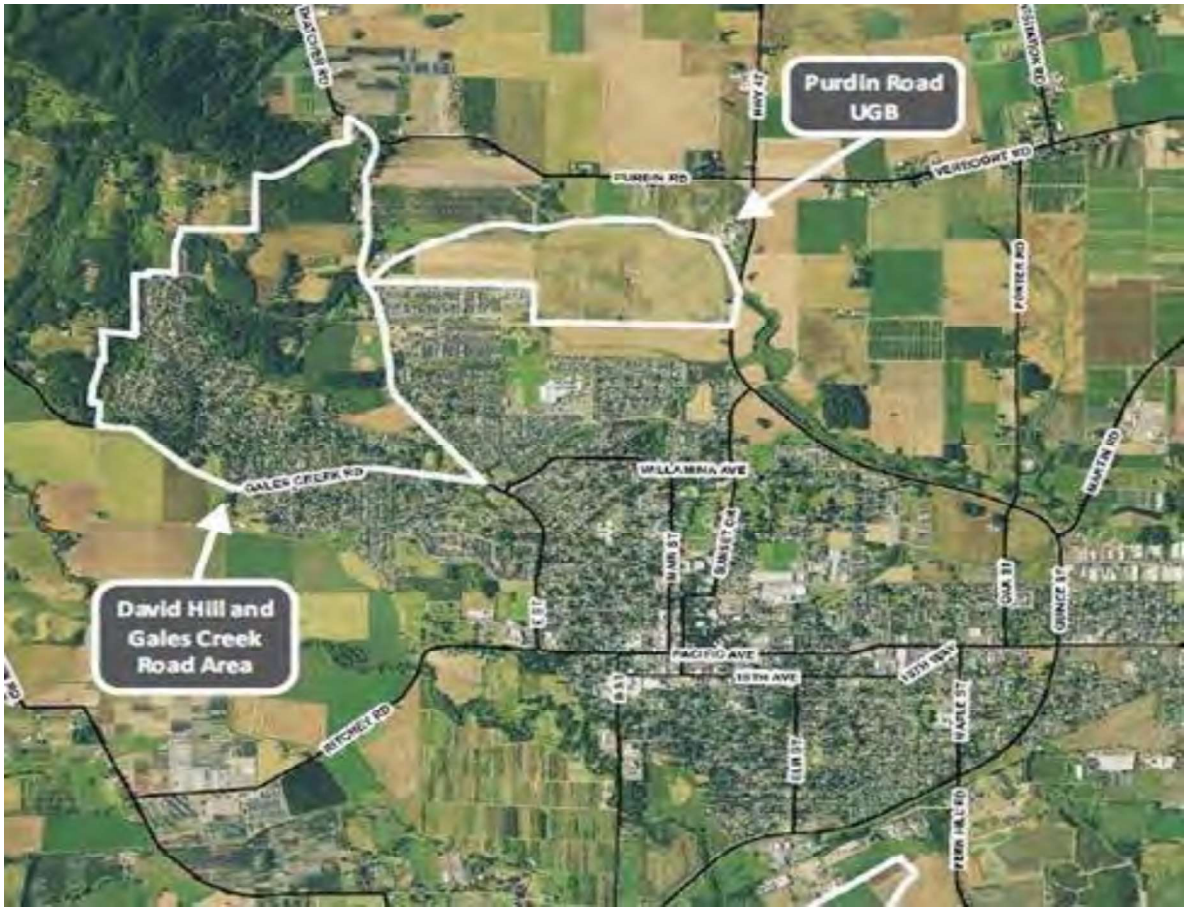
The "Westside" area includes two largely undeveloped areas north of David Hill Road. The Westside Plan area covers approximately 590 acres of which about 460 acres are considered developable. The map on the next page shows the extent of the Westside planning area.

The Westside area is relatively flat north of David Hill Road between Highway 47 and Thatcher Road. This area is used for farming. An east-west drainage feeding into Council Creek and a vegetated corridor serves as the northern boundary of the planning area. This area was added to the urban growth boundary in 2014.

In contrast to the area between Thatcher Road and Highway 47, the area west of Thatcher Road is hilly with forested tracts. Several tracts are also used for agricultural purposes. In addition, this area has several single family homes on large tracts of land. Although this area has a rural feel it's been in the urban growth boundary since 1980. Development in this area is constrained by steep slopes and lack of roads and infrastructure especially sanitary sewer.

The areas addressed by the Plan are shown on the map below.

Westside Planning Refinement Areas



The first area covered by this plan is generally located north of Gales Creek Road and west of Thatcher Road. This location, referred to as the "David Hill Planning Area" was included in the original urban growth boundary and the City's planning area going back to the 1980s. As the name suggests, the David Hill area is hilly with the highest elevations in the City. The developable area is approximately 350 gross acres and is one of the City's prime growth locations. The David Hill area is largely designated in the Forest Grove Comprehensive Plan for residential development. Metro development forecasts suggest that over 90% of the area could develop by 2025. Therefore, it's critical that the City establish a framework for necessary infrastructure improvements including a road network to support a desired land use concept for the area.

The second area is generally located west of Highway 47 and north of David Hill Road. This area is referred to as the "South of Purdin Road/Council Creek Urban Growth Boundary Area" and was added to the urban growth boundary by the Oregon Legislature in 2014. The Purdin area is approximately 240 gross acres in area and is generally flat making it suitable for a variety of land uses including residential, park, school and commercial uses. Since the area was recently added to the urban growth boundary little long range comprehensive planning has been done. This includes planning for desired land uses and identifying possible locations for

roads and other infrastructure including water and sewer lines. The Westside Refinement Plan is intended to address these needs. The Refinement Plan also provides an indication of the costs associated with providing the infrastructure necessary to serve the area and provides an approach for funding infrastructure needs.

To assist with this planning initiative, the City applied for and received a community planning grant from Metro to prepare this much needed refinement plan. Grant funds were used by the City to retain the consulting team of SCJ Alliance, PBS Environmental and Engineering, Urbsworks, and FCS Consulting. The team prepared the technical analysis supporting the Plan, facilitated public outreach, and developed an infrastructure funding approach. Infrastructure needs were developed by the consultants after assistance by staff and the Technical Advisory Committee, in particular Clean Water Services related to sewer and storm drainage.

The following chapters provide considerable detail on the land use concept underpinning the plan and infrastructure needed to support the vision for development in the David Hill and Purdin Road urban growth areas. The technical analysis prepared by the consulting team is attached as an appendix.

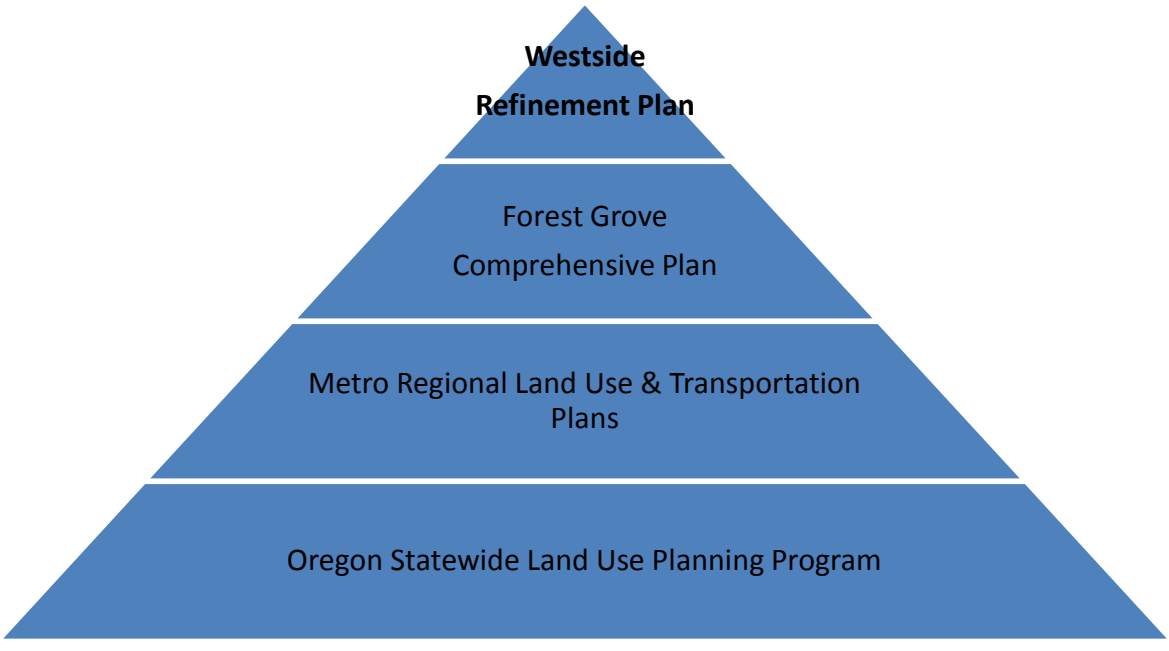
Chapter 2 – Planning Framework

Planning in Oregon and the Portland region is multifaceted and involves many partners. The Oregon Statewide Land Use Planning Program, Metro Regional Framework Plan, Metro Urban Growth Management Functional Plan, Metro Regional Transportation Functional Plan, and Forest Grove Comprehensive Plan all influence long range planning initiatives such as the Westside Refinement Plan.

As shown by the graphic below, the Oregon statewide planning program provides the foundation for the Refinement Plan. The Oregon planning program includes goals for public involvement, land use, housing, the economy, natural resource protection and urbanization to name a few. All city and county comprehensive plans in the state must address and demonstrate compliance with the Oregon planning goals. Adherence to the Statewide Planning Goals is addressed further in this chapter.

In addition to the Oregon statewide planning program, the Metro Regional Framework provides additional context to guide land use policy in the Portland region. Similar to the Oregon statewide planning goals the Metro Regional Framework plan has goals and objectives guiding land use, housing and the economy. Both the statewide planning program and Metro Regional Framework Plan provide a basis for the Forest Grove Comprehensive Plan which sets local goals and objectives for land use, housing and infrastructure such as transportation, the water system and sewer system. Taken together the Oregon statewide planning program, Metro Regional Framework Plan and Forest Grove Comprehensive Plan provide the foundation for the Westside Refinement Plan.

Planning Framework



The following sections of this chapter provide additional context to show how each of the elements of the planning framework work together to influence the Westside Refinement Plan.

The first section describes the Oregon Statewide Planning Program. This is followed by a brief overview of the Forest Grove Comprehensive Plan and Metro regional land use and transportation plans.

Oregon Statewide Land Use Planning Program

Oregon's land use planning system dates back to the 1970s with passage of Senate Bill 100 signed into law by Governor Tom McCall. The Oregon system established by Senate Bill 100 was unique in the United States by establishing statewide land use planning goals that cities and counties are required to address as part of their local comprehensive land use planning efforts. Statewide planning goals address topics such as housing, the economy (jobs and commerce), transportation, natural resource protection and the conversion of rural land to urban uses. The Westside Refinement Plan addresses the applicable goals in a variety of ways as described below.

Goal 1 - Citizen Involvement - Statewide Land Use Planning Goal 1 requires that local citizen involvement programs incorporate the following components:

- ✓ *Provide for widespread citizen involvement;*
- ✓ *Assure effective two way communication with citizens;*
- ✓ *Provide the opportunity for citizens to be involved in all phases of the planning process;*
- ✓ *Assure that technical information is available in an understandable form;*
- ✓ *Assure that citizens will receive a response from policy-makers; and*
- ✓ *Insure funding for the citizen involvement program*

Extensive amount of citizen input occurred during the course of this project. This includes placing all documents for review on the City's website. In addition, two planning charrettes and several Planning Commission work sessions were held to obtain citizen input on the background documents and potential land use alternatives. The charrettes provided an opportunity for a lively discussion on desired land uses of the area. The land use concept was revised several times in response to community input. In the end, a general consensus was reached which is reflected in the Plan. Details of the citizen involvement program are described in Chapter 3 (Citizen Participation).

Goal 2 - Land Use Planning – Goal 2 describes the basic procedures of Oregon's statewide planning program. It requires that land use decisions be made in accordance with a comprehensive plan. Goal 2 also requires that implementation ordinances be put in place to put the plan's policies into effect. Once adopted, the Westside Refinement Plan will become a component of the Forest Grove Comprehensive Plan. As part of adoption, the Comprehensive Plan Map will be amended to incorporate the adopted land use concept for the Westside area. The Forest Grove Development Code will also be amended as necessary to implement recommendations for development in the Refinement Plan area adopted by City Council. The land use component of the Westside Plan is described in detail in Chapter 4 (Land Use).

Goal 4 - Forest Lands – This goal requires an inventory of forest lands and the adoption of policies and ordinances to conserve forest lands for forest uses. The consulting team prepared a natural resource assessment for the Plan area which considered forest lands. The natural resource assessment is included in the technical appendix and is summarized in Chapter 5 (Natural Resources).

Goal 5 - Natural Resources – This goal focuses on scenic and historic areas, and open spaces. Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. Natural resources are also addressed in Chapter 5 (Natural Resources).

Goal 7 - Areas Subject to Natural Hazards – Goal 7 deals with development in places subject to natural hazards such as landslides. It requires that local jurisdictions apply appropriate safeguards when planning for development in areas subject to natural hazards. Consideration of potential natural hazards is especially important in the David Hill area. The David Hill area has locations that are steeply sloped and presence of a historic landslide area. The consulting team undertook a rigorous analysis of the David Hill area to document possible natural hazards. The results of this analysis are summarized in Chapter 8 (Transportation). The details are provided in the appendix.

Goal 8 - Recreational Needs – This goal calls for each community to evaluate its recreational areas and facilities and the projected demand for them. The land use concept for the Westside area included consideration of the recreational needs of residents as the area develops. It was fortunate that the City's Parks, Recreation and Open Space Master Plan was being updated during the Westside planning process. This provided an opportunity to include park needs for the Westside area in the Parks Plan. Specific recommendations for parks, recreation and open space are described in Chapter 6 (Recreational, Cultural and Open Space Resources) and Chapter 11 (Other City Services).

Goal 9 - Economic Development – This goal addresses economic activity including business creation, retention and employment. Goal 9 calls for local jurisdictions to project future commercial and industrial land needs and plan and zone enough land to meet those needs. The recommended land use concept described in the Refinement Plan responds to Goal 9 by identifying areas for commerce to serve the developing area. This is described in Chapter 4 (Land Use).

Goal 10 - Housing – Goal 10 requires that cities plan for and accommodate needed housing types, such as single family residential, multifamily and manufactured housing. Goal 10 requires each city to inventory its buildable residential land needs, project future needs, and plan and zone enough buildable land to meet those needs. The recommended land use concept for the Westside area addresses Goal 10 by identifying areas deemed suitable for a variety of housing types including large lot single family development, small lot development and attached housing. Chapter 4 (Land Use) shows areas recommended for residential development to meet housing needs over the next twenty years.

Goal 11 - Public Facilities and Services – Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central tenant is that public services should be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs. A primary reason for preparing the Westside Plan is get ahead of development by identifying public services necessary to serve the preferred land use concept. Public facilities and services needed for the Westside planning area are described in a number of chapters including Chapter 8 (Transportation), Chapter 9 (Sewer), Chapter 10 (Water), Chapter 11 (Other City Services), and Chapter 12 (Funding Approach).

Goal 12 - Transportation - Goal 12 addresses the transportation system including roads, sidewalks, multiuse trails and movement of goods. A robust transportation system

accommodating a variety of travel options is a critical element of a livable neighborhood and city. The Westside Plan identifies a transportation network taking into account recommended land uses and topographic constraints. The recommended transportation network for the Westside area is described in detail in Chapter 8 (Transportation).

Goal 14 - Urbanization – This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs. Goal 14 also establishes criteria to be applied when undeveloped land within an urban growth boundary is to be converted to urban uses. The Refinement Plan identifies a land use concept to guide the conversion of undeveloped land to urban uses. The land use concept is described in Chapter 4 (Land Use).

Forest Grove Comprehensive Plan

The Forest Grove Comprehensive Plan is the City's coordinated policy document guiding the development of the City over a twenty year period. This Refinement Plan addresses and is consistent with several goals and policies of the Comprehensive Plan including:

Community Sustainability

Community sustainability is a cornerstone of the City's Vision Statement and has been an ongoing priority for the Forest Grove City Council. Chapter 3 of the Forest Grove Comprehensive Plan addresses community sustainability and is also reflected in the land use concept recommended for the Westside planning area.

A goal of the Forest Grove Comprehensive Plan is to:

- ✓ Create complete neighborhoods, through land use regulations, with housing, recreational opportunities, retail, services, and employment nearby and to promote transit supportive land uses. The land use concept described in Chapter 4 is based on the concept of complete neighborhoods by identifying opportunities for mixed-use development near residential areas as well as locations for parks, schools and support services such as a new site for a fire station.

The list below shows other recommendations in the Westside Plan intended to advance community sustainability including:

- ✓ Riparian enhancement along stream corridors;
- ✓ Landslide stabilization by replanting deep rooted vegetation on hillsides;
- ✓ Development regulations to preserve views from low elevations to David Hill to promote cluster development;
- ✓ Promote voluntary conservation measures and integration of built and natural systems; and
- ✓ Integrate storm water management with natural systems to improve water quality and wildlife habitat opportunities;

Land Use

Chapter 4 of the Forest Grove Comprehensive Plan addresses land use within the City's planning area – the area within the urban growth boundary adjacent to the Forest Grove city limits. The Westside Plan addresses a number of policies related to land use in the Comprehensive Plan including:

1. The City of Forest Grove will adopt a land use concept that promotes efficient use of land within the urban growth boundary.

3. The City of Forest Grove will support policies that encourage locating complementary land use in proximity to reduce demand on transportation systems [including use of transit] and improve the overall quality of life of the community.

The Chapter 4 of the Westside Plan identifies a land use concept accommodating a variety of land uses including residential and retail uses. A primary objective of the Plan is promoting long term community sustainability through private and public land use decisions. To this end the Plan strives to create complete neighborhoods. Complete neighborhoods are characterized by complementary land uses in proximity. This in turn reduces demands on the transportation system and supports cost-effective delivery of transportation services by reducing or eliminating the need to add capacity which is quite expensive.

Transportation

Transportation is one of the most important improvements provided by public agencies. Transportation affects land values, economic competitiveness, and the environment. How the transportation network is planned affects overall quality of life and influences community character. Chapter 11 of the Forest Grove Comprehensive Plan addresses transportation needs in the City's planning area including the preferred pedestrian, bicycle and roadway networks as well as a funding approach for these needs. The Forest Grove Comprehensive Plan contains the following goals and policies related to transportation:

Goal 4: Design and construct transportation facilities in a manner that enhances the livability of Forest Grove.

The infrastructure analysis for the Westside identifies a robust transportation system based on a collector street system. This transportation backbone will improve connectivity for all modes of transportation including pedestrians, bicycles, and vehicles.

Policy 4.1: Maintain the livability of Forest Grove through proper location and design of transportation facilities.

The proposed collector street network and recommended standards for the Planning Area are based on the topographic constraints of the Westside area to minimize necessary cut-and-fill and to minimize street grades. The Forest Grove Development Code limits collector street grades to a maximum 12%. Although care was taken to minimize collector street grades there are portions of segments where street grade exceeds 12%. Care was taken to minimize the length of these segments. An amendment to the Development Code is recommended to

address this issue and would provide authority to the City Engineer to approve collector street grades exceeding to 12%.

Goal 6: Establish and maintain a context sensitive set of transportation design and development regulations.

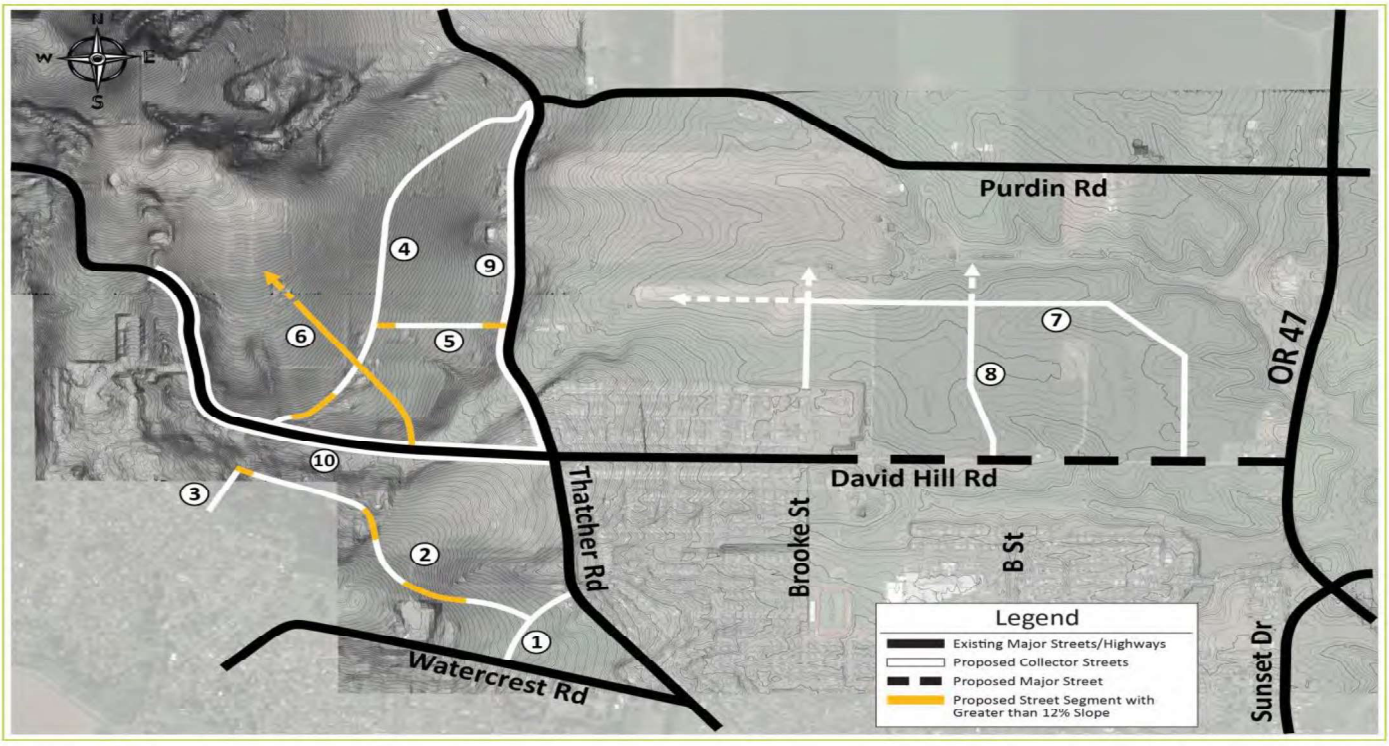
The proposed street network and recommended standards for the Planning Area are context sensitive and take into account topographic constraints of the area to minimize cut-and-fill and grades. The recommended street network is based on strategically placed collector roads providing needed circulation and access.

Policy 6.1: Streets should be designed to support their intended users.

The recommended street network is based on collector roads supporting autos, bicycles and pedestrians.

Policy 6.4: Promote context sensitive transportation facility design, which fits the physical context, responds to environmental resources, and maintains safety and mobility.

The proposed street network for the Westside Planning Area is context sensitive and takes into account topographic constraints of the area to minimize cut-and-fill and grades. The recommended street network is based on strategically placed collector roads providing circulation and access as shown on the map below. The white lines show conceptual locations of collector roads. The orange shaded street segments are those with a slope exceeding 12%. This is significant since the Forest Grove Development Code limits grades for collector streets to 12%. An amendment to the Development Code is recommended to address this issue and would provide authority to the City Engineer to approve collector street grades exceeding to 12%.



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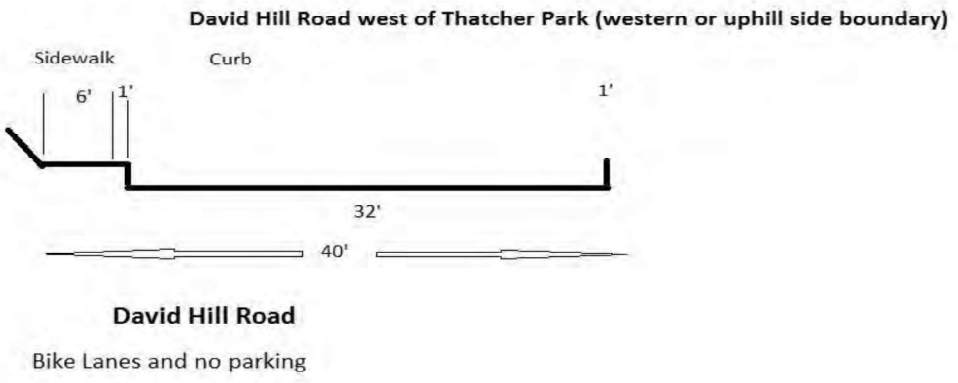
Proposed Street System

Westside Planning Project
Forest Grove, OR

Another consideration influencing the recommended street system for the David Hill area is topography along the David Hill Road segment west of Thatcher Road. David Hill Road is constrained by steep slopes and the presence of a stream south of the current roadway alignment. As a result it is recommended that the street cross-section for David Hill Road west of Thatcher Road be narrower than typically required for a collector roadway. The recommended cross-section includes 32 feet of pavement within a 40 foot right-of-way. A sidewalk on one side of the street would be accommodated within the right-of-way. The recommended cross-section for David Hill Road is shown below.



The cross-section above could also apply to other roadways with topographic constraints similar to David Hill Road west of Thatcher Road.

Estimated cost to develop the identified collector street system is approximately $ $30.2 Million. Of this amount, approximately $1.5 million is recommended for short term needs in the five- to six-year time frame to spur development. The primary short-term need is construction of Thatcher Road to urban standards north of David Hill Road.

Specific transportation projects recommended for the Westside are shown on the table below.

Transportation Projects

No.	Road Name	Project Limits	Description	Estimated Cost
1	Road 1 (Vista Drive Extension)	Watercrest Road to Thatcher Road	Construct new north-south 1,050 foot urban collector street	$1,000,300
2	Road 2	From Vista Drive Extension west 3,200	Construct new east-west urban collector street	$4,246,000

		feet		
3	Road 3 (Valley Crest Extension)	From terminus of Valley Crest Way north to Road 2	Construct new 600-foot urban collector street	$787,200
4	Road 4	David Hill Road north to Purdin Road	Construct new 4,700 foot urban collector street	$6,409,200
5	Road 5 (Plum Hill Improvement)	Existing Plum Hill Lane (privately-owned) to Road 4	Improve Plum Hill Lane to urban collector standards	$1,212,200
6	Road 6	David Hill Road to urban growth boundary	Construct new 2,300 foot urban collector street	$2,391,000
7	Road 7 (Brooke Street Extension)	Brooke Street to David Hill Road	Construct new 5,500 foot urban collector street	$4,766,200
8	Road 8 (B Street Extension)	David Hill Road to Brooke Street	Construct new 1,750 foot urban collector street	$1,583,700
9	Road 9 (Thatcher Improvement)	David Hill Road to Purdin Road	Full improvements to Council Creek crossing (short-term)	$1,454,000
9	Road 9 (Thatcher Improvement)	David Hill Road to Purdin Road	Half street reconstruction between David Hill Road to Purdin Road excluding Council Creek crossing (long-term)	$2,437,500
10	Road 10 (David Hill Improvement)	Thatcher Road to urban growth boundary	Full street reconstruction for 5,100 feet to urban collector street standards	$3,943,500
11	Improvement to David Hill Road/Highway 47 roundabout	David Hill Road/Highway 47 intersection	Addition of 2nd circulating lane to provide separate lanes for northbound left turn and northbound through traffic and separate lane for southbound right-turn	$2,500,000
12	Improvement to Purdin Road/Verboort Road/Highway 47 roundabout	Purdin Road/Verboort Road/Highway 47 intersection	Addition of northbound right-turn slip lane on the south leg of the roundabout and southbound right turn slip lane on the south leg of the roundabout to the overall roundabout intersection.	$4,000,000
			TOTAL ESTIMATED COST	*$37,730,800*

In addition to the transportation projects identified above the Westside Plan includes the following recommendations related to the transportation system:

- Amend the Transportation System Plan to include a context-sensitive and cost-effective transportation system in the Westside Planning Area. This recommendation includes amending the TSP to include a narrower collector

street cross-section for David Hill Road west of Thatcher Road with forty feet of right-of-way, 32 feet of pavement and sidewalk on one side of the street.

- Ensure the conceptual transportation system identified for the Westside Planning Area meets the requirements of the Oregon Transportation Planning Rule and Metro Regional Transportation Functional Plan

- Amend the Development Code to allow for collector street grades of more than 12% with City Engineer approval.

- Amend the Development Code to allow for local or residential streets with grades of more than 15% for distances greater than 250 to minimize cut and fill with City Engineer approval.

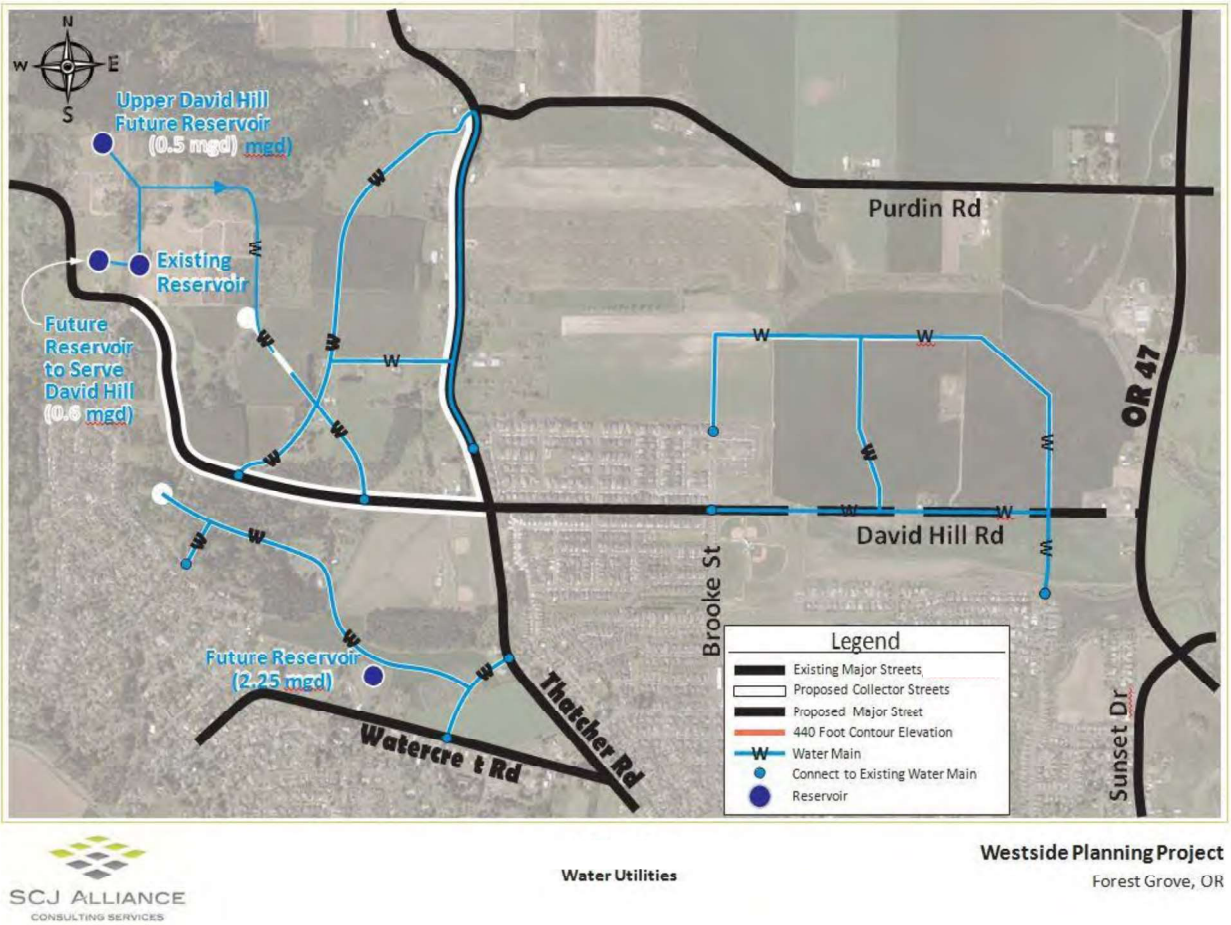
- Construct collector and arterial streets in the David Hill urban growth boundary area to allow for possible future extension into the David Hill urban reserve area.

Water System

In addition to transportation water is a critical public service. The Forest Grove Comprehensive Plan contains the following policy statements related to the water system:

1. Water facilities shall be designed and sized to serve the need of future land uses as designated in the Forest Grove Comprehensive Plan map.

The conceptual water system for the Refinement Plan area is shown on the map below. The map shows the general location of water lines and future reservoir locations.



The estimated cost of the conceptual water system is approximately $8,865,500 including contingencies. The table below shows estimated costs by segment.

Water Facility Cost Estimates

Description	Linear Feet	Total Estimated Cost	Estimated Cost Westside Planning Area	Area of Benefit
Potential Short Term Project				
One 0.5 MG Reservoir[1]	EA	$4,182,500[2]	$875,000	David Hill UGB
Short Term Subtotal		$4,182,500	$875,000	
Long Term Projects				
Road 1 Water Main	1,050	$63,000	$63,000	David Hill UGB
Road 2 Water Main	3,200	$192,000	$192,000	David Hill UGB
Road 3 Water Main	600	$36,000	$36,000	David Hill UGB

[1] One reservoir required to serve development in the David Hill urban growth boundary area from 440 to 615 feet in elevation and portions of the David Hill urban reserve area between 190 feet and 615 feet. Approximately $500,000 or 10.4% of total cost is attributed to serving the David Hill urban growth boundary area above 440 feet which includes 105 dwelling units with Single Family Residential R-10 zoning or 24 dwelling units with Suburban Residential SR zoning.

[2] Including contingencies and engineering costs

Road 4 Water Main	4,700	$282,000	$282,000	David Hill UGB
Road 5 Water Main	1,250	$75,000	$75,000	David Hill UGB
Road 6 Water Main	2,300	$138,000	$138,000	David Hill UGB
Road 7 Water Main	5,500	$330,000	$330,000	Purdin Road UGB
Road 8 Water Main	1,750	$105,000	$105,000	Purdin Road UGB
Road 9 Water Main	3,500	$525,000	$525,000	David Hill UGB
Two 0.3 MG Reservoirs[3]	EA	$2,910,448	$1,950,000	Entire Area
One 2.25 MG Reservoir Near Watercrest Rd.	EA	$2,956,522	$680,000	Entire Area
Contingencies and Engineering		$5,709,728	$3,282,000	Entire Area
Long Term Subtotal		$13,322,698	$7,658,000	
TOTAL		*$17,505,198*	*$8,533,000*	

Source: Final Westside Water, Sewer, and Stormwater Infrastructure Analysis dated June 24, 2016; compiled by FCS Group. Costs shown are in 2016 dollars.

Sanitary Sewer System

The Forest Grove Comprehensive Plan includes goals and policies guiding investments in the sanitary sewer system. These goals and policies are consistent with the Forest Grove Sanitary Sewer and Storm Drainage Master Plans. Specific policies include:

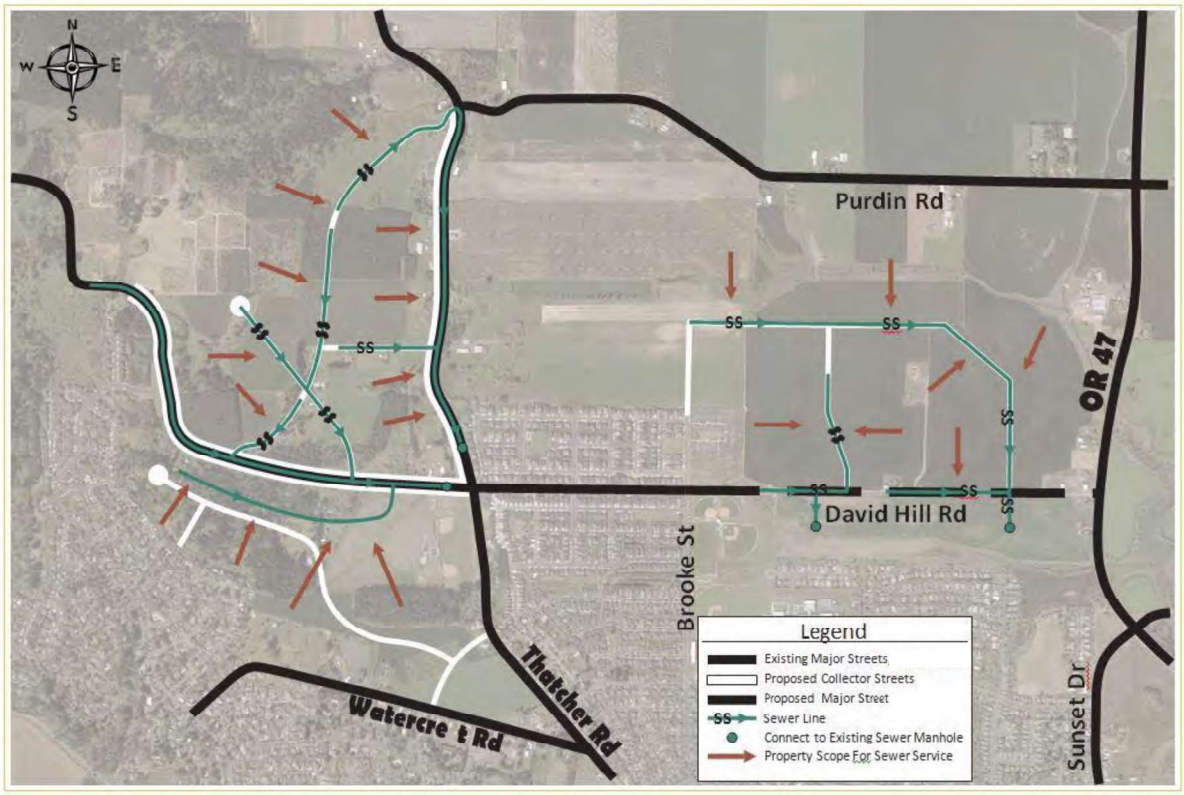
1. Sewer facilities shall be designed and sized to serve the need of future land uses as shown on the Forest Grove Comprehensive Plan Map.

2. Sewer facilities shall be located in a manner to complement other infrastructure improvements and reduce conflict with incompatible uses, be guided by existing uses and be subject to special review considerations.

The consultant team prepared a detailed infrastructure needs report for the Refinement Plan. The conceptual sewer network is shown on the map below. The system shown below only depicts sewer main lines and does not include sewer laterals necessary to serve specific development. These needs will be determined during the development review process. Construction of sewer laterals will be at developer expense.

The sewer system generally follows the street network and is designed to support gravity flows by taking advantage of topography. Designing the system to take advantage of gravity eliminates the need for pump stations which reduces system cost and improves overall system reliability.

[3] A portion of these reservoirs will be used to serve the David Hill UGB between 250 feet and 440 feet. Approximately 67% of total costs would be associated with the David Hill Planning Area.



The estimated cost to construct the recommended sewer system is approximately $3,635,600. The table below shows estimated cost by street segment.

Sewer Facility Cost Estimates

Description	Estimated Cost	Area of Benefit
Potential Short Term Projects		
Road 9 Sewer Line	$262,500	David Hill UGB
Road 10 Sewer Line (700 linear feet/12 inch line)	$382,500	David Hill UGB
Contingencies and Engineering	$483,750	David Hill UGB
Short Term Total	$1,128,750	
Long Term Projects		
Road 1, 2, 3 Sewer Line	$225,000	David Hill UGB
Road 4 Sewer Line	$300,000	David Hill UGB
Road 5 Sewer Line	$82,500	David Hill UGB
Road 6 Sewer Line	$165,000	David Hill UGB
Road 7 Sewer Line (10 inch line)	$405,000	Purdin Road UGB
Road 8 Sewer Line (10 inch line)	$225,000	Purdin Road UGB
Contingencies and Engineering	$1,074,350	Entire Area
Long Term Total	$2,506,850	
TOTAL	*$3,635,600*	

Source: Final Westside Water, Sewer, and Stormwater Infrastructure Analysis dated June 24, 2016; compiled by FCS Group. Costs shown are in 2016 dollars.

Storm Sewer System

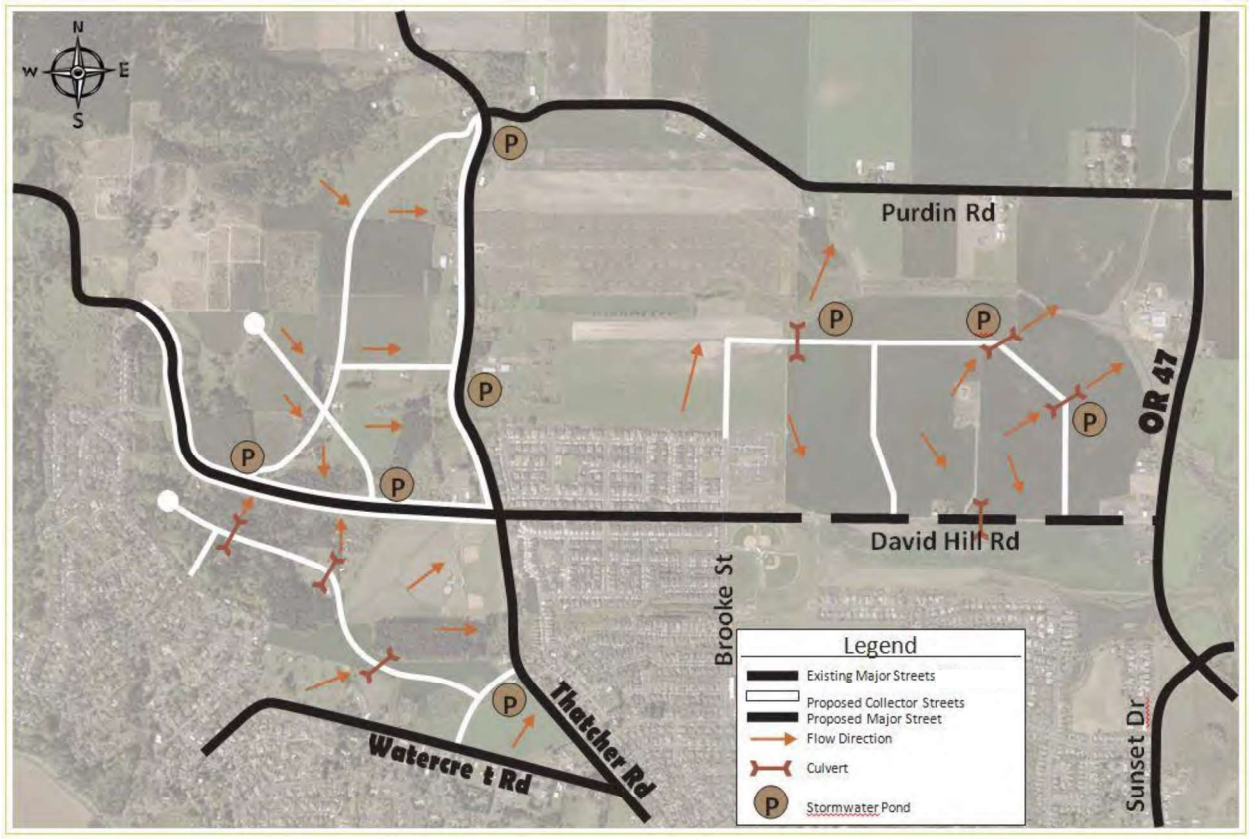
The Forest Grove Comprehensive Plan contains the following policies for the storm sewer system:

1. Storm sewer facilities should be designed to mitigate runoff conditions based on future land uses shown on the Forest Grove Comprehensive Plan map as determined by the City Engineer.

2. Storm sewer facilities should co-locate to complement other infrastructure facilities and to avoid conflicts. *The concept shows co-location of storm sewer facilities with other infrastructure facilities including roads.*

3. Design of storm water facilities shall support Comprehensive Plan land use designations.

The conceptual storm sewer system prepared for the Refinement Plan is shown on the map below. The map identifies the general direction of storm water runoff and conceptual locations of storm water ponds.



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Stormwater Utilities

Westside Planning Project
Forest Grove, OR

The estimated cost of the storm sewer system is approximately $1,575,000. Specific project cost estimates by segment are shown on the table below.

Stormwater Management Facility Cost Estimates

Description	Estimated Cost	Area of Benefit
Road 1, 2, 3 Storm Pond	$75,000	David Hill UGB
Road 4 Storm Pond	$75,000	David Hill UGB
Road 5 and 9 Storm Pond	$100,000	David Hill UGB
Road 6 and 10 Storm Pond	$150,000	David Hill UGB
Road 7 Storm Pond	$200,000	Purdin Road UGB
Road 8 Storm Pond	$50,000	Purdin Road UGB
Road 1, 2, 3 Stormwater Treatment	$35,000	David Hill UGB
Road 4 Stormwater Treatment	$35,000	David Hill UGB
Road 5 and Road 9 Stormwater Treatment	$70,000	David Hill UGB
Road 6 and 10 Stormwater Treatment	$70,000	David Hill UGB
Road 7 Stormwater Treatment	$20,000	David Hill UGB
Road 8 Stormwater Treatment	$20,000	Purdin Road UGB
Contingencies and Engineering	$675,000	Entire Area
TOTAL	*$1,575,000*	

Source: Final Westside Water, Sewer, and Stormwater Infrastructure Analysis dated June 24, 2016; compiled by FCS Group. Costs shown are in 2016 dollars.

Public Facilities and Community Services

Chapter 7 of the Forest Grove Comprehensive Plan establishes goals, objectives and policies for public facilities and services. Key goals and policies for public facilities and community serves addressed by the Westside Plan include:

- ✓ Water System Performance Goal: Provide adequate water supply to meet the present and future water needs of the community. Recommendations for the water system necessary to provide adequate water supply for the Westside Planning area are described in Chapter 10 including an additional water reservoir.

- ✓ Water Service Goal 1: Water facilities shall be designed and sized to serve the need of future land uses as designated in the Forest Grove Comprehensive Plan map. Chapter 10 describes the recommended water facilities necessary to serve development in the Westside planning area. This includes a 12-inch water line along David Hill Road west of Thatcher Road and an additional water reservoir to supply the area and provide water pressure above the 440-foot contour elevation.

- ✓ Water Policy: The sizing of municipal water facilities shall follow land use plan designations and concentrate development close to the City Center. Chapter 10 includes an infrastructure analysis including assessment of water needs for the Westside planning area based on the land use designations described in Chapter 4 (Land Use).

- ✓ Storm Sewer Goal: Storm water facilities should co-locate to complement other infrastructure facilities and to avoid conflicts. The recommended storm water system is designed to complement other infrastructure facilities and to avoid conflicts. The recommended storm water system is based on the constructed of ponds near proposed roadway locations.

- ✓ Storm Sewer Policy 2: Design of storm water facilities shall support Comprehensive Plan land use designations. Chapter 9 describes storm water facilities necessary for the collector roadway system required to serve development. Storm water facilities for private development will be assessed during the land use review process.

- ✓ Sanitary Sewer Goal 1: Sewer facilities shall be designed and sized to serve the need of future land uses as shown on the Forest Grove Comprehensive Plan map. Chapter 9 describes sanitary sewer facilities based on the land use concept recommended in Chapter 4.

- ✓ Sanitary Sewer Goal 2: Sewer facilities shall be located in a manner to complement other infrastructure improvements and reduce conflict with incompatible uses, be guided by existing uses and be subject to special review considerations. The recommended sanitary sewer facilities described in Chapter 9 are located to take advantage of proposed roadway locations and topography for gravity flow.

- ✓ Public Safety Goal 4: Recognize that land use and transportation policies influence emergency response needs. The recommended land use concept described in Chapter 4 identifies a site for a new fire station in the Purdin Road urban growth area. This site is situated to improve emergency response needs in this part of the community including along Highway 47.

- ✓ Parks Policy 1: Provide new neighborhood and community parks, additional open space and trails and new recreation facilities to meet the needs of Forest Grove residents as the population grows and resources allow. The land use concept described in Chapter 4 identifies a site for a new neighborhood park adjacent to a new elementary school site north of David Hill Road. This neighborhood park is intended to meet the recreational needs of future Forest Grove residents living in the Purdin Road urban growth area.

- ✓ Parks Policy 6: Recognize that community and neighborhood parks provide a sense of place for community residents. The recommended neighborhood park in the Purdin Road urban growth area is situated to provide a sense of place for future Forest Grove residents living in the Purdin Road urban growth area.

Parks, Recreation and Open Space

The Forest Grove Comprehensive Plan includes goals pertaining to park needs for the community. The Forest Grove Parks, Recreation and Open Space Master Plan is an element of the Comprehensive Plan. The Parks, Recreation and Open Space Master Plan was recently updated in 2016 and addresses recreational needs in the Westside Planning Area and the Comprehensive Plan policy to:

1. Provide new neighborhood and community parks, additional open space and trails and new recreation facilities to meet the needs of Forest Grove residents as the population grows and resources allow.

The following sections additional detail about identified park needs in the Westside Planning area.

Parks, Recreation and Open Space Master Plan

The Forest Grove Parks, Recreation and Open Space Master Plan was updated in 2016 and addresses needs in the Westside planning area including the area added to the urban growth north of David Hill Road and west of Highway 47. The Parks plan identifies a location for a new public neighborhood park to serve the recreational needs of future residents living in the new urban growth boundary area. The recommended park location is included in the recommended land use plan for the Westside area shown in Chapter 4. In addition to the new park the Parks Plan also identifies improvements to Thatcher Park.

The total parks costs for the three identified projects planned in the Westside Planning Area is estimated at $6.6 million. The estimated development costs for the Purdin neighborhood park includes property acquisition as well as development costs.

Description	Total Estimated Cost	Cost Attributable to Westside Area	Cost Attributable to South of Purdin Road/Council Creek Area	Cost Attributable to David Hill Area	Area of Benefit
South of Purdin/Council Creek Area Neighborhood Park	$3,000,000	$3,000,000	$3,000,000	$0	South of Purdin/Council Creek Area
Thatcher Park Improvements	$3,400,000	$612,000	$349,799	$262,201	Westside Planning Area
Thatcher Park Dog Park Improvements	$200,000	$36,000	$20,576	$15,424	Westside Planning Area
Total Estimated Cost	*$6,600,000*	*$3,648,000*	*$3,370,376*	*$277,624*	

Chapter 6 provides additional information about recreational and open space resources and estimated park improvement costs.

Education and School Facilities

The Forest Grove Comprehensive Plan identifies education and school facility needs necessary to serve growth for the next twenty years. Education and school facility goals contained in the Comprehensive Plan applicable to the Westside Plan include:

Goals:

Schools shall be located in residential and commercial areas.

Schools shall be located to serve residential neighborhoods.

Policies:

Cooperate with the School District to ensure opportunities for adequate school sites necessary to serve an expanding population.

Encourage the location of schools within the urban growth boundary and within walking distance of students.

School sites based on future growth and land use expectations shall be identified on the comprehensive plan map to serve existing and future neighborhoods.

The Forest Grove Comprehensive Plan (2014) identifies a need for one additional elementary school during twenty year planning period. Consistent with this recommendation, the land use concept described in Chapter 4 identifies a site for a possible elementary school in the Purdin Road urban growth area. The school site is about ten acres in area which is typical for elementary schools based on generally accepted planning guidelines.

The Forest Grove School District is proceeding with a long range planning process to assess school needs for the next ten years. If the District determines to accommodate school needs in contrary to the Westside Plan recommendations the City will reevaluate the recommended land use designation for the proposed school site in the Purdin Road area.

School costs were not considered in the infrastructure analysis and recommended funding approach. This is because the cost is the responsibility of the Forest Grove School District and is not considered a City development cost. However, a construction excise tax is collected at time of building permit issuance for each new residential and non-residential development permit. The tax is $1 per square foot for residential construction and $0.50 per square foot of non-residential construction. Revenue collected is provided to the District for new school development.

Natural Resources and Hazards

The following provisions of the Comprehensive Plan apply to natural resources and hazards:

- ✓ Areas with known geological hazards or soils which the Soil Conservation Service has rated as severe hazard soils including shrink-swell potential, weak foundation support (shear strength), and erosion hazard shall permit construction and densities only when adhering to recommendations made through engineering analysis, review and ordinances. A proposed implementation action identified in Chapter 13 is to require engineering analysis for development proposed on sites with a slope of 10% or greater. The current requirement is 20% or more slope. This change will help identify potential geological constraints affecting development in the David Hill area.

- ✓ Those involved in development will be required to address hazard conditions by the inclusion of basic environmental data (i.e. soil type, elevation of the flood plain, geological limitations, etc.) and related designs and for engineering solutions in the submittal requirements for the development. Article 8 of the Development Code

identifies requirements that must be addressed when development is proposed in areas with potential hazards including steeply sloped areas (currently defined as 20% or more slope). Requirements include submittal of a geological assessment addressing underlying geology, soil properties, and opinion as to stability of the site.

- ✓ Adopt as a provision in both the zoning and subdivision ordinances that an environmental report be prepared and certified by a qualified engineer for all development proposals in areas having natural physical hazards and/or limitations. As part of the environmental report, the engineer shall identify the intensity of urban development to be permitted based upon the carrying capacity of the land. Open space may be required within the development in order to protect the public health and safety. Article 8 of the Development Code requires submittal of a geological assessment and geotechnical report prepared and stamped by a Certified Engineering Geologist. This requirement currently applies to development sites with slope of 20% or greater.

- ✓ Cluster development to accommodate needed housing while preserving larger blocks of forest land and open space. Article 5 of the Development Code allows for clustering of development on sites with identified natural resources areas including riparian and upland habitat areas. To minimize potential impacts on natural resource areas lot sizes may be reduced and density may be transferred to other locations on the development site that isn't constrained.

- ✓ Establish landslide mitigation measures including logging regulations on steep slopes, landscape requirements, drainage controls, and pre-development technical studies. Article 5 of the Development Code establishes restrictions on removal of trees on development sites prior to development. These restrictions apply regardless of slope. Article 5 also restricts removal of trees in natural resource areas.

Urbanization

The Comprehensive Plan contains the following policies for the transition of rural land to urban uses:

- ✓ Establish policies to ensure an orderly and efficient transition from rural to urban land use.

- ✓ Land shall be made available within the urban growth boundary to meet all local urban land use needs.

- ✓ Implement policies to create complete neighborhoods in areas undergoing urbanization.

The Westside Plan provides clear direction guiding the transition of rural land inside the urban growth boundary to an urban development pattern. Transition of rural land for urban uses is predicated on the interest among property owners to annex land into the City and availability of infrastructure (sewer and water).

The land use concept described in Chapter 4 includes residential and some retail uses. The land identified for residential development helps meet housing needs identified in the Economic Opportunity Analysis. The land use concept also identifies residential and complementary land

uses intended to create complete neighborhoods. Complementary land uses include retail areas, an elementary school location, park site, and fire station site.

Metro Regional Land Use and Transportation Plans

The Metro Regional Framework Plan establishes a general land use concept for the Portland region. This land use concept, referred to as Region 2040, identifies regional centers, town centers, corridors, and outer neighborhoods. Downtown Forest Grove is designated a Town Center, Pacific Avenue/19th Avenue is designated a Corridor and the David Hill area is designated as an outer neighborhood. In addition to the Region 2040 land use concept, the Metro Regional Framework Plan also addresses transportation, parks and open space, and natural hazards. Local land use plans must be consistent with the Metro Regional Framework Plan.

The Metro Urban Growth Management Functional Plan implements the Metro Regional Framework Plan and contains policies guiding changes to local comprehensive plans. The Urban Growth Management Function Plan implements regional goals and objectives for housing, water quality and flood management, employment areas, and planning for new urban areas. The Westside Refinement Plan addresses and is consistent with the Urban Growth Management Functional Plan as described in this plan.

The Metro Regional Transportation Functional Plan implements the Regional Transportation Plan (RTP). The RTP establishes goals, objectives and a funding approach for the regional transportation system. The Regional Transportation Functional Plan implements the goals and objectives described in the Regional Transportation Plan . This includes goals and objectives related to transportation system design, amendments to local transportation system plans, transportation project development, regional parking management and Metro review of city and county transportation system plans. The Metro Regional Transportation Functional Plan also establishes an outcomes-based framework guiding actions and investment decisions for transportation projects affecting the regional system. The Westside Refinement Plan addresses and is consistent with the requirements of the Regional Transportation Functional Plan as described in this plan.

Washington County Urban Planning Area Agreement

In 1988 the City of Forest Grove and Washington County entered into an agreement to define planning roles and responsibilities for unincorporated land within the regional urban growth boundary near Forest Grove. This agreement called the Washington County Urban Planning Area Agreement (UPAA) established an "urban planning area" within which the City and County both agreed to maintain an interest in comprehensive planning. The City's planning responsibilities include comprehensive planning in the incorporated and unincorporated portions of the City's urban planning area. This is largely the unincorporated area within the urban growth boundary adjacent to and near Forest Grove. The City is also responsible for designating in the comprehensive plan land uses within the planning area including sensitive natural areas and hazard areas. The UPAA also reiterates that the City is identified as the appropriate provider of local water, sanitary sewer, storm sewer, and transportation facilities within the urban planning area. Exceptions include services provided other service providers subject to the terms of intergovernmental agreements.

The Westside Plan addresses many aspects of the UPAA including establishing City Comprehensive Plan designations in the Purdin Road urban growth area. The Westside Plan also addresses provision of water, sanitary sewer, storm sewer and transportation facilities within the Westside planning area.

Chapter 3 - Citizen Participation

A comprehensive public involvement approach was implemented for the Westside planning project. This approach included stakeholder interviews an in-depth 2 ½ day project charrette, two community open houses and multiple work sessions with the City Council and Planning Commission. The stakeholder interviews and design charrettes were facilitated by the consulting firm Urbsworks. The citizen participation opportunities are described more fully below.

Stakeholder Interviews

Sixteen stakeholder interviews were conducted in November 2014 for the David Hill and Purdin Road planning areas. Interviewees included property owners in the study area, residents, a realtor, Planning Commission member, Parks and Recreation Commission member; Forest Grove School District representative, and a business owner. Interviewees were asked a series of questions including:

- ✓ Based upon your connection to the area, what are the most critical issues to consider in this planning effort?
- ✓ Based upon your connection to the area, what would you like to see improved or changed?
- ✓ Based upon your connection to the area, what should be preserved?
- ✓ Based upon your connection to the area, what would represent a "win" for you?
- ✓ How would you like to be involved in the design charrette?
- ✓ What is the best way to communicate with you about the planning process?

Many thoughts were expressed during the interviews including:

- Development in the area should preserve a sense of community;
- Housing in the study area should provide choice and be accessible to lower-income households;
- Density on David Hill should not be increased above what is shown on the Comprehensive Plan map;
- Property owner rights should be respected;
- Preserve wildlife and preserve agriculture in the area;
- Promote walkable mixed-use development;
- Develop hillsides before farmland;
- Buffer existing development from new development;
- Improve transportation connections;
- Create a neighborhood on the edge that contributes to the City;
- Connect the area with the City.

Project Charrettes

The project charrette provided an opportunity for interested persons to review and comment on initial land use and transportation system concepts. The charrette began with an evening

public event where existing baseline conditions and the results of the planning process to date were discussed.

On the first full day of the charrette, property owners, stakeholders, technical committee or Planning Commission members and others will be invited to attend and participate in working sessions with project team members to develop preliminary land use alternatives for the Westside planning area. The first charrette was held on the evening of April 20, 2015. It was held at the Forest Grove Community Auditorium. Approximately 34 people participated in the first charrette.

The first charrette provided an introduction to the project. Several land use options were presented for discussion. Specific questions were posed to charrette participants including:

- ✓ Considering the proposed principles for hillside development, do you agree with the following:

    - Should new roads be aligned with slope contours to minimize disturbance from grading?
    - Should development be clustered to minimize development impacts on David Hill?
    - Should development be strategically located to among forested areas to maintain natural views and buffer development?
    - Should building be limited?
    - Should vegetation along stream corridors be increased?

Charrette participants were also asked to provide their perspective on the location and scale of commercial development in the study area. To conclude the charrette participants were asked to think about the future of Forest Grove thirty years from now and if one of the land use alternatives best represents a successful outcome for the City.

Several common themes emerged from the first charrette including:

- Views must be conserved carefully;
- Street alignments should follow contours;
- Minimal retail is desired in the David Hill area;
- Cluster housing with common areas should be considered to protect views;
- Building heights should be limited;
- Stream corridor vegetation should be increased;
- Industrial development is not appropriate in the Purdin Road area;
- Preferred zoning is single family residential (R-7) and residential multifamily low (RML).

The second charrette was held on the evening of May 20, 2015. Approximately 32 people attended the second charrette. This charrette provided an opportunity to share the feedback provided on the project and land use alternatives. An objective of the second charrette was a consensus based land use alternative for presentation to the Planning Commission.

At times the discussion was tense but several themes emerged that are reflected in the recommended land use alternative. One theme was that the Purdin Road area should not include employment uses. Approximately 75% of the charrette participants expressed this viewpoint.

In general charrette participants were divided as to whether Suburban Residential zoning (one dwelling per acre) should be retained in the David Hill area. Approximately 55% of charrette participants supported retaining Suburban Residential zoning.

Detailed responses from the charrettes are included in the technical appendix.

Planning Commission Work Sessions

The Planning Commission held work sessions on the Westside Plan on multiple occasions. Work sessions were held on:

Date	Topic
October 6, 2014	Project Approach
July 6, 2015	Planning Commission direction on land use considerations
May 2, 2016	Discussion of David Hill area in UGB and Urban Reserve
February 6, 2017	Infrastructure Needs & Funding approach

City Council Work Sessions

The City Council held work sessions on the Westside Plan on:

Date	Topic
November 14, 2016	Land Use Direction
December 12, 2016	Infrastructure Needs & Funding Approach

Chapter 4 – Land Use

The Westside planning area is comprised of two subareas (David Hill urban growth area and South of Purdin Road/Council Creek urban growth area). The David Hill area was included in the urban growth boundary when adopted in 1980. As such, City comprehensive plan map designations were established to guide future development. The land use designations were modified as part of the update to 2014 update to the Forest Grove Comprehensive Plan to promote mixed-use development throughout the City.

In contrast to David Hill, the Purdin Road urban growth area was added to the urban growth boundary by the Oregon Legislature in 2014. Since the area was added to the urban growth boundary in 2014 no City Comprehensive Plan map designations have been assigned. A primary objective of the Westside planning process was preparation of a land use concept and recommendation of Comprehensive Plan designations for the Purdin Road area to guide future development.

Several land use concepts were developed for evaluation as part of Westside planning process. Land use concepts were evaluated based on the following guiding principles:

- ✓ Promote efficient use of developable land;
- ✓ Minimize impacts to sensitive natural features;
- ✓ Promote Sustainability;
- ✓ Promote Complete Neighborhoods; and
- ✓ Support from Affected Property Owners

The initial land use concept for the Purdin Road urban growth boundary area was developed for the regional urban and rural reserves planning process. Initially much of the Purdin Road area was identified for industrial activities on sites greater than 25 acres. The emphasis on industrial activities was changed when the Oregon Legislature reduced the size of the Purdin Road urban reserve area. Initially, the boundary extended from the current city limit line to Purdin Road. The legislative action made the boundary Council Creek rather than Purdin Road reducing the area considerably and making industrial activities less feasible. Initially, most of the industrial area was envisioned along Purdin Road to allow for a buffer between residential uses adjacent to the current city limit line and industrial activities along Purdin Road. Modification to the extent of the Purdin Road urban growth area altered the approach to land use considerably. This is reflected in the recommended land use concept.

Prior to reaching a recommended land use concept several alternatives were developed to assess potential impacts especially related to traffic. This was called the "Worst Case Scenario". One alternative modified the area above the 440 foot elevation contour from Suburban Residential (one dwelling per acre) to Single Family Residential C-Low with a target density of 4.35 dwellings per acre). The "Worst Case Scenario" also included additional retail commercial and multifamily residential land in the Purdin Road urban growth area and a somewhat higher amount of development at the David Hill Road/Thatcher Road mixed-use area.

The recommended land use alternative is shown below. The recommended alternative reflects input provided during the public charrettes, open houses and work sessions. The recommended alternative strives to promote complete neighborhoods with housing, limited commercial and office uses nearby. The recommended land use alternative also attempts to balance potential

impacts including traffic. The recommended land use alternative is described in more detail below.

Recommended Land Use Alternative

The map below shows the recommended land use alternative for the David Hill and Purdin Road areas. Approximately 148 net acres is shown as residential on the map for the Purdin Road area. This represents approximately 86% of the total net area. The balance of the area is shown as commercial and institutional (school and park).

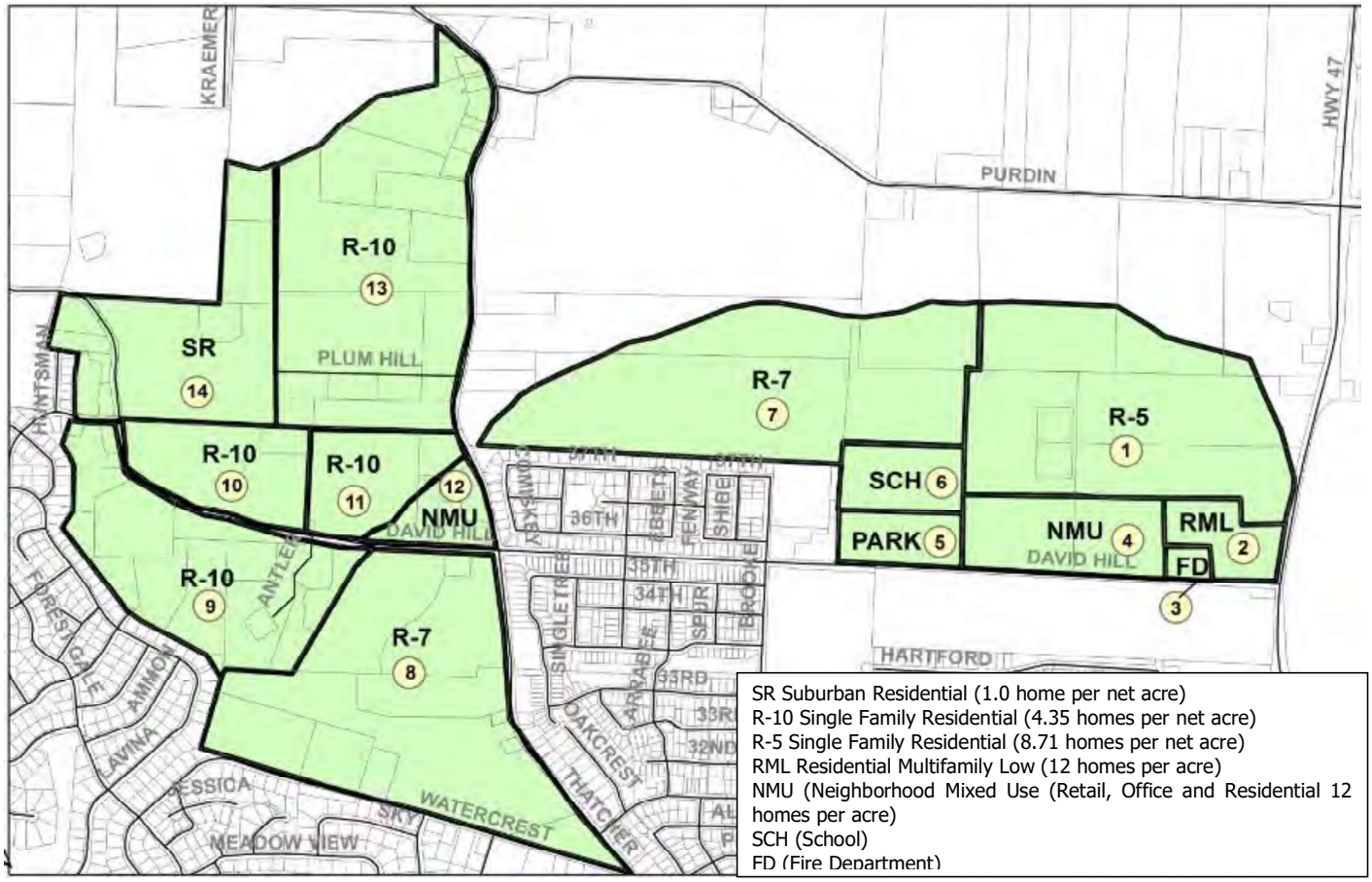
The David Hill area the same as shown on the current Comprehensive Plan map. The area shown as Suburban Residential is expanded slightly to follow property lines rather than elevation contours. The area shown as Residential Multifamily Low is currently designated as Neighborhood Mixed Use on the Comprehensive Plan map. This change is recommended to reflect public comment provided during the design charrettes.

The area south of David Hill Road, north of Watercrest Road and west of the Thatcher Road is shown as Single Family Residential R-10 and R-7. The R-10 area is larger than currently shown on the current zoning map. Much of this area is currently zoned R-7. This change reduces the density form 6.22 dwellings per net acre to 4.35 dwellings per net acre. This change takes into account the topography of the area and environment constraints including a historical landslide area.

Estimated Dwelling Yield

The table below provides an estimate of dwelling unit yield for the David Hill and Purdin Road areas based on the recommended land use alternative. The table also provides a comparison with estimated yield based on the current Comprehensive Plan designations for the area. The recommended land use concept would increase dwelling unit yield from 693 units to 1,950 units within the Refinement Plan area. This is an increase of 180% to housing capacity.

General Land Use Concept – Planning Commission Recommendation



Land Use Analysis
Planning Commission Recommended Alternative

Analysis Zone	Area	Gross Area (ac.)	Developable Area (ac.)	Net Area (ac.)	Slope Deduction	Current Dwelling Yield	New Dwelling Yield
1	Purdin (R-5)	86.18	71.60	57.28	0%	2	498
2	Purdin (RML)	10.82	10.82	8.66	0%	0	103
3	Fire Station (FD)	2.40	2.40	2.40	0%	0	0
4	Purdin (Mixed-Use/Commercial)	24.63	24.63	19.73(1)	0%	0	140
5	Purdin (Park)	6.00	6.00	6.00	0%	0	0
6	Purdin (School)	10.00	10.00	10.00	0%	0	0
7	Purdin (R-7)	98.62	87.02	69.62	0%	3	433
	Subtotal - Purdin	***238.65***	***212.47***	***173.69***		***5***	***1,174***
8	Watercrest (R-7)	99.75	70.63(2)	56.50	10%	221	316
9	South of David Hill (R-10)	57.38	12.99	10.39	20%	36	36
10	North of David Hill - West (R-10)	24.30	17.73	14.18	15%	52	52
11	North of David Hill - East (R-10)	21.42	15.06	12.05	15%	44	44
12	North David Hill (MU-Com)	8.50	3.60	2.90	0%	12	4
13	Thatcher (R-10)	98.66	95.81	76.65	10%	300	300
14	David Hill Suburban Residential (SR)	43.12	35.62	28.50	15%	24	24
	Subtotal – David Hill	***353.13***	***251.44***	***201.17***		***689***	***776***
	Grand Total	**591.78**	**463.91**	**374.86**		**694**	***1,950***

Metro Urban Growth Management Functional Plan Title 11

The section below focuses on the planning requirements contained in Title 11 of the Metro Urban Growth Management Functional Plan. Title 11 addresses planning for new urban areas added to the urban growth boundary. The Metro Urban Growth Management Functional Plan calls for long-range planning to ensure that areas brought into the UGB are urbanized efficiently.

A. City shall adopt comprehensive plan provisions and land use regulations for the area added to the UGB.

Purdin Road Area

The Refinement Plan includes recommended Comprehensive Plan provisions for the Purdin Road area added to the urban growth boundary by the Oregon Legislature in 2014. The recommended Comprehensive Plan designations include:

Designation	Density
B-Standard	6.22 dwellings per net acre
A-Medium	8.7 dwellings per net acre
Neighborhood Mixed Use	12.0 dwellings per net acre
Institutional (Park, School, Fire Station)	Not Applicable

David Hill Area

The David Hill area included in the Refinement Plan area has been in the urban growth boundary and already has City of Forest Comprehensive Plan designations. The designations include:

Designation	Density
Suburban Residential	1.0 dwelling per net acre
B-Standard	6.22 dwellings per net acre
C-Low	4.35 dwellings per net acre
Neighborhood Mixed Use	12.0 dwellings per net acre

B. Comprehensive plan provisions for the area shall include:

a. Specific plan designation boundaries

The boundaries for specific Comprehensive Plan designations within the Refinement Plan area are described in the Land Use Chapter.

b. Provision for annexation to a city and to any necessary service districts prior to or simultaneously with application of city land use regulations.

The Urban Planning Area Agreement (UPAA) between the City of Forest Grove and Washington County identifies planning responsibilities for the unincorporated David Hill area adjacent to Forest Grove within the urban growth boundary. Under the UPAA the City of Forest Grove is identified as appropriate service

provider of local water, sanitary sewer, storm sewer and transportation facilities within the urban planning area. Exceptions include facilities provided by other service providers subject to terms any applicable intergovernmental agreements. The UPAA stipulates that unincorporated urbanizable land shall not be converted to urban development prior to annexation to the City. The UPAA will be amended to include the Purdin Road and Elm Street urban growth boundary areas.

c. Provisions that ensure zoned capacity for the number and types of housing units.

   Land annexed into the City is subject to Forest Grove Development Code. The Development Code establishes target, minimum and maximum densities for each residential zone. The minimum density is 80% of the target density. Maximum density is 115% of the target density except for the Suburban Residential and Single Family (R-10) zone which is 120% of the target density. The provisions of the Forest Grove Development Code ensure that zoned capacity is achieved.

d. Provision for affordable housing consistent with if the comprehensive plan authorizes housing in any part of the area.

   The City of Forest Grove does not provide affordable housing directly. However, the housing element of the Forest Grove Comprehensive Plan includes policies for affordable that apply. These policies include:

   - Provide and maintain an adequate supply of affordable housing opportunities.

     - Policy 4.1: Development and implement programs to offset the increasing cost of new housing construction.
     - Policy 4.2: Promote the provision of housing assistance to low and moderate income individuals in Forest Grove through the Washington County Community Development Block Grant and Home Investment Partnership programs.
     - Develop and implement programs to encourage the rehabilitation of older housing stock throughout the community.
     - Develop and support partnerships with local Community Development Corporations whose mission it is to construct and rehabilitate affordable housing in Forest Grove.
     - Implement a program to sell unneeded land owned by the City of Forest Grove for the construction of affordable housing in areas designated for residential development.
     - Continue policies to allow for manufactured dwellings on individual lots outside of designated historic districts and within manufactured home parks.

e. Provision for the amount of land and improvements for public school facilities sufficient to serve the area added to the UGB in coordination with affected school districts.

The Forest Grove Comprehensive Plan update completed in 2014 shows a need for an additional elementary school during the planning period. The recommended land use concept for the Purdin Road area shows a conceptual location for an elementary school. The site is approximately 10 acres in area.

f. Provision for the amount of land and improvements for public park facilities sufficient to serve the area added to the UGB in coordination with affected park providers.

The recommended land use concept for the Purdin Road area shows a conceptual location for a park to serve the area. The park site approximately 10 acres in area.

g. A conceptual street plan that identifies internal street connections and connections to adjacent urban areas to improve local access and improve the integrity of the regional street system.

The Refinement Plan includes a conceptual street for the plan area. This includes new collector roads improving traffic circulation. The street network for the Purdin Road area shows extensions of Main Street, B Street and Brooke Street into the Purdin Road urban growth boundary area. These streets tie into a new east/west collector street between David Hill Road and Council Creek which serves as the urban growth boundary.

The conceptual road network for the David Hill areas shows an extension of Plum Hill Lane to the west. The extension of Plum Hill Lane would connect with a new north/south collector street intersecting with Purdin Road and David Hill Road. In addition, the conceptual street plan includes a new collector street beginning approximately 1,250 feet west of the Thatcher Road and David Hill Road intersection. This new collector street would run general north/northwest from David Hill Road to the interior of the David Hill planning area.

North of Watercrest Road the conceptual street plan shows the extension of Vista Drive from Watercrest Road to Thatcher Road. This road would provide help to relieve congestion at the intersection of Thatcher Road with Gales Creek Road. The conceptual street plan for this area also shows a new east/west collector street connecting the extension of Vista Drive to a proposed extension of Valley Crest Way. This road would provide connectivity to potential future development along the south side of David Hill Road.

The conceptual street network, as proposed, addresses the requirements for roadway connectivity in the Metro Regional Transportation Function Plan. Street connectivity in the David Hill area was not addressed in the update to the Forest Grove Transportation Plan completed in 2014. The Forest Grove Transportation System Plan identified the David Hill area as a refinement area. The Westside Planning Program Refinement Plan provided an opportunity to address street connectivity in the David Hill and Purdin Road areas in the context of the Regional Transportation Functional Plan as described more fully below.

Title 1 of the Regional Transportation Function Plan addresses transportation system design. The provisions of Title 1 ensure that the street system is designed to improve safety, support adjacent land use and balance the needs of all users including bicyclists, transit vehicles, motorists, freight delivery vehicles and pedestrians. To improve connectivity the RTFP stipulates that, to the extent practicable, local TSPs include a network of major arterial streets at one-mile spacing and minor arterial streets or collector streets at half-mile spacing. The design of the network shall be based on:

- Existing topography;
- Presence of rail lines;
- Presence of freeways;
- Pre-existing development;
- Leases, easements and covenants in place prior to May 1, 1995;
- The requirements of Titles 3 and 13 of the Urban Growth Management Functional Plan;
- Arterial design concepts in Table 2.6 and Figure 2.11 of the Regional Transportation Plan; and
- Best practices and designs for protecting natural resources and natural areas.

Each of the considerations for design of the street network are described in turn below.

Existing Topography

The topography of the Westside Planning Program Refinement Area is varied. The Purdin Road subarea is relatively flat accommodating a robust street network to serve future development. Proposed collector streets in the Purdin Road area are space approximately 1/4 to 1/3 mile apart. Therefore, this provision of the Metro RTFP is met.

In contrast to the Purdin Road area, David Hill has areas with steep slopes making street connections more difficult. The primary constraint is adhering to maximum street slope allowed under the Forest Grove Development Code. Another constraint is amount of cut and fill likely required for some road segments.

A collector street is proposed paralleling Thatcher Road approximately 1/3 mile to the west of Thatcher Road. This meets the RTFP requirements.

h. Provision for the financing of local and state public facilities and services.

The Transportation System Plan and financing analysis prepared for the Refinement Plan identify potential sources of revenue for financing public facilities and services. Sources of revenue include system development charges (SDCs), Washington County Major Streets Transportation Improvement Program (MSTIP), and federal transportation dollars allocated by Metro.

i. A strategy for protection of the capacity and function of state highway interchanges.

Not applicable.

C. The city responsible for comprehensive planning shall submit to Metro a determination of the residential capacity of any area to allow dwelling units, using a method consistent with a Goal 14 analysis, within 30 days after adoption of new land use regulations for the area.

Estimated residential capacity is shown on the table below. The capacity is based on the recommended Comprehensive Plan designations, estimated net acreage, and target density of the recommended designation. Based on the recommended land use alternative estimated residential capacity increases from 693 units to 2,054 units.

Chapter 5 - Natural Resources

Forest Grove has a strong sense of place. This sense of place is largely attributable to the City's natural setting. Defining natural features include Council and Gales Creeks, the forested Coastal Mountain Range foothills, the urban forest with many oak and sequoia trees, and, of course, nearby farm fields. It stands to reason that natural features play a prominent role in a City named Forest Grove.

The importance of the City's natural resources is further reinforced in the City's Vision Statement:

> Forest Grove is a destination that offers visitors and residents: A rich heritage preserved by honoring the city's natural, cultural, and historic treasures while also embracing the future; and
>
> Forest Grove is a community recognized for its commitment to conserve, preserve, protect and restore our natural assets.

Honoring the Vision Statement in general and the importance of natural resources specifically is a critical component of the Westside Planning Program Refinement Plan. As such, the Plan promotes development activities that take into account our local natural resources and establishes a framework to guide sustainable development. This chapter of the Plan explains how to achieve this objective.

Overview

The City of Forest Grove is situated in the Tualatin River Watershed at the western edge of the Portland metropolitan area. The surface terrain transitions from broad, flat alluvial valley floors to the basalt foothills of the Coast Range. The Forest Grove planning area is bordered to the south by the Gales Creek sub-basin and to the north by the Council Creek system.

The David Hill area is characterized by steep slopes, seasonal drainage ravines, and landslide hazard areas that create challenges for road building and development. The David Hill area is characterized by rural residential development, forest land and agricultural uses.

The Purdin Road area is relatively flat but has fine-textured floodplain soils. The Purdin Road area is also bordered by riparian areas to the north and east. Existing land use is primarily agriculture.

<u>Gales Creek</u>

Gales Creek is a major riparian corridor system containing floodplains, wetlands, wildlife habitat. The floodplain adjacent to the creek is farmed degrading riparian, wetland and wildlife habitat functions.

Gales Creek meanders in a channel between farm fields. The creek's vegetated riparian corridor ranges between 80 to 250 feet in width. Wetlands in this area are ditched and drained to varying degrees.

Anadromous and resident fish habitat is poor in Gales Creek due to a lack of large woody debris, lack of clean spawning gravels, lack of rearing and overwintering habitat and high water temperatures. In some areas the creek bed is apparently dredged to reduce flooding or to mine gravel. Although degraded conditions exist, Coho, steelhead and other resident fish are documented as being present in the Gales Creek system. Gales Creek is designated as a critical steelhead habitat by the State of Oregon.

Council Creek

The Council Creek system receives drainage from the David Hill and Purdin Road areas. The system meanders near developed neighborhoods or flows through ditches adjacent to farmed lands. There is no documentation of resident fish presence in the upper reaches of Council Creek.

Wetlands

The local wetland inventory was prepared in 1993 and reviewed in 2011 as part of the 2014 update to the Forest Grove Comprehensive Plan. The local inventory only includes land within the city limits and the review did not include the Purdin Road urban growth area. Jurisdictional wetlands may exist in areas recently added to the urban growth boundary.

Clean Water Services oversees storm water management and water quality for the urban portions of Washington County. Clean Water Services also focuses on habitat preservation and management. Clean Water Services reviews development proposals to assess potential impacts to wetlands and riparian areas. Clean Water Services review is required before the City accepts an application for land use approval.

Groundwater Resources

The Forest Grove drinking water system is supplied by five surface water intakes located on Clear, Roaring, Smith, Deep and Thomas Creeks. These creeks are tributaries to Gales Creek. In addition the City has water rights at the Tualatin River, Hagg Lake and Barney Reservoir.

The Westside planning area is not designated as a critical groundwater supply area.

The following Goal 5 resources exist in or near the planning area:

- ✓ Riparian corridors;
- ✓ Wetlands;
- ✓ Wildlife habitat;
- ✓ Groundwater resources;
- ✓ Oregon recreation trails;
- ✓ Mineral and aggregate resources; and
- ✓ Cultural areas

Statewide Planning Goal 5 encourages local governments to adopt natural resource protection programs and to conserve scenic and historic areas and open space. The Refinement Plan complements the goals and objectives for protecting natural resources contained in the Forest Grove Comprehensive Plan:

- All development shall consider, take into account, and demonstrate suitability relative to the natural hazard limitations of the Forest Grove area;
- Floodplain areas shall be protected from incompatible uses to reduce potential for property damage;
- Maintain and improve community sustainability by promoting future economic activities that are environmentally desirable.

The Forest Grove Comprehensive Plan also includes specific policies related to protection natural resources:

- Areas with known geological hazards or soils which the Soil Conservation Service has rated as severe hazard soils including shrink-swell potential, weak foundation support (shear strength), and erosion hazard shall permit construction and densities only when adhering to recommendations made through engineering analysis, review and ordinances.
- Those involved with development will be required to address hazard conditions by the inclusion of basic environmental data (i.e. soil type, elevation of the floodplain, geological limitations, etc.) in the submittal requirements for the development.
- Adopt as a provision in both the zoning and subdivision ordinances that an environmental report be prepared and certified by a qualified engineer for all development proposals in areas having natural physical hazards and/or limitations. As part of the environmental report, the engineer shall identify the intensity of urban development to be permitted based upon the carrying capacity of the land. Open space may be required within the development in order to protect the public health and safety.
- Cluster development to accommodate needed housing while preserving larger blocks of forest land and open space.
- Establish landslide mitigation measures including logging regulations on steep slopes, landscape requirements, drainage controls, and pre-development technical studies.
- Minimize the risk of loss of life and damage to property from wildfires within the City and the urban growth boundary.
- Amend development standards in areas with potential landslide hazard to minimize potential landslides while allowing appropriate development.

Goals, objectives and policies of the Comprehensive Plan are implemented through the Forest Grove Development Code generally and Article 5 (Natural Resource Areas) specifically. Article 5 establishes standards to protect and improve the functions and values that contribute to wildlife habitat including upland areas. This includes:

- Large habitat areas
- Interior habitat
- Connectivity and proximity to water; and
- Connectivity and proximity to other upland habitat areas.

Article 5 also establishes clear and objective standards and a discretionary review process applicable to development in natural resource areas in accordance with Statewide Land Use Planning Goal 5.

Article 5 identifies habitat-friendly development practices to avoid or minimize development impacts on natural resource areas by allowing flexible site design. Habitat-friendly development practices are appropriate for the Westside planning area including:

- Building setback flexibility to avoid or minimize development within Natural Resource Areas.
- Flexible landscaping requirements to avoid or minimize development within Natural Resource Areas.
- Flexible site design (on-site density transfer) to avoid or minimize development within Natural Resource Areas.

Opportunities

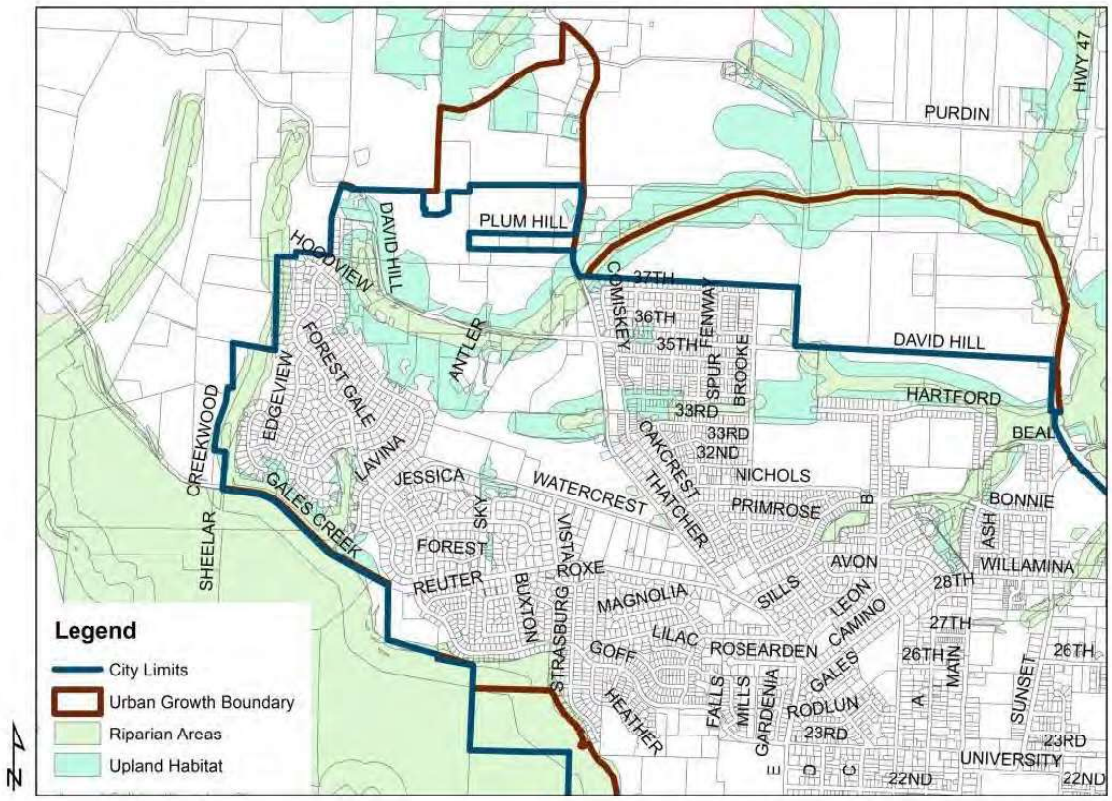
SCJ Alliance created a list of potential opportunities to protect and improve natural resource conditions in the Westside planning areas. A summary of general opportunities is provided below. The complete list of opportunities for each of the planning areas is included in the technical appendix.

- Update the 1993 Forest Grove Wetland and Stream Inventory using current definitions and mapping processes as needed;
- Blend storm water management with natural systems using constructed wetlands adjacent to natural systems to improve water quality and wildlife habitat opportunities;
- Remove invasive plants throughout the City's riparian and wetland areas to minimize invasive growth, reduce stream bank erosion and improve wildlife habitat;
- Develop new connections and cooperative efforts between landowners and other government agencies.

Natural Resource Areas

The Westside Refinement Plan area includes several natural resource areas including riparian areas and upland habitat. Development near natural resource areas are subject to the requirements of Development Code Article 5 which are based on the Metro regional model code.

Natural Resource Areas



Chapter 6 - Recreational, Cultural, and Open Space Resources

Recreational, cultural and open space resources is another element of makes Forest Grove the desirable place it is to live, raise a family, work or visit. The Westside planning is largely undeveloped and except for Thatcher Park, the area does not have recreational or cultural amenities. Existing and planned recreational and open space resources are described in more detail in the following sections of this chapter.

Recreational Resources

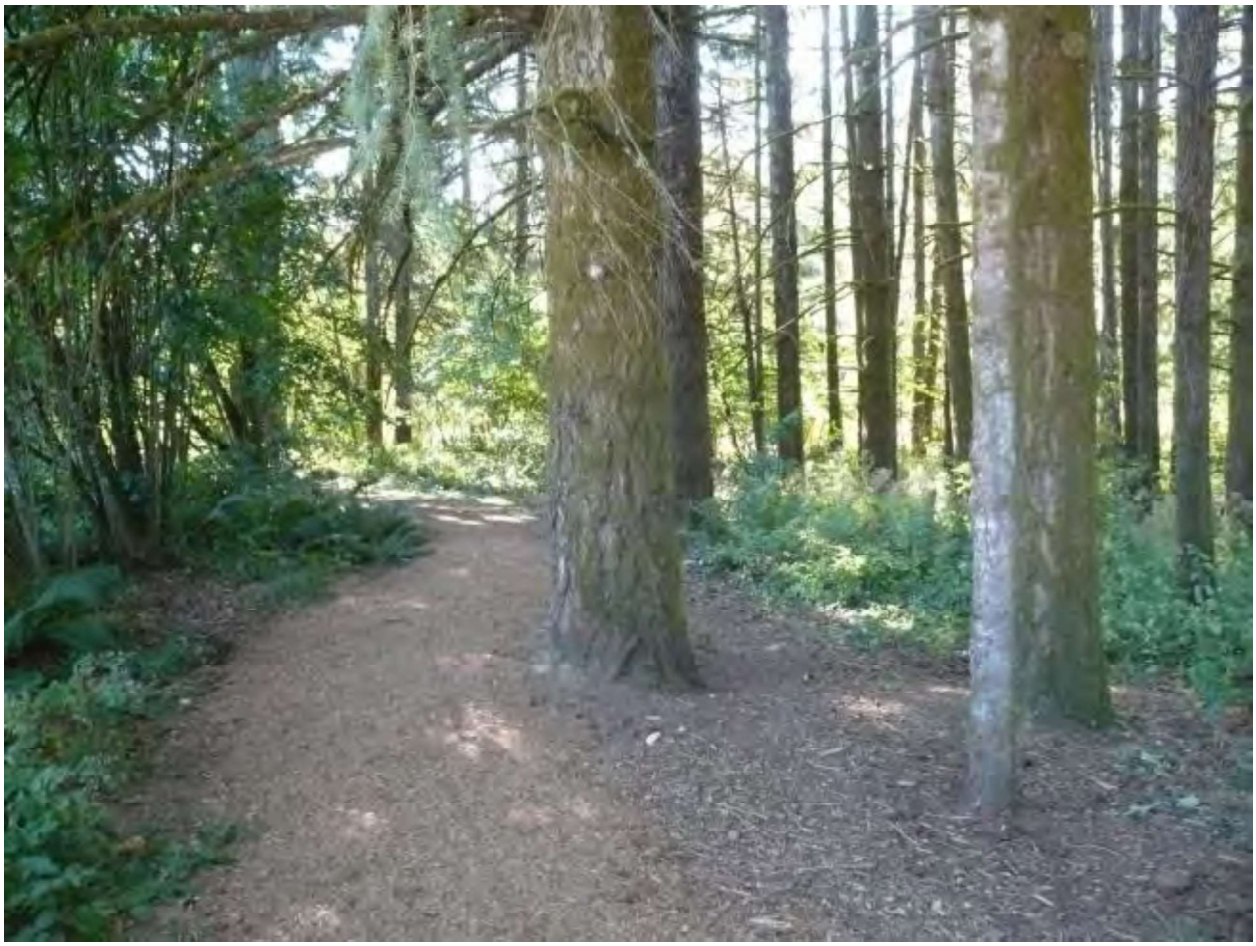
Thatcher Park is located at 750 David Hill Road just east of Thatcher Road. Thatcher is a community park complete with baseball fields, picnic shelter, picnic tables, playground, soccer field, softball fields, walking path and off-leash dog area. The park is approximately 15.4 acres in area. Thatcher Park affords views of the surrounding area and several Cascade Range peaks. The park is a jewel in the Forest Grove Parks and Recreation system.

Thatcher Park

Open Space Resources

The Westside Refinement Plan area includes open space resources including Thatcher Woods. The photo below shows the woods and the trail providing public access. The land comprising Thatcher Woods was donated to the City with the stipulation that the woods be retained as a community resource.

Thatcher Woods Trail

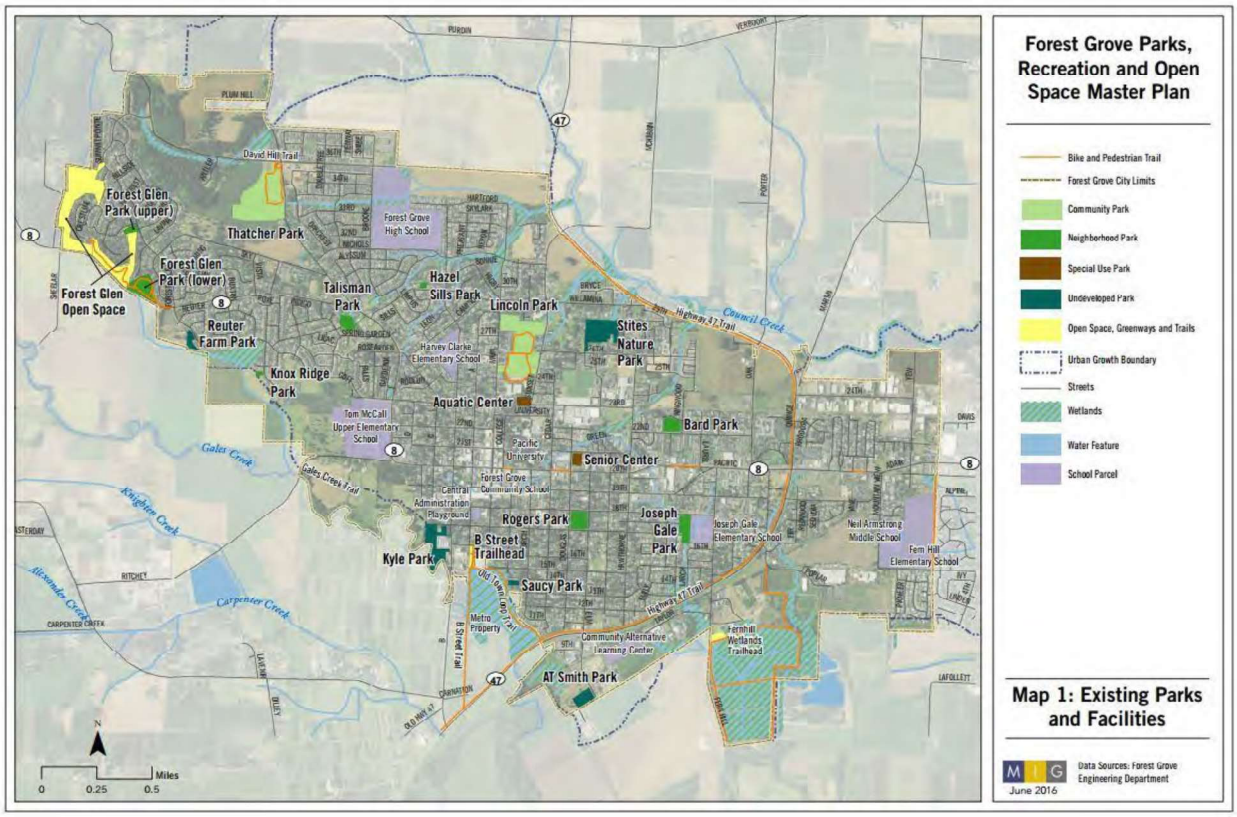


The City's Parks, Recreation and Open Space Master Plan, updated in 2016, establishes a vision for local investments in public park and recreation facilities contributing to the City's identity and livability. Parks are often the most memorable aspects of a community.

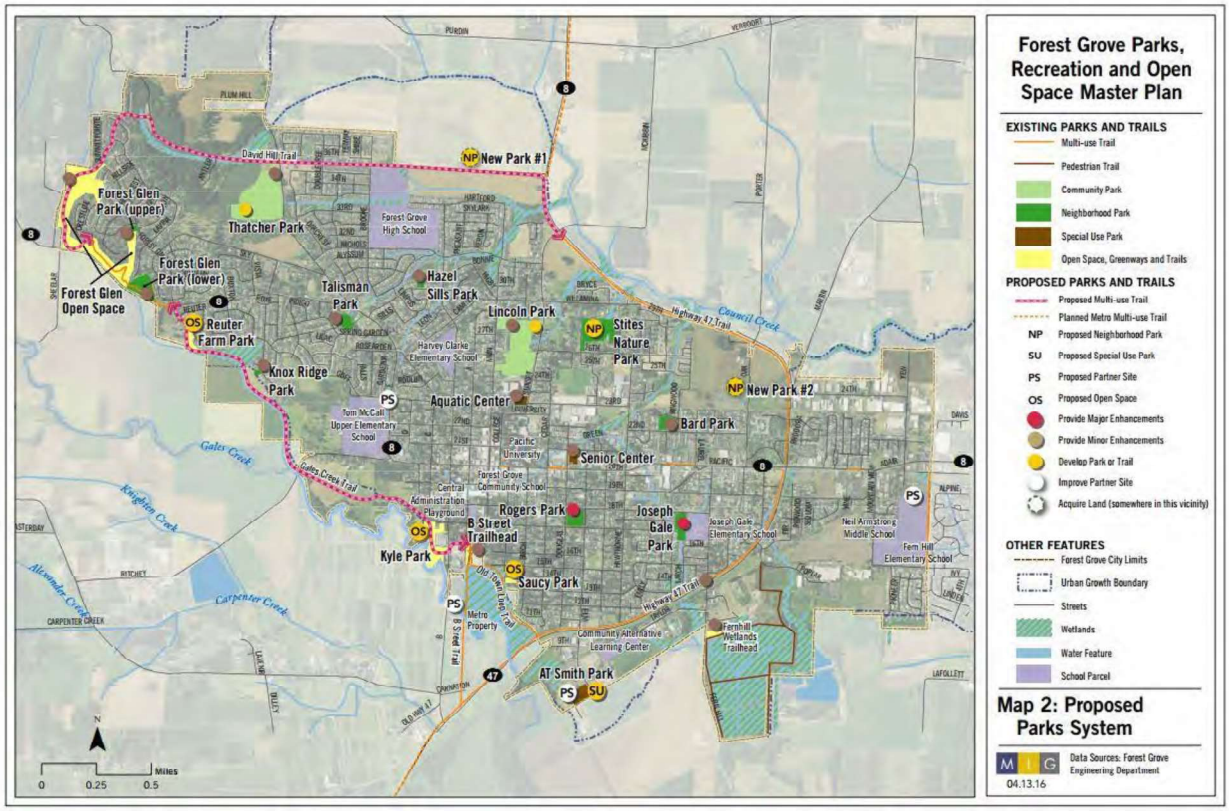
The Parks and Recreation Master Plan provides guidance for decisions regarding the acquisition, development renovation, maintenance and activating parks and recreation facilities. The Master Plan includes guidelines for the amount of desirable park land by park type. Park types include community park, neighborhood park, special use park, open space, greenways and trails.

The map below shows the locations of existing parks and recreation facilities. The City provides 68 park and recreation facilities on 158 acres of public park land. A jewel of the park and recreation system is Thatcher Park located within the Westside Plan area at the Thatcher Road

and David Hill intersection. Thatcher Park is a community park with many amenities including a dog park area, baseball field, a play area for children, covered picnic shelter and wooded hiking area.



The Purdin Road urban growth area is undeveloped and lacks urban amenities including public park land. The Purdin Road area is expected to accommodate approximately 1,200 homes and approximately 3,200 persons. Based on the desirable level of service guidelines contained the Park and Recreation Master Plan, the Purdin Road area should have a neighborhood park with at least 3.2 acres. As such, the land use concept for the Westside Planning Area includes a neighborhood park in the Purdin Road urban growth area. The identified location is approximately six acres in area and adjacent to the proposed elementary school site north of David Hill Road. This neighborhood park facility is identified in the Parks, Recreation and Open Space Master Plan as shown on the map below.



In addition to Thatcher Park and the proposed neighborhood park in the Purdin Road urban growth area, the Parks, Recreation and Open Space Master Plan identifies trails that will serve the Westside Planning Area. This includes the David Hill Trail and Council Creek Trail.

Estimated Park Improvement Costs

The Parks, Recreation and Open Space Master Plan Update includes planning level cost estimates for project identified in the Plan including those in the Westside area. The table below shows estimated costs. The estimated development costs for the Purdin neighborhood park includes property acquisition as well as development costs.

Description	Total Estimated Cost	Cost Attributable to Westside Area	Cost Attributable to South of Purdin Road/Council Creek Area	Cost Attributable to David Hill Area	Area of Benefit
South of Purdin/Council Creek Area Neighborhood Park	$3,000,000	$3,000,000	$3,000,000	$0	South of Purdin/Council Creek Area
Thatcher Park Improvements	$3,400,000	$612,000	$349,799	$262,201	Westside Planning Area
Thatcher Park Dog Park Improvements	$200,000	$36,000	$20,576	$15,424	Westside Planning Area
Total Estimated Cost	*$6,600,000*	*$3,648,000*	*$3,370,376*	*$277,624*	

Chapter 7 – Natural Hazards

PBS Engineering and Environmental prepared a geological and geotechnical assessment report for the Westside planning area. The assessment included review of aerial photography, light detection and ranging (LiDAR) imagery, geological and geo-hazard maps, and soil surveys. In addition, three geotechnical borings were completed on David Hill to provide data pertaining to slope stability issues, depth to groundwater and soil erosion potential. The complete report is included in the technical appendix.

David Hill has the highest elevation and steepest slopes in Forest Grove planning area. This topography presents opportunities as well as challenges. Opportunities include potential for innovate development design by taking advantage of topography to cluster housing in less steeply sloped areas to reduce development impacts or taking advantage of topography to maximize views. Challenges include overcoming constraints to efficient street layout and minimizing risk in areas with landslide potential.

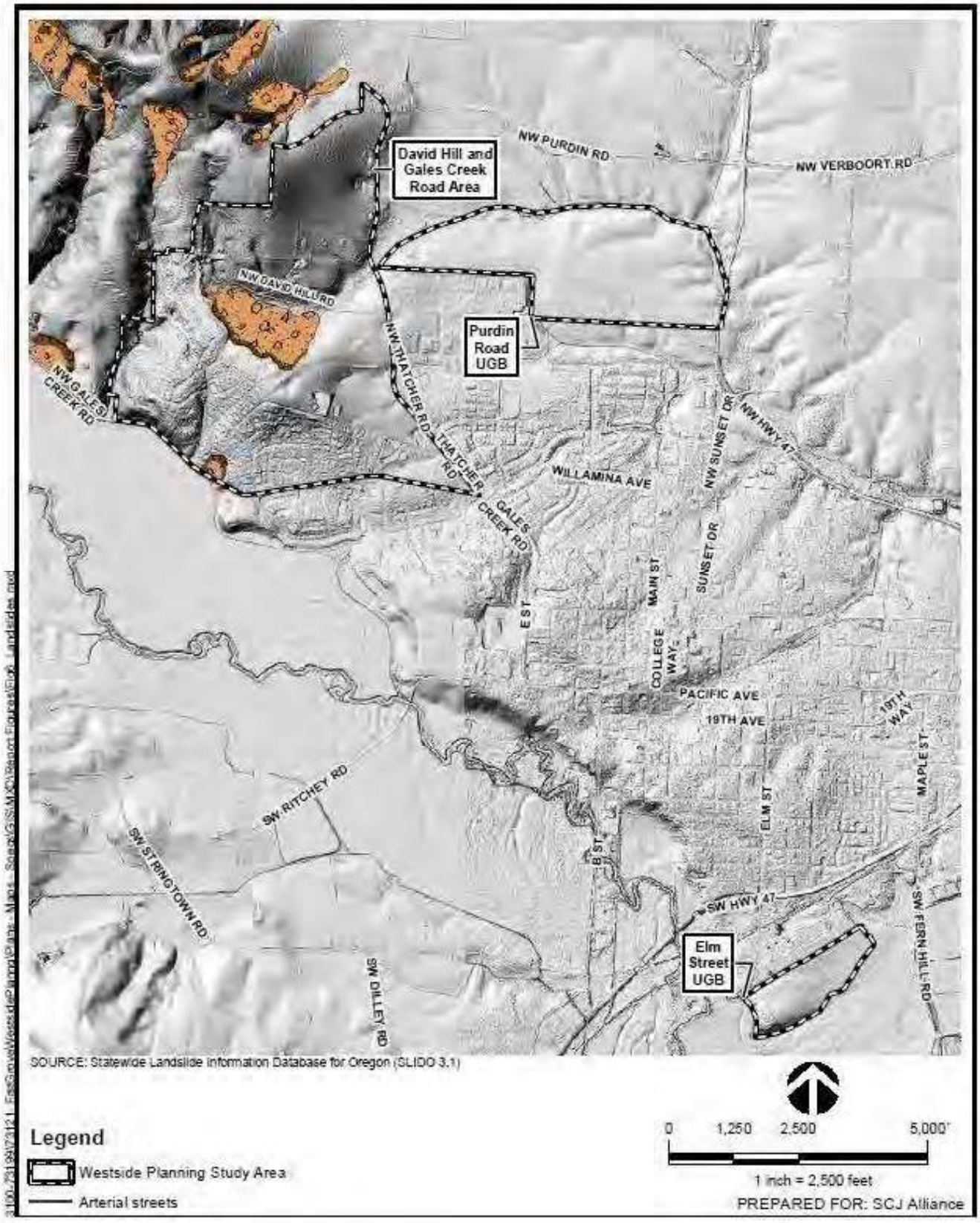
The table below shows the generalized slope characteristics for the Refinement Plan Area.

The assessment prepared by PBS indicates that certain areas of David Hill are prone to slope instabilities and historical landslides have occurred. In particular, the area between Forest Gale Drive and Antler Road is mapped by the Oregon Department of Geology and Mineral Industries as a landslide complex.

The primary geotechnical-related aspects to consider in the Westside planning project area include:

- Weak surface soils;
- Slope stability;
- Soil liquefaction during a seismic event;
- Poorly draining soils;
- Seismic ground shaking;
- Shallow groundwater;
- Potentially expansive soils; and
- Highly disturbed ground surface soil due to past farming practices

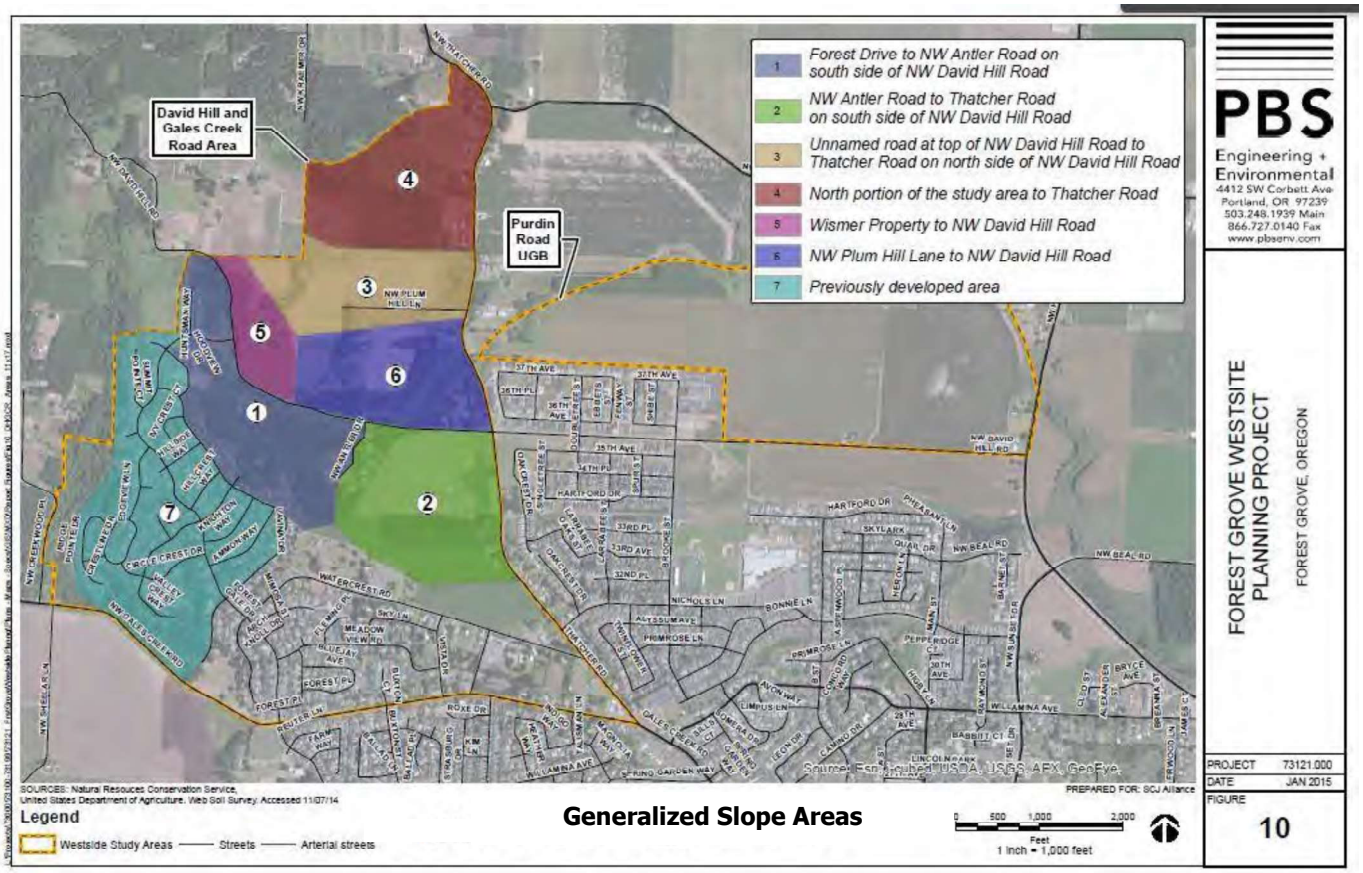
The geological analysis for the Westside planning area indicates portions of the study area are prone to slope instabilities. The location between Forest Drive and NW Antler Road is mapped by the Oregon Department of Geology and Mineral Industries as a landslide complex. In addition slopes adjacent to and within steep drainages show indications of ancient or historical instabilities. The map below shows the approximate location of the mapped landslide area.


David Hill and Gales Creek Road Area
Purdin Road UGB
Elm Street UGB
NW PURDIN RD
NW VERBOORT RD
NW DAVID HILL RD
NW GALES CREEK RD
NW THATCHER RD
THATCHER RD
GALES CREEK RD
WILLAMINA AVE
NW SUNSET DR
NW HWY 47
SUNSET DR
MAIN ST
COLLEGE WAY
PACIFIC AVE
19TH AVE
19TH WAY
MAPLE ST
ELM ST
8 ST
SW RITCHEY RD
SW STRINGTOWN RD
SW DILLEY RD
SW HWY 47
SW FERN HILL RD
SOURCE: Statewide Landslide Information Database for Oregon (SLIDO 3.1)
Legend
Westside Planning Study Area
Arterial streets
0
1,250
2,500
5,000'
1 inch = 2,500 feet
PREPARED FOR: SCJ Alliance

The table below shows slope characteristics within specific area of the Refinement Plan area. The map area numbers are keyed to the map following the table.

Steeply Sloped Areas

Location	Map Area	Approximate Slope Trend	Slope Percent	Slope Instabilities
Forest Gale Drive to Antler Road on south side of David Hill Road	1	North	Max: 67 General: 33.5 to 17	Yes
Antler Road to Thatcher Road on south side of David Hill Road	2	North	Max: 17 General: 17 to 5	No
Unnamed Road at top of David Hill Road to Thatcher Road on north side of David Hill Road	3	East	Max: 25 General: 17 to 12	No
North portion of study area to Thatcher Road	4	East	Max: 25 General: 17 to 5	No
Wismer Property to David Hill Road	5	South	Max: 50 General: 17 to 10	Yes
Plum Hill Lane to David Hill Road	6	South	Max: 40 General: 25 to 12	Yes
Developed Area	7	Southwest and South		Yes



Generalized Slope Areas

Recommendations

The Westside planning process resulted in recommendations to address challenges associated with development in steeply sloped areas. One recommendation is that the Development Code Section 10.8.310 (Hazard Areas) be amended to require a geological assessment and geotechnical report prepared and stamped by a certified engineering geologist and geotechnical engineer in areas with a slope of 10% or greater rather than just areas with a slope of 20% or more. The required assessments should include 1) review of aerial photography and LiDAR imagery; 2) review of previous reports prepared for the subject property; 3) site reconnaissance including mapping of observable geological features and/or hazards; 4) laboratory testing of soils. The results of the required assessment shall be filed with the City.

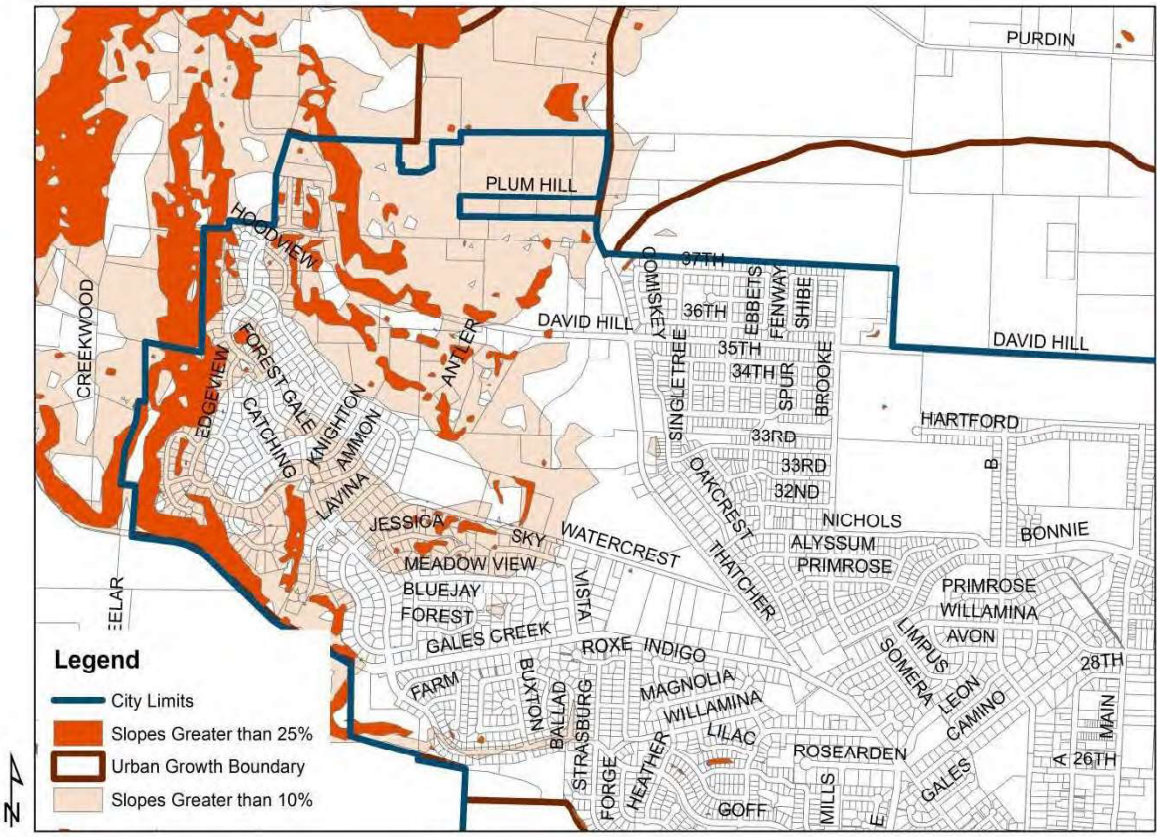
It is recommended that applicants proposing development on sites with 10% or more slope use the information developed through the geological and engineering assessment to establish methods to minimize hazard risk by:

- Site design approaches that avoids development within the identified hazard area;
- Grading, erosion control and other site preparation technics to minimize hazard impacts;
- Methods to minimize impacts from utility installation; and/or
- Techniques to minimize hazard impacts approved by the Building Official.

It is also recommended that for divisions of land, identified hazard areas be placed in an open space tract separate from areas intended for development. For development of land where a division of land is not proposed, an identified hazard area shall be held in common or placed within an easement precluding development. The tract or easement shall be restricted to open space. Utilities may be located within the tract or easement provided measures are identified to minimize hazard impacts.

The map below shows where these recommendations would apply.

Slopes


PURDIN
PLUM HILL
HOODVIEW
CREEKWOOD
DAVID HILL
DAVID HILL
37TH
36TH
35TH
34TH
33RD
33RD
32ND
COMISKEY
EBBETS
FENWAY
SHIBE
SPUR
BROOKE
SINGLETREE
ANTLER
FOREST GALE
EDGEVIEW
CATCHING
KNIGHTON
AMMON
LAVINA
HARTFORD
B
OAKCREST
THATCHER
NICHOLS
ALYSSUM
PRIMROSE
BONNIE
JESSICA
SKY
WATERCREST
MEADOW VIEW
BLUEJAY
FOREST
GALES CREEK
VISTA
ROXE
INDIGO
PRIMROSE
WILLAMINA
AVON
LIMPUS
SOMERA
LEON
CAMINO
28TH
MAIN
A
26TH
FARM
BUXTON
BALLAD
STRASBURG
MAGNOLIA
WILLAMINA
LILAC
ROSEARDEN
FORGE
HEATHER
GOFF
MILLS
E
GALES
Legend
City Limits
Slopes Greater than 25%
Urban Growth Boundary
Slopes Greater than 10%
N

Chapter 8 – Transportation

Transportation including roadways, sidewalks, pathways and transit are essential elements for creating sustainable and complete neighborhoods. Not only does the transportation system provide a means for travel it also accounts for a considerable amount of land needed for development. In many cases 20% or more of developable land area.

The Westside Planning Program Refinement Plan identifies a conceptual transportation network intended to serve the preferred land use concept described in Chapter 4. This conceptual transportation system will be incorporated into the Transportation System Plan. Recommended amendments are described in Chapter 13 (Implementation Actions).

The Forest Grove Transportation System Plan (TSP) update, completed in 2014, noted that a street network in the Westside planning area complying with Metro Regional Transportation Functional Plan could not be identified due to unresolved land use and natural resource issues known to exist. The TSP proposed that a future refinement plan be prepared to develop a local street plan subsequent to adoption of the TSP to guide future development of the David Hill area based on topographic constraints and desire to preserve vegetative corridors in the planning area.

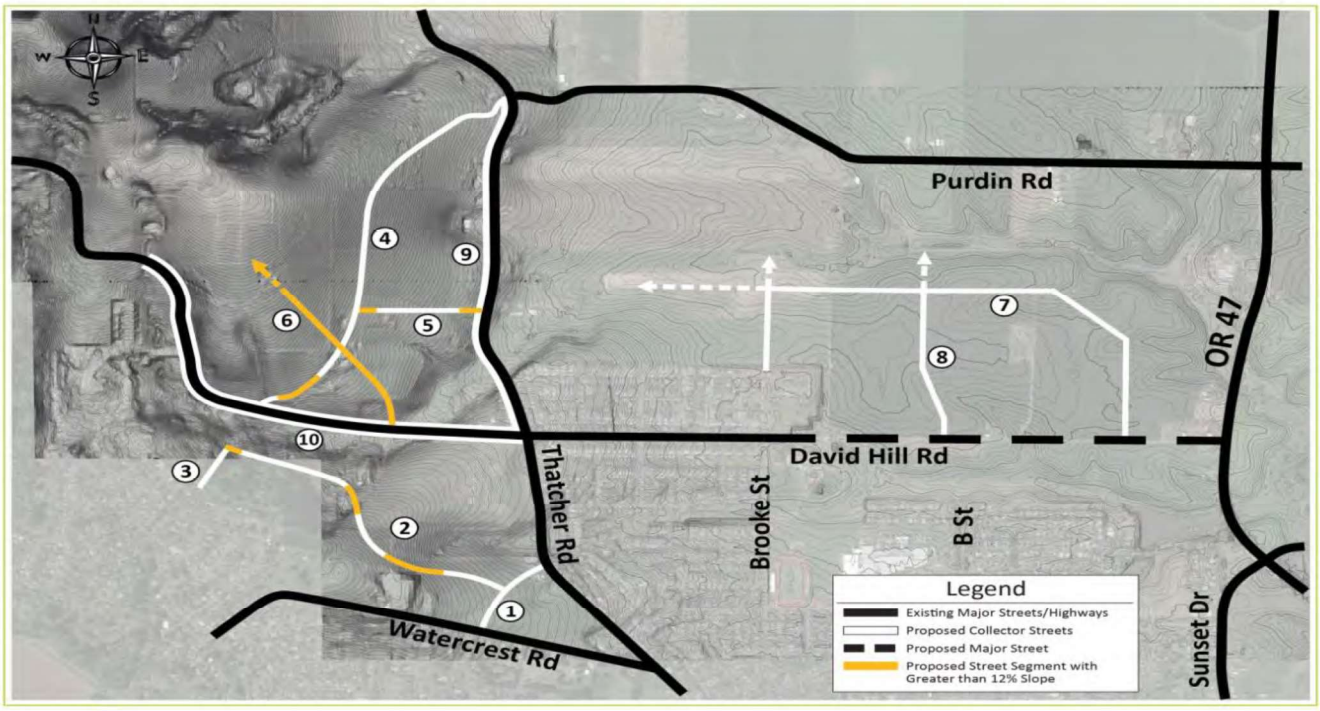
The proposed refinement areas are shown on the map below.

Future Refinement Areas

The TSP also noted a need to prepare a street connectivity plan to provide access to the new urban growth boundary area as well as circulation. The intent is to ensure that potential improvements within the planning area do not preclude creation of a logical and context-sensitive street system when the area is ultimately developed.

The consultant team identified the needed "grid" system for major roadways for the Westside area. The major roadway systems are composed of the collector network needed for traffic circulation for both the David Hill and Purdin Road areas. The street network shown below does not include local streets required for development.

Proposed Street System



SCJ ALLIANCE
CONSULTING SERVICES

Proposed Street System

Westside Planning Project
Forest Grove, OR

New Urban Growth Boundary Area

The proposed system for the Purdin Road Area shows an extension of Main Street and B Street north of David Hill Road to serve development in the Purdin Road area. The conceptual transportation network also includes an extension of Brooke Street north from its current terminus to serve the Purdin Road area. Main Street, B Street (Road 8) and Brooke Street will connect to a new east/west collector street (Road 7) located approximately half the distance between David Hill Road and Council Creek.

David Hill Area

The conceptual transportation network in the David Hill area is more complex than the Purdin Road area due to topography. The transportation network includes an extension of Plum Hill Lane (Road 5) west to a new collector street roughly parallel with Thatcher Road (Road 4). This new collector roadway will connect David Hill Road with Purdin Road.

The conceptual transportation system also includes a new roadway (Road 6) interesting with David Hill Road approximately 1,250 feet west of Thatcher Road. This location takes advantage of grades less steep than most locations along the north side of David Hill Road. From David Hill Road this new road will run approximately 2,900 feet north and west to serve the far western edge of the David Hill planning area.

The conceptual transportation also includes an extension of Vista Drive (Road 1) from Watercrest Road to Thatcher Road. This connection is currently in the Forest Grove Transportation Plan Update (2014). This new connection will relieve congestion at the intersection of Thatcher Road will Gales Creek Road. Road grade would be approximately 8% to 10%.

A new east/west road (Road 2) is proposed generally parallel to Watercrest and David Hill Road to improve connectivity as the area north of Watercrest Road develops. The road will be aligned to avoid Thatcher Park and Thatcher Woods. Valley Crest Way is proposed for extension to connect with Road 2. This will provide an alternative way to enter or exit the Forest Gale Heights area.

Traffic Operations Analysis

The consultant team prepared an analysis on the area roadways as a result of full build out of the Westside Planning Area. The analysis is included in the appendix and is considered a "worse case" land use scenario including 2,132 dwellings and 126,500 square feet of non-residential space. This compares with 1,950 dwellings and 172,000 square feet of non-residential space under the Planning Commission land use direction. (Both alternatives include 65,000 square feet for an elementary school.) A comparison of the overall Average Daily Trips (ADT) for the two scenarios would be 23,219 for the worse-case scenario and 24,155 for the Planning Commission alternative. The analysis, however, is based on peak hourly trips rather than ADT. This results in a difference of 64 more two way trips for the Planning Commission scenario. This is not a significant, particularly considering that these trips would be distributed over the entire circulation system.

The following table is the current TSP analysis for the area roads. While this analysis includes the David Hill area for development, it does not include the added traffic from the Purdin Road area since the Purdin area was not yet added to the urban growth boundary by the Oregon Legislature. Further, the assessment was based on no traffic circles for the David Hill and Purdin road intersections with Highway 47.

2035 Transportation Impacts from Current TSP

No.	Intersection	Operational Standard	Level of Service (LOS) [1]	Average Delay* (Seconds)	Volume / Capacity (V/C)
	Unsignalized Intersections				
1	Thatcher Road/Watercrest Road	LOS E/0.99	A/C	17.2 [2]	0.09 [2]
2	Gales Creek Road/Thatcher Road	LOS E/0.99	A/B	11.6 [2]	0.24 [2]
3	Highway 47/Verboort & Purdin	V/C=0.99	**A/F**	**>200** [2]	**>2.00** [2,3]
5	Highway 47/Martin Road	V/C=0.99	**A/F**	**>200** [2]	**>2.00** [2]
7	Highway 47/David Hill Road	V/C=0.99	**-/F**	**>200** [2]	**1.54** [2,4]
	Signalized Intersections				
4	Highway 47/Sunset Drive	V/C=0.99	B	16.1	0.50
6	Pacific Avenue/Quince Street	V/C=0.99	D	53.4	0.97

* Minor street average delay reported for unsignalized intersections

1 For unsignalized intersections the first value is the free movement; second value is the worst stopped movement. At signalized locations the value is for the entire intersection.

2 Worst stopped movement.

3 Development of local street connections in Forest Grove may divert added WB traffic to this location requiring improvements. This analysis assumes existing lane configuration and traffic control. Subsequent to TSP preparation, improvement of the intersection as a single lane roundabout was undertaken.

4 Assumes stop control for side street traffic. Subsequent to TSP preparation, improvement of the intersection as a single lane roundabout was undertaken.

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[1] *Oregon Highway Plan, Policy Element*, Table 7, Oregon Department of Transportation, 1999.

[2] *Washington County 2020 Transportation System Plan*, Washington County, 2002.

To determine traffic impacts associated with the revised land use alternative and to identify any potential roadway improvement needs, the expected traffic volumes associated with this development must be forecast and analyzed. The process used to prepare Westside traffic projections is described in the following pages. For consistency with the adopted Transportation System Plan, the 2035 PM peak hour was used for the analysis.

The process of moving from TSP forecasts to forecasts based on the Westside land use alternative involved the following steps:

- Comparison of Land Use Projections: The household and employment forecasts that are consistent with the 2014 Comprehensive Plan and provide the basis for the Transportation System Plan were compared estimated dwelling unit and employment forecasts for the Westside area in the modified regional travel demand model.
- Calculation of Land Use Growth: Estimates of new growth in household and employment forecasts over the Transportation System Plan baseline were allocated to specific locations.
- Development of Trip Generation Estimates: Trip end estimates consistent with the Transportation System Plan were obtained from the Metro regional model for zones including the Westside planning area. These estimates were factored up or down by location consistent with the new dwelling unit and/or employment growth based on the Westside land use alternative. For the Gales Creek and David Hill areas, the trips with Westside land use alternative are expected to decrease slightly in comparison with the Transportation System Plan. This is because the number of dwelling units increased

with the Westside land use alternative and the regional transportation model originally included trips related to future employment in these areas. Since the Westside land use alternative includes only minor growth in employment in the David Hill and Gales Creek areas the net growth in trip-making in comparison to the TSP would likely decrease.

Total trips for the Purdin Road planning area are expected to increase significantly compared to the Transportation System Plan baseline because this area was not included in the urban growth boundary at the time the TSP was developed. Trip generation rates were added to the TSP 2035 PM peak hourly traffic volumes for the Purdin Road area.

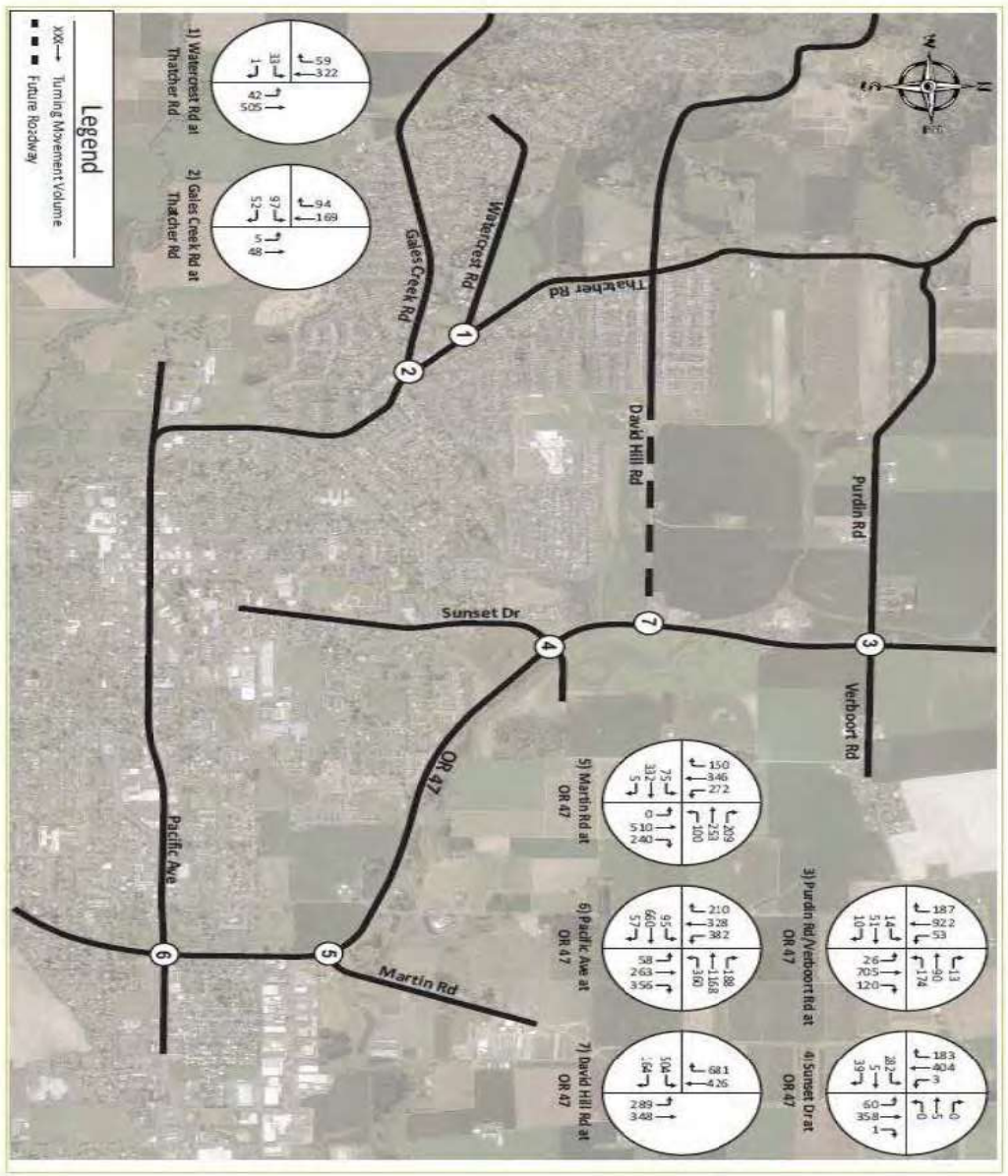
- Identification of Trip Distribution Patterns: Distribution of projected increased trips was developed through review of traffic patterns from several runs of the Metro regional transportation model. This analysis included new roadway connections included in the TSP. The analysis indicates that there is strong attractiveness from the Purdin Road planning area to and from the north and east linking Forest Grove with Hillsboro and Portland. Approximately 47 percent of new net trips are expected to travel in this direction. Approximately 25 percent of trips are expected to travel to the west and southwest and about 23 percent of trips are project to travel to the southeast. About five percent of trips are estimated to travel south. Highway 47 is an attractive route for these trips as is David Hill Road and Thatcher Roads.
- Preparation of Trip Assignment: Trips from the Westside planning areas were assigned to the street system consistent with the modeled distribution pattern.

The following roadway improvements were considered in developing the traffic forecasts for the Westside planning area. These improvements are identified in the Transportation System Plan.

- David Hill Road: The extension of David Hill Road to Highway 47. A single lane roundabout was assumed for this intersection.
- Vista Drive/Talisman Lane: The addition of the Vista Drive and Talisman Lane extensions between Gales Creek and Thatcher Roads are included in the analysis. With these improvements a significant volume of existing and projected future traffic would be diverted away from the Gales Creek Road and Thatcher Road intersection. Without these improvements it will be necessary to signalize or otherwise improve traffic operations at this intersection.
- Highway 47 at Verboort Road/Purdin Road: A single lane roundabout was included in the analysis. This improvement to the intersection and extension of David Hill Road are expected to draw some traffic away from the Highway 47/Martin Road intersection. Highway 47 at Martin Road: As noted in the Transportation System Plan, Martin Road expected to connect with a future roadway across Highway 47. This connection may reduce traffic volumes along Highway 47 but could worsen traffic operations at the intersection with Martin Road. This may result in the need for future intersection improvements that could include signalization.
- Main Street and B Street Extensions: The recommended street system for the Purdin Road planning area includes connections via Main Street and B Street. Extensions of these two streets are identified in the TSP between Hartford Drive and Martin Road and will be constructed as part of the Silverstone planned residential development.

2035 PM Peak Hour Turning Movement Projections

The figure below shows the 2035 PM peak hour turning movement projections for the Westside planning area.



2035 PM Peak Hour Operations Analysis Results

To assess the magnitude of traffic impacts associated with the Westside land use alternative a comparison was made with the 2035 PM peak hour traffic operations contained in the Transportation System Plan. These forecasts assume the roadway connections and improvements identified above.

The table below shows estimated 2035 PM Peak Hour Intersection Operations with TSP land uses and streets.

Figure 2 - 2035 PM Peak Hour Intersection Operations

(TSP Land Use and Streets)

No.	Intersection	Mobility Standard	Level of Service [1]	Average Delay (Sec)*	Volume / Capacity
	Unsignalized Intersections				
1	Thatcher Road/Watercrest Road	LOS E/0.99	A/C	17.2 [2]	0.09 [2]
2	Gales Creek Road/Thatcher Road	LOS E/0.99	A/B	11.6 [2]	0.24 [2]
3	Highway 47/Verboort & Purdin	V/C=0.99	**A/F**	**>200** [2]	**>2.00** [2,3]
5	Highway 47/Martin Road	V/C=0.99	**A/F**	**>200** [2]	**>2.00** [2]
7	Highway 47/David Hill Road	V/C=0.99	**-/F**	**>200** [2]	**1.54** [2,4]
	Signalized Intersections				
4	Highway 47/Sunset Drive	V/C=0.99	B	16.1	0.50
6	Pacific Avenue/Quince Street	V/C=0.99	D	53.4	0.97

* Minor street average delay reported for unsignalized intersections

1 For unsignalized intersections the first value is the free movement; second value is the worst stopped movement. At signalized locations the value is for the entire intersection.

2 Worst stopped movement.

3 Development of local street connections in Forest Grove may divert added WB traffic to this location requiring improvements. This analysis assumes existing lane configuration and traffic control. Subsequent to TSP preparation, improvement of the intersection as a single lane roundabout was undertaken.

4 Assumes stop control for side street traffic. Subsequent to TSP preparation, improvement of the intersection as a single lane roundabout was undertaken.

As indicated in the table above, the Highway 47 at Purdin/Verboort Road and Highway 47 at Martin Road are expected to fail by 2035 during the PM peak hour.

The Oregon Transportation Planning Rule (TPR) requires coordination between land use plans and transportation plans. Under the TPR, when an amendment to a comprehensive plan is proposed a determination must be made by the local jurisdiction as to whether land uses allowed by the plan will significantly impact an existing transportation facility. Impact is measured at the end of the planning period identified in the adopted TSP. For Forest Grove this is 2035. Further discussion with ODOT is needed to address potential traffic impacts from the land uses in the Purdin Road planning area on the Highway 47 intersections with David Hill Road and Purdin Road since there will be a significant impact. The issue is whether this impact will occur before 2035 and if so how the impact will be mitigated (i.e. adding channelization to the roundabouts).

The table below shows projected intersection operations with mitigation measures. The table indicates the two roundabouts would meet be level of service and volume/capacity standards once the mitigation measures are implemented.

No.	Intersection	Mobility Standard	Level of Service [1]	Average Delay (Sec)*	Volume / Capacity
Analysis Based on TSP Traffic Volumes					
Without Roundabout (Unsignalized)					
3	Highway 47/Verboort & Purdin	V/C=0.99	**A/F**	**>200** [2]	**>2.00** [2,3]
7	Highway 47/David Hill Road	V/C=0.99	**-/F**	**>200** [2]	**1.54** [2,4]
With Proposed Roundabout					
3	Highway 47/Verboort & Purdin	V/C=0.99	**C**	**27.5**	**1.06**
7	Highway 47/David Hill Road	V/C=0.99	A	7.8	0.81
With Mitigated Roundabout					
3	Highway 47/Verboort & Purdin	V/C=0.99	A	9.3 [6]	0.89 [6]
Analysis Based on Westside Traffic Volumes					
With Proposed Roundabout					
3	Highway 47/Verboort & Purdin	V/C=0.99	**F**	**87.4** [5]	**1.34** [5]
7	Highway 47/David Hill Road	V/C=0.99	**F**	**91.4** [5]	**1.33** [5]
With Mitigated Roundabout					
3	Highway 47/Verboort & Purdin	V/C=0.99	B	12.4 [7]	0.92 [7]
7	Highway 47/David Hill Road	V/C=0.99	B	14.6 [8]	0.95 [8]

* Minor street average delay reported for unsignalized intersections

1 For unsignalized intersections the first value is the free movement; second value is the worst stopped movement. At signalized locations the value is for the entire intersection.

2 Worst stopped movement.

3 Development of local street connections in Forest Grove may divert added WB traffic to this location requiring improvements. This analysis assumes existing lane configuration and traffic control. Subsequent to TSP preparation, improvement of the intersection as a single lane roundabout was undertaken.

4 Assumes stop control for side street traffic. Subsequent to TSP preparation, improvement of the intersection as a single lane roundabout was undertaken.

5 Pending single lane roundabout intersection improvements are assumed here.

6 Mitigation is addition of NB right-turn slip lane

7 Mitigation is addition of SB right-turn slip lane

8 Mitigation is addition of 2nd circulating lane to provide separate lanes for NB left-turn and NB through, as well as separate lane for SB right-turn.

Estimated Transportation Costs

The table below shows planning level cost estimates the street shown on the map above. More detailed information about the cost and methodology for preparing the estimates is provided in the appendix. As indicated in the table the total estimated cost for constructing the collector street system is approximately $37.7 Million. This amount does not include local street construction. All costs included in the table are expected to be private costs associated with providing access for development or traffic impact mitigation.

Identified Street Projects

No.	Road Name	Project Limits	Description	Estimated Cost
1	Road 1 (Vista Drive Ext.)	Watercrest Road to Thatcher Road	Construct new north-south 1,050 foot urban collector street	$1,000,300
2	Road 2	From Vista Drive Extension west 3,200 feet	Construct new east-west urban collector street	$4,246,000
3	Road 3 (Valley Crest Extension)	From terminus of Valley Crest Way north to Road 2	Construct new 600-foot urban collector street	$787,200
4	Road 4	David Hill Road north to Purdin Road	Construct new 4,700 foot urban collector street	$6,409,200
5	Road 5 (Plum Hill Improvement)	Existing Plum Hill Lane (privately-owned) to Road 4	Improve Plum Hill Lane to urban collector standards	$1,212,200
6	Road 6	David Hill Road to urban growth boundary	Construct new 2,300 foot urban collector street	$2,391,000
7	Road 7 (Brooke Street Extension)	Brooke Street to David Hill Road	Construct new 5,500 foot urban collector street	$4,766,200
8	Road 8 (B Street Extension)	David Hill Road to Brooke Street	Construct new 1,750 foot urban collector street	$1,583,700
9	Road 9 (Thatcher Improvement)	David Hill Road to Purdin Road	Full improvements to Council Creek crossing (short-term)	$1,454,000
9	Road 9 (Thatcher Improvement)	David Hill Road to Purdin Road	Half street reconstruction between David Hill Road to Purdin Road excluding Council Creek crossing (long-term)	$2,437,500
10	Road 10 (David Hill Improvement)	Thatcher Road to urban growth boundary	Full street reconstruction for 5,100 feet to urban collector street standards	$3,943,500
11	Improvement to David Hill Road/Highway 47 roundabout	David Hill Road/Highway 47 intersection	Addition of 2nd circulating lane to provide separate lanes for northbound left turn and northbound through traffic and separate lane for southbound right-turn	$2,500,000
12	Improvement to Purdin Road/Verboort Road/Highway 47 roundabout	Purdin Road/Verboort Road/Highway 47 intersection	Addition of northbound right-turn slip lane on the south leg of the roundabout and southbound right turn slip lane on the south leg of the roundabout to the overall roundabout intersection.	$4,000,000
			TOTAL ESTIMATED COST	*$37,730,800*

Transportation Funding Options

The project team explored several options for funding the identified backbone/collector street network necessary to serve future development. Unlike other developable areas in City's planning area, the Westside area is devoid of any internal street system. Considering the topography of David Hill the collector street network presents engineering challenges which adds to project costs.

Although the new urban growth boundary area does not have the topographic considerations David Hill does there are challenges. The primary challenge is the traffic capacity of the two roundabouts on Highway 47 at David Hill Road and Purdin/Verboort Road. When the Forest Grove Transportation System Plan was adopted in 2014 it was not envisioned the area would be added to the urban growth boundary by the Legislature. The area was identified as an urban reserve and was anticipated to remain agricultural for at least the next fifty years. Traffic volumes contained in the TSP reflect this expectation. Since the area is now in the urban growth boundary and the City must assign urban Comprehensive Plan designations to the area traffic impacts must also be considered. Addressing traffic impacts associated with Comprehensive Plan amendments is a requirement of the Oregon Transportation Rule. Traffic associated with development in the new urban growth boundary area will significantly impact the roundabouts and degrade operations below acceptable levels as explained below. As such, the costs for improving the roundabouts to ensure acceptable operations must be considered as part of the adopting the Westside Refinement Plan. This includes identifying a potential source, such as a supplemental transportation system development charge, to fund the needed improvements. This is explored further below.

Adding a supplemental transportation system development charge to the current countywide Transportation Development Tax is one way to address transportation project costs. The amount of any supplemental transportation system development charge requires further evaluation based on a determination of total project costs, area of benefit, and estimated per unit charge. It is suggested that the funding strategy be evaluated further and include additional discussion with property owner and develop input prior to refinement and implementation. To guide this discussion and further evaluation several options for a supplemental transportation system development charge are identified below.

The current (FY 2016-2017) transportation system development tax (TDT) is $8,278 for single family detached homes and $5,425 for apartment units. The blended rate based on the estimated number of single family detached and attached units from the land use concept for the Westside area is $7,914 per unit. Based on dwelling unit yield of 1,950 units in the Westside area the total TDT revenue would amount to approximately $15.4 million. Since total estimated transportation costs for the collector street system identified above is approximately $37.7 million there is a revenue shortfall of about $22.3 million. Policy options for addressing this shortfall are described below.

Transportation Funding Policy Option 1:
(Area Wide TDT with All Projects Funded with TDT Revenue)

One policy option is to establish a supplemental TDT for the entire Westside Planning area. That is one rate for the entire area. Under this approach, a TDT amounting to $11,435 would be necessary to fill the funding gap for transportation projects in the Westside plan area. Adding the supplemental charge to the current TDT the total transportation fee would be $19,349 based on the blended rate.

This approach creates some equity issues since traffic impacts are not spread evenly throughout the planning area. For instance, development in the new urban growth boundary area north of David Hill Road requires improvement of the two Highway 47 roundabouts over time. In the David Hill area west of Thatcher Road improvement to David Hill Road and Thatcher Road is necessary as well as construction of a north-south collector street west of Thatcher Road. None of the improvements provide benefit to the new urban growth boundary area.

Transportation Funding Policy Option 2:
(Area Wide TDT with Some Projects Funded by Outside Sources:

The second policy option assumes that improvements to the Highway 47 roundabouts. David Hill Road west of Thatcher Road and Thatcher Road north of David Hill Road are all funded by outside sources. This reduces the total cost of TDT funded projects by approximately $15.3 million. If this approach is taken the supplemental TDT would be approximately $3,571 per dwelling unit. The total combined TDT would be $11,485. This amount is $7,864 less than Option 1.

Transportation Funding Policy Option 3:
(TDT Revenues and Project Costs Allocated by Subarea):

Policy option 3 looks at dividing transportation revenues and costs by project subarea. One project subarea is David Hill north of Watercrest and west of Thatcher Road. The other project subarea is the new urban growth boundary area north of David Hill Road between Highway 47 and Thatcher Road. This is explored further below.

Option 3A. David Hill Subarea: If 100% of TDT revenue generated in the David Hill Area is used to fund improvements west of Thatcher Road the supplemental system development charge would be approximately $22,860 for a total fee of $30,775. This fee could be prohibitive with result potentially being little development in the David Hill subarea. To mitigate some projects could be funded with outside sources. For example, if the Thatcher Road improvements are funded by an outside source the supplemental charge would be $11,459 and the total fee would be $19,374.

Option 3B. New Urban Growth Boundary Area: If 100% of the TDT revenue generated in the new urban growth boundary area is used to fund improvements in the new urban growth boundary area the supplemental charge would be approximately $3,883. The total fee would be approximately $11,797. If the Hwy 47 roundabout improvements were funded through an outside source there wouldn't be a need for a supplemental TDT. This is because TDT revenue based on development in the new urban growth boundary area would exceed the cost of transportation costs in the new urban growth boundary area by approximately $2.9 million.

The table below summarizes the identified policy options for consideration by the Planning Commission.

Transportation Development Tax Summary Table

Policy Option	Description	Current TDT Blended Rate	Supplemental TDT Required	Total TDT
1	Area Wide TDT – All Projects Funded With TDT	$7,914	$11,435	$19,349
2	Area Wide TDT – Some Projects Funded with Outside Sources	$7,914	$3,571	$11,485
3A	David Hill Subarea TDT	$7,914	$22,860	$30,775
	David Hill Subarea TDT – Thatcher Road Funded by Outside Source	$7,914	$11,459	$19,374
3B	New Urban Growth Boundary Subarea TDT	$7,914	$3,883	$11,797

One last thought on the policy of establishing a supplemental transportation system development charge. Washington County established supplemental transportation system development charges for the Bonny Slope and North Bethany areas. Due to concerns raised by homebuilders over the amount of the supplemental charge needed; the County adopted a policy to limit the supplemental charge to 95%of the current Transportation Development Tax. If this same policy applied to the Westside planning area the supplemental charge would be limited to $7,839. This amount is based applying the 95% factor to the blended TDT rate of $7,914. Under this approach only policy options 2 and 3B are viable since the amounts are lower than $7,839.

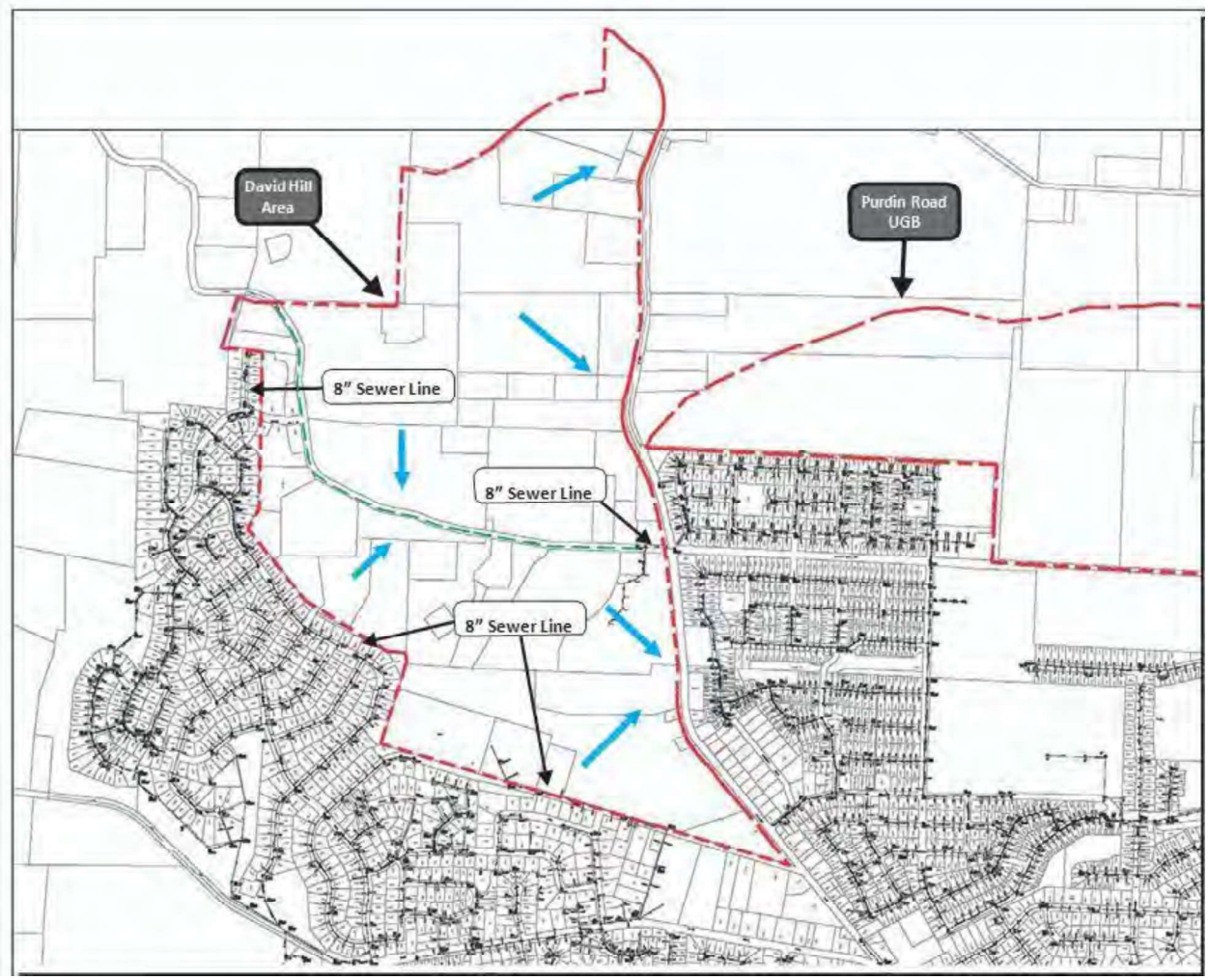
Chapter 9 – Sewer

Sanitary and storm services are provided by through a partnership between the City and Clean Water Services. Under the intergovernmental agreement the City is responsible for collection lines smaller than 21 inches in diameter as well as all manholes. Clean Water Services is responsible for the regional sewer system including large conveyance pipes and the waste water treatment plants. Anticipated revised agreements will lower the division of responsibility to lines 12-inches or less being the City's responsibility and larger lines being Clean Water Service's responsibility.

Long term investments to the sanitary sewer system are guided by the City's Wastewater System Master Plan and Clean Water Services Sewer Master Plan. The City's Wastewater System Master Plan was last updated in 2007. The Clean Water Services Sewer Master Plan Update was last updated in 2009.

David Hill Area

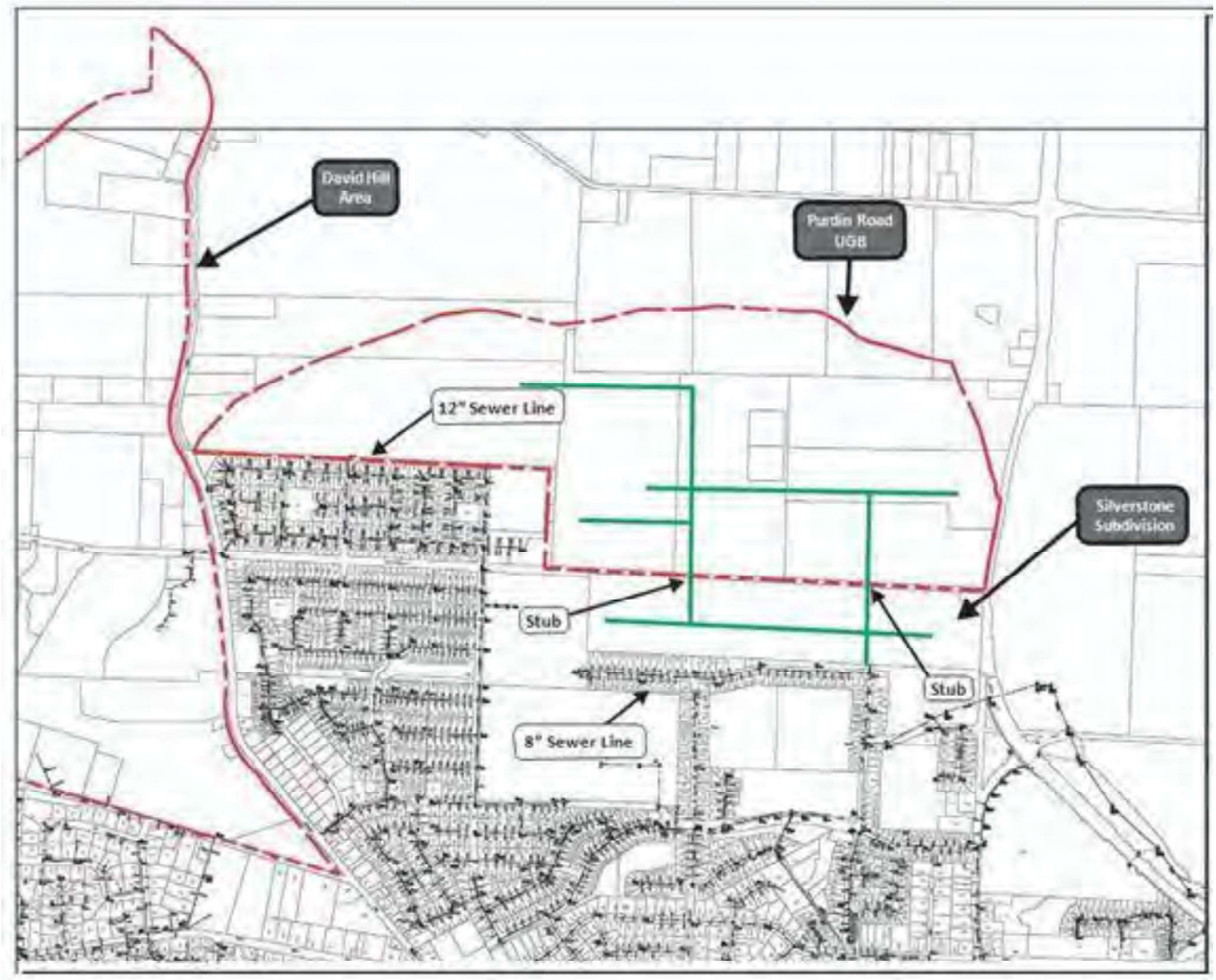
As the map below shows, the David Hill area is largely unserved by public sanitary sewer. There is an 8 inch sewer line located on David Hill Road west of Thatcher Road. This line extends approximately 200 feet west of Thatcher Road. There is a 12 incline from The Parks Development that terminates to a point on Thatcher Road approximately 550 feet north of David Hill Road.



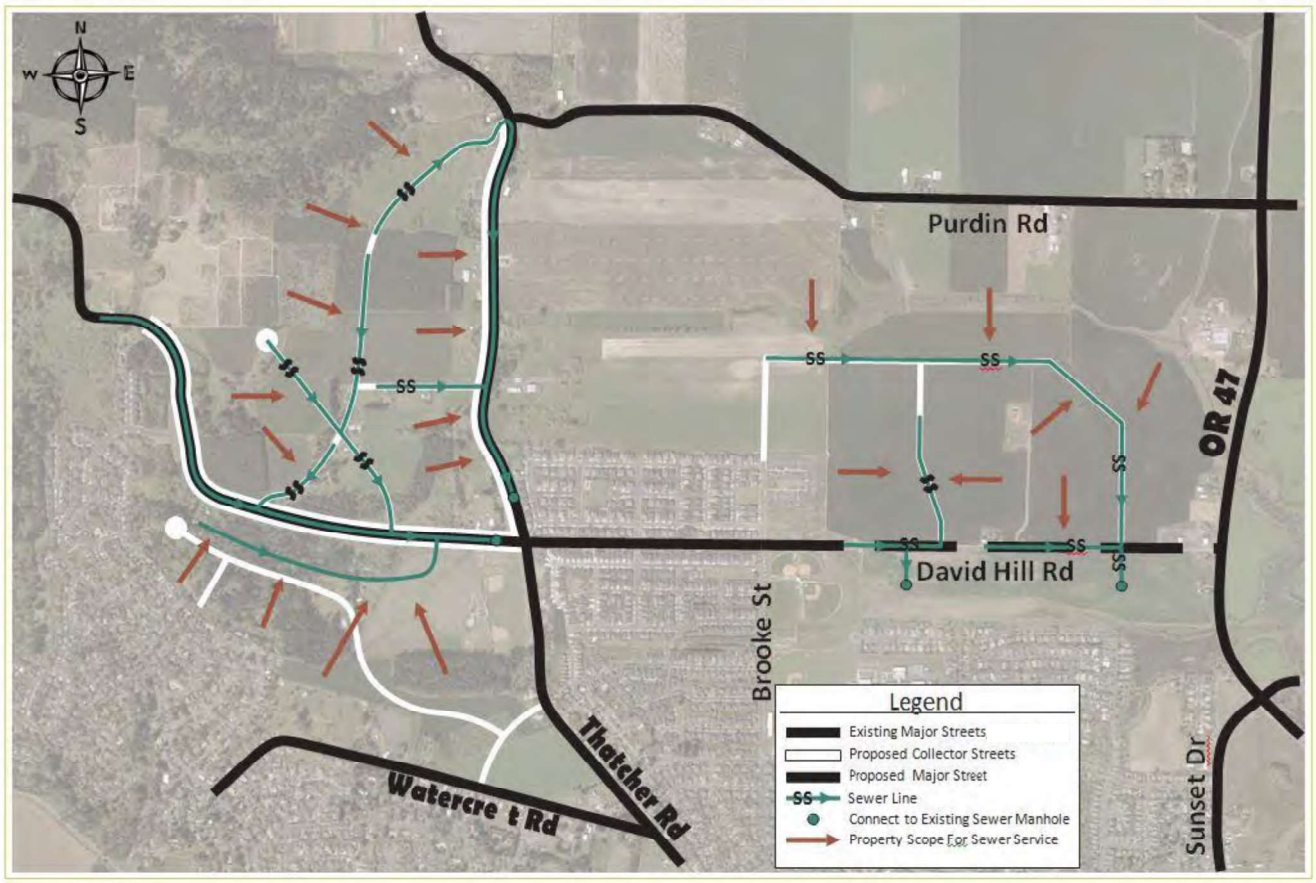
According to the Forest grove Sanitary Sewer Master Plan, it is expected that two trunk lines will serve development in the David Hill area. One line would be located on David Hill Road and the other line would be located Thatcher Road. Due to topography the line on David Hill Road should be constructed deep enough so that the collection system could be extended to the south below a small ravine. Both the David Hill and Thatcher trunk lines require a diameter of 12 inches.

Purdin Road Area

Since the Purdin Road area was added to the urban growth boundary in 2014 and all of the area is outside the city limits little consideration has been given to how this area could be served by the public sewer system. The Westside Plan helps overcome this issue. Recommendations for sanitary sewer lines needed to serve development are shown on the maps below. The maps only show the main sewer lines and not the lines needed to serve individual homes or development.



The maps below show the proposed conceptual sanitary and storm sewer systems to serve the David Hill and Purdin Road urban growth areas. The lines generally follow the street network for efficiency and to accommodate gravity flows.



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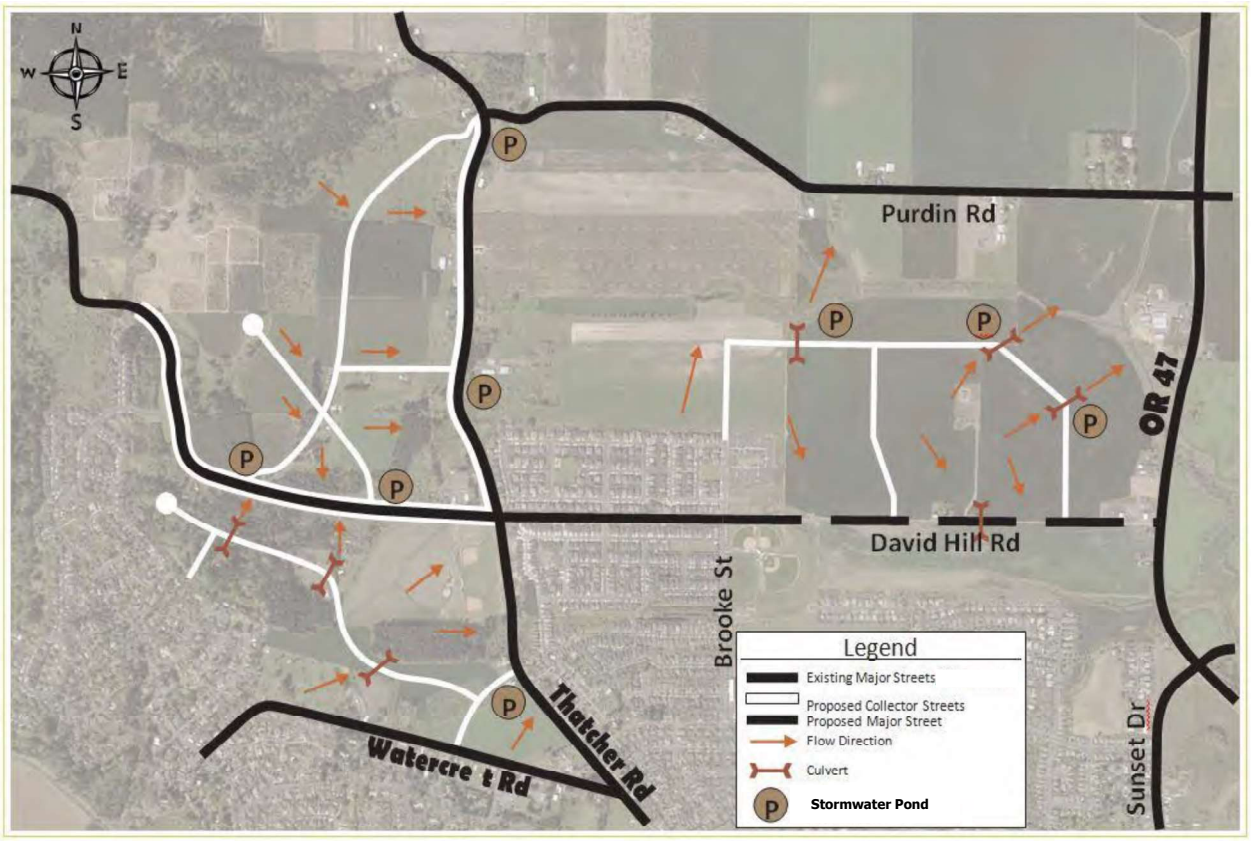
Sewer Utilities

Westside Planning Project
Forest Grove, OR

The following map shows improvements necessary to accommodate storm water drainage needed for the collector roadway system. The map also shows the general direction for storm water flows. The map does not show storm water/drainage improvements needed for individual developments. Improvements needed for individual developments will be considered during the development review process based on Clean Water Services standards and design guidelines.



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Stormwater Utilities

Westside Planning Project
Forest Grove, OR

The table below shows the estimated costs for constructing the necessary sanitary sewer system. Total costs are approximately $3.6 Million including contingencies and engineering costs.

Sanitary Sewer Estimated Costs

No.	Segment	Estimated Cost
1	Road 1, 2, 3 Sewer Line	$225,000
4	Road 4 Sewer Line	$300,000
5	Road 5 Sewer Line	$82,500
6	Road 6 Sewer Line	$165,000
7	Road 7 Sewer Line (10")	$405,000
8	Road 8 Sewer Line (10")	$255,000
9	Road 9 Sewer Line	$262,500
10	Road 10 Sewer Line (700 LF 12")	$382,500
	Contingencies and Engineering	$1,558,100
	Totals	*$3,561,350*

The table below shows estimated costs to construct the storm sewer/drainage system. Total estimated cost is $1,575,000.

Storm Sewer Estimated Costs

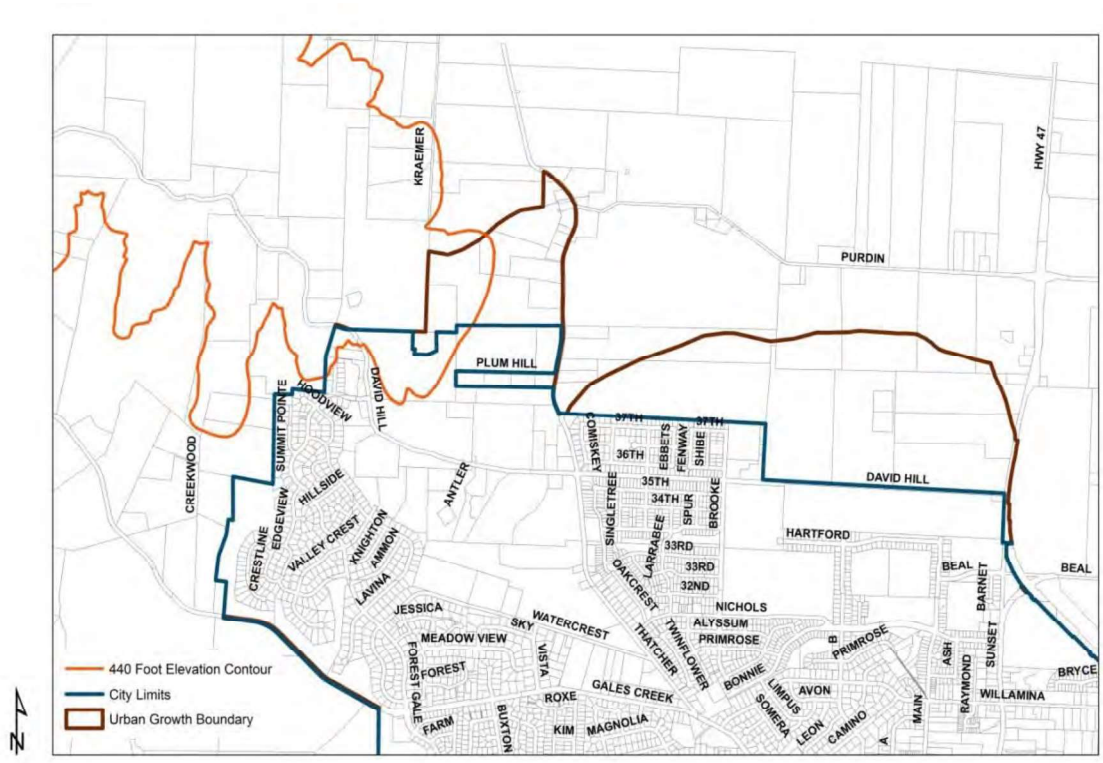
No.	Segment	Estimated Cost
1	Road 1, 2,3 Storm Pond	$75,000
2	Road 4 Storm Pond	$75,000
3	Road 5 and 9 Storm Pond	$100,000
4	Road 6 and 10 Storm Pond	$150,000
5	Road 7 Storm Pond	$200,000
6	Road 8 Storm Pond	$50,000
7	Road 1, 2 3 Stormwater	$35,000
8	Road 4 Stormwater Treatment	$35,000
9	Road 5 and 9 Stormwater	$70,000
10	Road 6 and 10 Stormwater	$70,000
11	Road 7 Stormwater Treatment	$20,000
12	Road 8 Stormwater Treatment	$20,000
	Contingencies and Engineering	$675,000
	Totals	*$1,575,000*

Chapter 10 – Water

The first public water system serving Forest Grove was built circa 1908. A water intake was constructed on Clear Creek, a tributary of Gales Creek. A transmission line was constructed using ten-inch logs with a hole bored in the center. Water was conveyed from the water intake to the present site of the water treatment facility.

In addition to Clear Creek, Forest Grove has water rights from Gales Creek, Roaring Creek, the Tualatin River, Hagg Lake and stored water at Barney Reservoir. In 1976 Forest Grove and Hillsboro formed the Joint Water Commission (JWC) to address growing water needs. Members of the Joint Water Commission now include Forest Grove, Hillsboro, Beaverton and the Tualatin Valley Water District. The JWC now provides potable water supply for approximately 50% of the City's water needs on an annual volume basis. Most of the JWC supply is used during the peak water demand season from May through September.

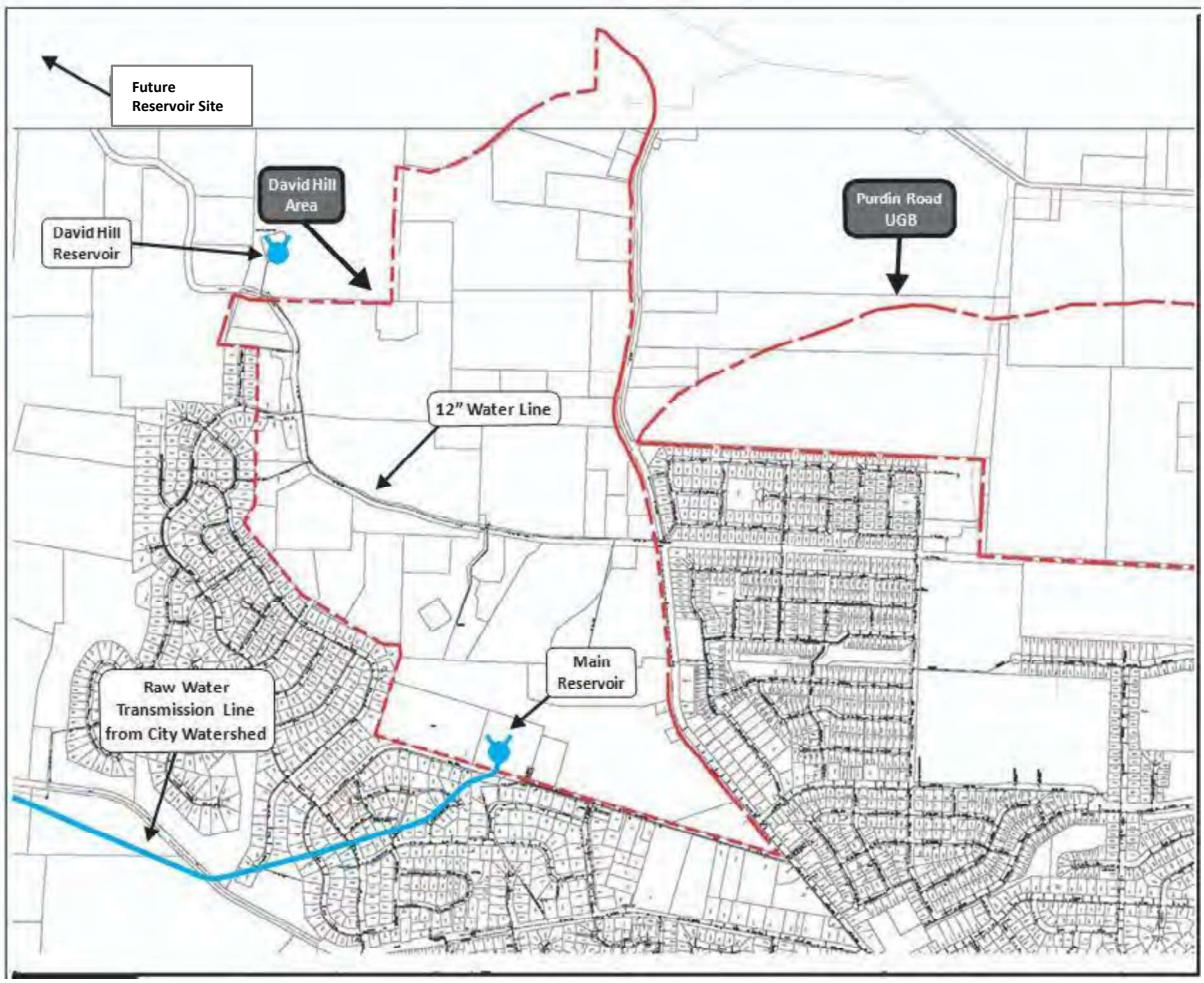
Currently, the David Hill area is served by a 12-inch water line running along David Hill Road. Most residents in the area, however, rely on well water. Based on a review of the Water Master Plan several factors are present that could affect development in the David Hill area. One factor is the existing water system cannot supply water above an elevation 440 feet above sea level (shown as the orange line on the map below) with adequate pressure.



To address this issue the Water Master Plan includes as a project installation of a new reservoir that will provide water with adequate pressure above the 440 elevation.

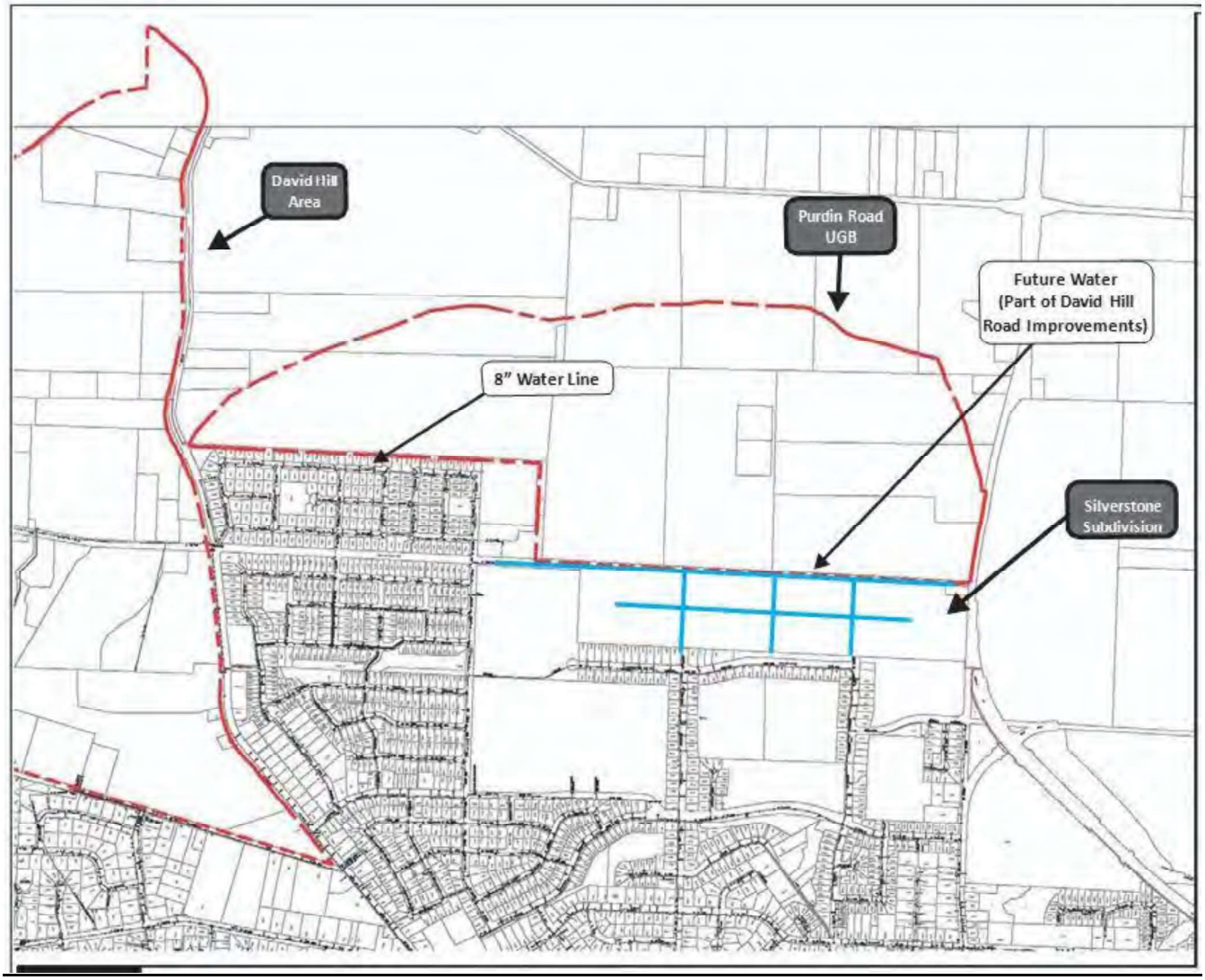
The Water Master Plan recommends building new storage at an elevation higher than the current reservoir to serve the David Hill urban growth boundary and urban reserve areas area. A reservoir elevation of approximately 690 feet above sea level is identified. The Water Master

Plan also includes a 12-inch water line extending from the existing line along David Road through the planning area.



According to the Water Master Plan water storage serving the Purdin Road UGB area includes 4.27 million gallons at the City's water treatment plant and 2.8 million from the Joint Water Commission facility.

The map below shows water mains for the Silverstone subdivision located south of David Hill and west of Thatcher Road. The lines shown in the approximate location of the B Street and Main Street extensions could be extended further to serve the Purdin Road area.



Based on review of Water Master Plan and the consultant team analysis with input from the City's Engineering Division additional water service capacity is needed to serve the Westside area. The needs are primarily based on providing adequate water pressure above the 440 foot contour elevation, meeting fire flow requirements, and cumulative future City-wide needs.

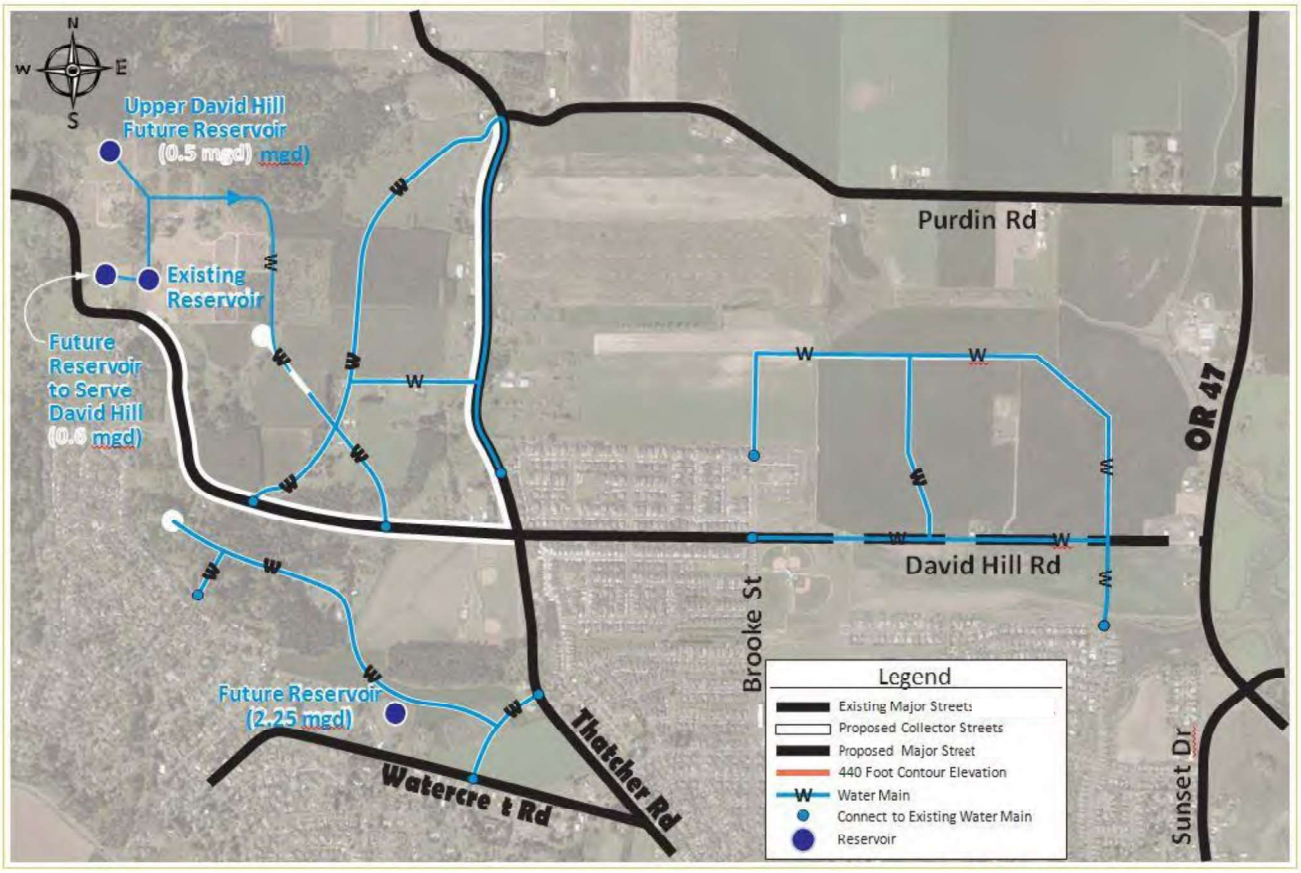
To address the needs described above, the following reservoirs have been identified:

- One 0.5 Million gallon reservoir for the David Hill urban growth boundary area between the 440 and 615 foot elevation;
- One 0.5 Million gallon reservoir for the David Hill urban reserve area between the 190 to 615 foot elevation;
- Two 0.3 Million gallon reservoirs for the David Hill urban growth boundary area between 250 to 440 foot elevation based on the current Water Master Plan. If the 0.5 Million gallon reservoir for the urban growth boundary is expanded to 0.6 Million gallons the two 0.3 Million gallon reservoirs would not be necessary; and
- One 2.25 Million gallon reservoir at the current water treatment plant to serve City-wide needs.

Reservoir needs could be modified when the Water Master Plan is updated. The next update is anticipated in 2018. For example, the construction of 1.0 Million gallon reservoir to serve both

the urban growth boundary and urban reserve areas could be constructed rather than the two 0.5 Million gallon reservoirs. However, other issues such as water turnover need to be evaluated as part of the Master Plan update.

The map below shows the conceptual water system proposed for the Westside area.



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Water Utilities

Westside Planning Project
Forest Grove, OR

The table below shows estimated costs to construct the recommended water system need to serve the Westside area.

Water System Estimated Costs

No.	Description	Linear Feet	Total Estimated Cost	Estimated Cost Attributable to Westside Planning Area	Area of Benefit
1	Road 1 water main	1,050	$63,000	$63,000	David Hill
2	Road 2 water main	3,200	$192,000	$192,000	David Hill
3	Road 3 water main	600	$36,000	$36,000	David Hill
4	Road 4 water main	4,700	$282,000	$282,000	David Hill
5	Road 5 water main	1,250	$75,000	$75,000	David Hill
6	Road 6 water main	2,300	$138,000	$138,000	David Hill
7	Road 7 water main	5,500	$330,000	$330,000	Purdin Road
8	Road 8 water main	1,750	$105,000	$105,000	Purdin Road
9	Road 9 water main	3,500	$525,000	$525,000	David Hill
10	One 0.5 MG reservoir (1)	EA	$4,182,500	$875,000	David Hill
11	Two 0.3 MG reservoir	EA	$2,910,448	$1,950,000	Entire Area
12	One 2.25 MG reservoir near Watercrest	EA	$2,956,522	$680,000	Entire Area
	Contingencies and Engineering		$5,709,728	$3,282,000	Entire Area
	TOTAL		*$17,505,198*	*$8,533,000*	

(1) One reservoir expected to be used by development within David Hill from 440 to 615 feet in elevation and portions of the David Hill Urban Reserve Area between 190 and 615 feet. An additional reservoir is expected to serve the remainder of the David Hill Urban Reserve Area between 190 and 615 feet which is included herein to account for the share costs of land acquisition, piping, pressure reducing valves and a pump station. Approximately $500,000 or 10.4% of total cost of these reservoirs would be attributed to serving the David Hill UGB above 440 feet which would include an estimated 105 dwelling units with R-10 zoning. If there is a reduction in density permitted in this area to SR (1 du/acre), approximately $120,000 or 2.5% of the total cost of the reservoirs would be attributable to serving the David Hill area above 440 feet which would include an estimated 24 dwelling units.

Chapter 11 – Other City Services

Forest Grove is a full service city providing police, fire and rescue services, parks and recreation, light and power, water and sewer services in partnership with Clean Water Services. In addition, the City provides building permitting and planning services. Library services are provided through a partnership between the City and Washington County Cooperative Library Services (WCCLS).

City services are funded through a variety of sources including property taxes, fees such as system development charges for infrastructure, and intergovernmental revenues from the federal, state, regional and county levels of government.

The City's total tax rate is $5.56 per $1,000 of taxable assessed value consisting of $3.96 for the City's permanent rate and $1.60 for the local option levy passed by the voters in 2012. The local option levy is set to expire in 2018.

The City's total proposed budget for 2016 for all activities is $98.25 million. This amount includes ending cash balances and contingencies. General Fund resources total approximately $17.06 million.

As exemplified by the City Council's FY 2016-2017 goals, the City of Forest Grove is committed to promoting a prudent financial plan to maintain effective service levels of a full-service city. The adopted budget for Fiscal Year 2016-2017 allows the City to maintain and enhance services as a full-service City. Over the course of the upcoming year the community is expected to begin a discussion on what it means to be a full-service city. This includes identifying the community standards and expectations for "full-service" and assessing potential implications on future City budgets.

Fire Service

Currently, a one acre parcel has been reserved for a fire station at Thatcher Park. The Fire Department indicates the site is poorly located and there is a need for a two-acre fire station and training area near Highway 47 and David Hill. The rational for this location includes:

1. This location provides better coverage for a primary response area for current and future development in Forest Grove.

2. Secondary response to simultaneous calls is a critical consideration. The proposed location is ideally suited to provide that secondary response – the Thatcher Park location is the worst location for this consideration according to the Fire Department.

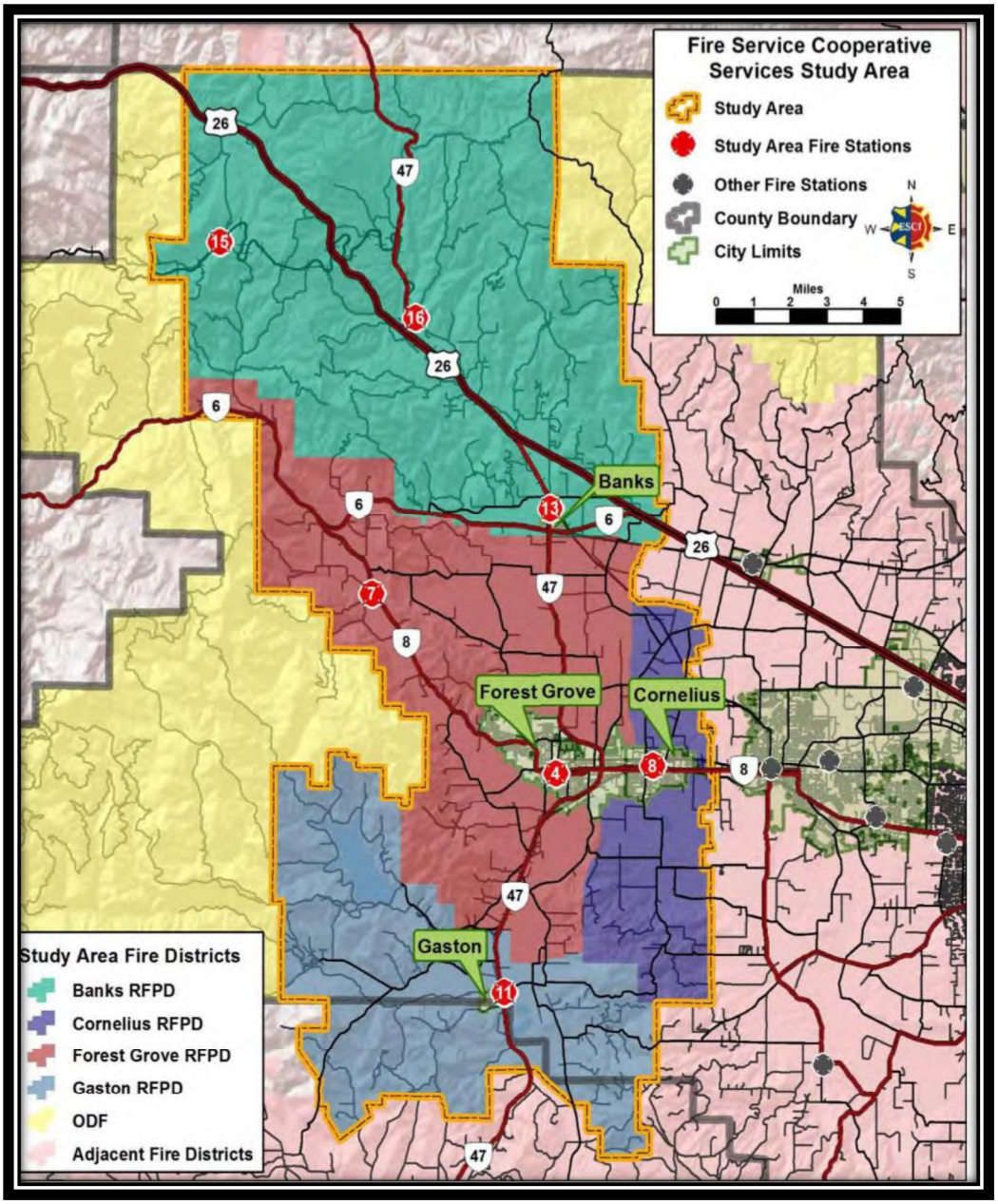
3. Response to fires requires not just to dispatch the closest unit, but to assemble an effective response force in a minimal amount of time. The Thatcher Park location is a poor location for this criterion.

4. The proposed location provides better coverage for the north end of our Rural Fire District.

5. In consideration of future fire service consolidation planning, which is supported by the recent Cooperative Fire Services Study, the proposed location will provide better coverage, operational, and logistical response for all of the proposed models.

6. The Thatcher Park location is inadequately sized for fire station needs, and is situated at a low-visibility intersection. There is a need a two-acre lot to accommodate training areas for this new station – Station 4 training area is severely limited currently.

7. The Thatcher Park location is currently being utilized as a dog park, which is a highly utilized and popular parks resource.



Chapter 12 – Funding Approach

Identifying road, water, sewer and other service needs required for development tells only a limited part of the story. Other parts include the cost of required services, how the services are paid for, who pays for the services and timing. This chapter of the Westside Plan charts a course of action for addressing these considerations.

SCJ Alliance partnered with FCS Group to prepare a funding approach that identifies ways to foster development in the Westside Planning Area based on the land use and infrastructure concepts described in the Westside Plan. This approach includes a funding framework, including tools and techniques commonly used in Oregon, identification of planning level capital costs for public facilities required to serve the Westside Planning Area, Funding evaluation and recommendations and overview of market considerations. Each of these elements are described in more detail below.

Funding Framework

When capital improvements are funded or financed by municipalities, service providers, or through development agreements funding options in Washington County generally include:

- System Development Charge (SDC);
- Transportation Development Tax (TDT);
- Utility Fee;
- Local Option Levy;
- Local Improvement District (LID);
- Reimbursement District;
- Tax Increment Financing (Urban Renewal District);
- Debt Financing; and
- Public Improvement Agreements

A general overview of these tools is provided below.

System Development Charge (SDC)

State law allows for establishment of system development charges, a one-time fee, on new development paid at the time of building permit issuance. SDCs are charged to recover a fair share of the cost of capital improvements, including the cost of existing and planned facilities that provide capacity to serve future growth.

Under state law SDCs may be used for the following capital improvements:

- Water supply, treatment, and distribution;
- Waste water collection, transmission, treatment, and disposal;
- Drainage and flood control;
- Transportation; and
- Parks and recreation

Transportation Development Tax (TDT)

The Transportation Development Tax is a county-wide tax consistent with state SDC law. The TDT was approved by County voters in 2008 and is imposed on all development within the County. The City may use TDT collections on transportation projects included on the adopted TDT project list including projects that add roadway capacity.

Utility Fees

Utility fees are paid by customers within a service area and are usually included on utility billing statements. The City of Forest Grove charges utility fees for sewer, water and electrical service. Utility fees are commonly used to help pay for required infrastructure facilities and operations.

Local Option Levy

A local option levy is a tax on property to fund capital improvements or operations. A capital levy is valid for ten years whereas an operations levy is valid for five years. A local option levy must be approved by voters. The City currently has a local option levy for operations.

Local Improvement District (LID)

The local improvement district is a common tool used by municipalities in Oregon for capital improvement projects benefitting specific property. The LID is a special assessment on property typically payable in annual installments for up to 30 years. LIDs are generally used for capital improvement projects that benefit property owners over a certain identifiable area.

Reimbursement District

A reimbursement district is similar to the LID described above. A reimbursement district is used when a specific party such as a municipality or developer agrees to pay for capital improvements up front ahead of development within a geographic area. The party that advances the funds is partially reimbursed was development occurs usually over a fifteen year period.

Tax Increment Financing (Urban Renewal District)

Tax increment financing is a tool used throughout Oregon to pay for projects intended to revitalize a specific area of a community. Tax increment financing is often used to repay public indebtedness used to finance capital improvements such as roads, water lines or sewer lines. The term tax increment comes from the way tax revenue is distributed to an urban renewal agency based on changes to taxable property value of property within an urban renewal district after the district is established.

Public Debt Financing

Public debt financing is a common method of financing the construction of roads, stormwater facilities, water and sewer lines, and parks. An example of public debt financing is the General Obligation or GO bond. Property tax collections are used to repay the bonds over time typically 20 or 30 years. GO bonds require voter approval. Other types of bonds including revenue and full faith and credit bonds, described below, do not.

Revenue bonds require an ongoing source of revenue pledged to payment of debt service. A utility fee, local option levy or LID payments could serve this purpose.

Full faith and credit bonds are a hybrid of GO and revenue bonds. Full faith and credit bonds called that because they are an unsecured claim on all the revenue streams of a municipality without the pledge of any particular revenue stream. Full faith and credit bonds do not require voter approval.

Public Improvement Agreements

Public Improvement Agreements are used when a developer is required by the City to construct public facilities to City standard as a condition of development approval. The Public Improvement Agreement provides assurances to the parties that regulations affecting construction of the improvements will not change during the term of agreement.

Estimated Capital Costs

A key objective of the Westside Plan is the identification of collector roads, sewer and water trunk lines, pump stations, and stormwater facilities needed to serve the land use concept. This section summarizes estimated conceptual, planning level cost estimates for these facilities. Additional detailed information is provided in the Westside Planning Area Funding Approach report dated December 2016 and included as an appendix to this plan.

The table below shows total estimated project costs by facility type. Total costs amount to approximately $47.6 Million in 2016 dollars. Of this amount, costs for constructing the collector street system amounts to $30.2 Million or about 64% of total infrastructure costs. Water facilities represent the second largest cost item at approximately $8.5 million. Sanitary sewer costs are estimated at $3.6 Million. Stormwater improvements are estimated to cost $1.6 Million. A neighborhood park identified to serve the Purdin Road urban growth area is estimated to cost approximately $3.6 Million.

Westside Planning Area Infrastructure Cost Assumptions

Facility Type	Estimated Cost	Percentage
Collector Streets	$37.7 Million	68.5%
Water System	$8.5 Million	15.5%
Sanitary Sewer System	$3.6 Million	6.5%
Stormwater System[4]	$1.6 Million	2.9%
Park	$3.6 Million	6.5%
Total	*$55.0*	*100%*

[4] Associated with collector street system

Funding Evaluation

Funding options were evaluated for each facility type as part of preparing the Westside Plan. This evaluation provided an assessment of the potential for implementing the recommended funding approach. The assessment included consideration of the following criteria:

- Equity;
- Reliability of Funds;
- Market Acceptance;
- Ease of Implementation; or
- Ability to Address Costs

Each of criterion is described in more detail below.

Equity

Equity is defined to mean distributing risks and costs among different groups in an evenhanded manner. For purposes of the Westside Plan equity was evaluated based on distributing costs for infrastructure among existing City residents, future Westside Planning Area residents, current property owners, and future developers.

Reliability of Funds

Reliability of funds is an important consideration for funding infrastructure especially if debt financing is used. Funding sources such as system development charges and reimbursement districts do not provide a predictable revenue stream because revenue from these sources is contingent on when and how much development occurs. In contrast, revenue bonds secured by property taxes and local improvement districts tend to be far more reliable and less risky to the agency that takes on the debt.

Market Acceptance

Timing and responsibility for provision of adequate public facilities is a significant determinant influencing when private development occurs. Over reliance on developers to fund needed public facilities upfront may drive up development costs to a level that exceeds supportable market prices. In contrast, if the City funds needed infrastructure upfront using only system development charges the City is unlikely to invest in these facilities until adequate capital reserves are established which could delay development.

Ease of Implementation

This criteria refers to adopting and administering the funding approach. Funding sources such as utility fees and system development charges do not require approval at an election to enact which adds cost and time to the implementation effort. Other funding sources such as reimbursement districts require ongoing monitoring which increases administrative costs.

Ability to Address Costs

The recommended funding approach must provide sufficient revenue to fund needed infrastructure improvements required by expected development based on the adopted land use plan. The funding approach must also provide adequate short-term and long-term funding for infrastructure needs.

Recommended Funding Approach

The recommended funding approach is described below. The recommended approach takes into account the recommended land use plan, identified infrastructure needs, and the evaluation criteria identified above.

Transportation

The City of Forest Grove currently collects the Washington County transportation development tax (TDT) for each new residential dwelling constructed. The current TDT is $8,278 for each new single family unit and $5,415 for each new multifamily unit. The blended rate based on the land use concept for the Westside area is $7,914. Based on projected development in the Westside Planning area it is estimated the TDT will generate approximately $15.4 Million. Of this amount the City retains 100% of the revenue for transportation projects in the City identified on the TDT project list.

Total cost for the collector roadway system necessary for the Westside planning area is estimated at $37.7 Million. System development charge revenue is expected to generate approximately $16.3 million in revenue based on the current fee. This results in a revenue shortfall of approximately $22.3 million. Furthermore, system development charge revue would not be available to fund the short-term improvements such as for Thatcher Road to serve development. Policy options for addressing this shortfall are described below.

<u>Transportation Funding Policy Option 1 (Area Wide TDT with All Projects Funded with TDT Revenue)</u>

One policy option is to establish a supplemental TDT for the entire Westside Planning area. Under this approach a TDT amounting to $11,435 is necessary to fill the funding gap. The total TDT would then become $19,349 based on the blended rate.

This approach creates some equity issues since traffic impacts are not spread evenly throughout the planning area. For instance, development in the new urban growth boundary area north of David Hill Road requires improvement of the two Highway 47 roundabouts over time. In the David Hill area west of Thatcher Road improvement to David Hill Road and Thatcher Road is necessary as well as construction of a north-south collector street west of Thatcher Road. None of the improvements provide benefit to the new urban growth boundary area.

<u>Transportation Funding Policy Option 2 (Area Wide TDT with Some Projects Funded by Outside Sources:</u>

The second policy option assumes that improvements to the Highway 47 roundabouts. David Hill Road west of Thatcher Road and Thatcher Road north of David Hill Road are all funded by outside sources. This reduces the total cost of TDT funded projects by approximately $15.3

million. If this approach is taken the supplemental TDT would be approximately $3,571 per dwelling unit. The total combined TDT would be $11,485. This is $7,864 less than Option 1.

Transportation Funding Policy Option 3 (TDT Revenues and Project Costs Allocated by Subarea):

Policy option 3 looks at dividing TDT revenues and costs by project subareas. One project subarea is David Hill north of Watercrest and west of Thatcher Road. The other project subarea is the new urban growth boundary area north of David Hill Road between Highway 47 and Thatcher Road.

Option 3A. David Hill SDC: If 100% of TDT revenue generated in the David Hill Area is used to fund improvements west of Thatcher Road the supplemental TDT would be approximately $22,860 for a total TDT of $30,775. If the Thatcher Road improvements are funded by an outside source the supplemental TDT would be $11,459 and the total TDT would be $19,374

Option 3B. New Urban Growth Boundary Area TDT: If 100% of the TDT revenue generated in the new urban growth boundary area is used to fund improvements in the new urban growth boundary area the supplemental TDT would be approximately $3,883. The total TDT would be approximately $11,797. If the Hwy 47 roundabout improvements were funded through an outside source there wouldn't be a need for a supplemental TDT. This is because TDT revenue based on development in the new urban growth boundary area would exceed the cost of transportation costs in the new urban growth boundary area by approximately $2.9 million.

Transportation Development Tax Summary Table

Policy Option	Description	Current TDT Blended Rate	Supplemental TDT Required	Total TDT
1	Area Wide TDT – All Projects Funded With TDT	$7,914	$11,435	$19,349
2	Area Wide TDT – Some Projects Funded with Outside Sources	$7,914	$3,571	$11,485
3A	David Hill Subarea TDT	$7,914	$22,860	$30,775
	David Hill Subarea TDT – Thatcher Road Funded by Outside Source	$7,914	$11,459	$19,374
3B	New Urban Growth Boundary Subarea TDT	$7,914	$3,883	$11,797

To fund short term transportation needs (i.e. funding improvements to Thatcher Road) creation of a local improvement district is an option. Under this approach benefitting property owners would be assessed for the cost of the improvement. The estimated assessment would be approximately $7,456 per acre or $2,000 per allowable dwelling unit assuming 90% absorption over 20 years resulting in approximately 771 new dwelling units. Benefitting property owners could finance local improvement district assessments over a 10 year (or longer) time frame.

Water System

The City of Forest Grove currently collects a water system development charge of $5,478 for each new residential dwelling constructed. Based on projected development within the Westside Planning area it is expected the water system development charge will generate approximately $11.3 Million. Of this amount the City retains 100% of the revenue.

To total estimated water infrastructure cost for projects necessary to serve future development within the City and accommodate Westside Planning Area development is $23.5 Million of which $8.5 Million is required for the Westside Planning Area. A new 500,000 gallon water reservoir, above the current David Hill reservoir elevation, is necessary to serve future development in the Planning Area. This project is needed in the short term to ensure adequate capacity for water supply including meeting daily demand, fire, and emergency needs. This improvement is needed in the short term and is estimated to cost approximately $4.2 Million. According to engineering estimates, approximately 10.4% of the cost of the new reservoir could be attributed to meeting needs of the David Hill area above the 440 foot elevation where inadequate water pressure exists for development.

The recommended funding approach for long term water infrastructure is to use a portion of the water system development charge (up to 76%) collected in the Westside Planning Area for capital improvement needs in the area. No supplemental system development charge is needed nor recommended.

For short term capital needs (i.e. constructing a new 500,000 gallon reservoir) it is recommended the City issue revenue bonds backed by water rates or a new General Obligation bond to fund such needs. Voter approval is required for a General Obligation bond.

Sanitary Sewer System

The City of Forest Grove currently collects a sanitary sewer system development charge (SDC) of $5,300 for each new residential dwelling constructed. Clean Water Services sets the amount of the SDC. Of the amount collected the City retains $212 per unit. The sanitary sewer system development charge could generate approximately $435,000 based on expected development in the Westside Planning area. Clean Water Services uses SDC revenue to fund regional SDC eligible projects in areas with the greatest need. Regional need is defined as lines larger than 12-inches while lines smaller than 12-inches are considered a local need.

The intergovernmental agreement between Clean Water Services and the City places responsibility for *maintenance* of lines less than 24-inches on the City. *Construction* of lines 12-inches or smaller is also a City requirement. Extending and constructing sewer lines to serve development is a developer responsibility addressed through the development review process. Clean Water Services has responsibility for construction of lines larger than 12-inches or larger as well as treatment facilities.

The estimated City obligation for constructing needed sanitary sewer capital improvements is approximately $3.6 Million. The recommended strategy for funding these local costs relies primarily on developer's constructing and dedicating sewer lines 12-inches or less and using sanitary sewer system development charges collected in the Westside Planning Area for these costs. Further discussion is required with Clean Water Services about allocating a portion of the SDC revenue collected in the Westside Planning Area for Westside sewer infrastructure needs. It is recommended this discussion occur as part of the next update to the City Wastewater System Master Plan.

Stormwater/Drainage System

The City currently collects a stormwater/drainage system development charge of $510 for each new residential dwelling constructed. Of this amount the City retains 100% of the revenue

collected. The stormwater system development charge is expected to generate $1.0 Million for the City based on development in the Westside Planning area.

The Westside Plan identifies stormwater/drainage improvements needed for the collector street system. The estimated cost for such improvements is $1.6 Million. In addition to the stormwater improvements needed for the collector road projects developers will be required to mitigate stormwater impacts created by development as required under Clean Water Services standards.

The funding approach for stormwater relies upon using the existing stormwater system development charge and a supplemental stormwater rate surcharge of approximately $7 per month for households within the Westside Planning area.

Parks, Recreation and Open Space

The City currently collects a parks and recreation system development charge of $3,000 for each new residential dwelling constructed. Of this amount the City retains 100% of the revenue collected. The parks and recreation system development charge is expected to generate approximately $6.1 Million based on expected development in the Westside Planning Area.

Parks and Recreation projects identified in the Parks and Recreation Master Plan Update (2016) include improvements at Thatcher Park including upgrades to the dog park area. The Parks and Recreation Master Plan Update also includes a new six acre neighborhood park serving the Purdin Road urban growth area.

Conclusions

The infrastructure funding analysis reveals the following conclusions:

- Further discussion of the recommended funding approach with property owners, developers and the City needs to be made before implementation;
- Infrastructure needed for development in the Westside Planning Area include collector streets, sanitary sewer, stormwater/drainage, and parks;
- The recommended collector street network needs to be added to the City's Transportation System Plan and Transportation Development Tax (TDT) project list to allow use of TDT in the Westside area;
- Total infrastructure cost for the Westside Planning Area is $47,622,500. Projects in the David Hill area amount to $34,932,500 and for the Purdin Road area the amount is $12,690,000;
- Current system development charge (SDC) revenue could fund water system and park improvements with residual revenues available to fund other related improvements in the City;
- Current SDC revenues are deficient to fund needed road, sewer, and stormwater improvements in the their entirety;
- To address the deficiency the recommendation is to use supplemental SDC revenues coupled with a monthly fee for stormwater over a five year period;
- The recommended approach is feasible and the cost is less on a square footage basis than other developing areas in Washington County;
- Further evaluation is needed on the following items:

- Water reservoirs;
- The percentage of SDC revenues to use for improvements;
- Whether up-front improvements should be considered to encourage development.

Chapter 13 – Policy Direction

This chapter contains goals, policies and actions recommended by the Westside Refinement Plan. The goals, policies and actions address land use, public facilities, natural resources, natural hazards, transportation and funding needed infrastructure to support the recommended land use concept described in the plan. The policy framework described below is based on the analyses supporting the plan. The analyses is generally described throughout this plan document and in detail in the plan's appendices.

Policies for funding needed infrastructure are based on development paying for needed improvements. The City will seek outside funding for infrastructure needs as appropriate especially for transportation improvements.

Land Use

Goal 1.1: Establish land use designations for the Westside planning area based on the physical limitations of the land.

Policy 1.1.1: Land use designations for the Westside planning area should be based on identified environmental constraints including steep slopes and mapped landslide areas.

Action 1.1.1: Amend the Forest Grove Comprehensive Plan Map and Official Zoning map to implement the preferred land use concept for the Westside Planning area which takes into account physical limitations of the land.

Policy 1.2.1: The physical limitations of the land should be the basis for determining the density, location and type of development in the Westside planning area.

Action 1.2.1: Amend the Forest Grove Development Code to ensure the physical limitations of the land in the Westside planning area are considered during the development review process.

Policy 1.3.1: A mapped landslide area is identified in the area south of David Hill Road between Forest Drive and Antler Lane. Development within the mapped landslide area should be avoided.

Action 1.3.1: Amend the Development Code to allow for the transfer of density from environmentally constrained areas to unconstrained locations with the approval of the Planning Commission.

Policy 1.4.1: A geological and engineering assessment for development north of David Hill Road and west of Thatcher Road shall be required to ensure suitability of proposed development from an engineering perspective.

Action 1.4.1: Amend the Forest Grove Development Code to require submittal of a geological and engineering assessment prepared by a certified engineering geologist for any development site with an average cross-slope of 10% or more or areas likely to have adverse soils. The results of the geological assessment

should provide the basis for appropriate mitigation measures needed to address geological and soil constraints.

Goal 1.2: Establish land use designations for the Westside planning area that provides opportunities for a variety of land uses including residential, commercial, educational and recreational.

Policy 1.2.1: Land use designations adopted for the Westside planning area should provide opportunities for a variety of land uses including residential, commercial, educational and recreational.

Action 1.2.1: Amend the Forest Grove Comprehensive Plan Map and Zoning map to implement the preferred land use concept for the Westside planning area which provides opportunities for a variety of land uses.

Goal 2.1: Promote efficient and cost-effective land development in the Westside planning area.

Policy 2.1.1: Establish land use designations and development densities for the Westside planning area taking into account the cost of providing and funding urban services including future repair and replacement costs.

Action 2.1.1: Amend the Forest Grove Development Code planned and subdivision regulations as appropriate to encourage clustering development to minimize infrastructure cost.

Policy 2.1.2: Encourage the efficient use of developable land through techniques such as clustering housing and providing a variety of housing types within neighborhoods including cottage housing, accessory dwelling units and attached housing on corner lots.

Action 2.1.2: Amend the Forest Grove Development Code planned development and subdivision regulations as appropriate to promote the efficient use of developable land through techniques such as clustering housing, cottage housing, accessory dwellings and attached housing on corner lots in subdivisions.

Goal 2.2: Promote an orderly transition from rural to urban land use within the urban growth boundary.

Policy 2.2.1: Establish land use designations in the Westside planning area to promote an orderly transition from rural to urban land use within the urban growth boundary.

Action 2.2.1: Amend the Forest Grove Comprehensive Plan Map and Official Zoning map to implement the preferred land use concept for the Westside planning area.

Goal 3.1: Promote complete neighborhoods where a variety of land uses and activities are located in proximity with residential areas.

Policy 3.1.1: Identify locations on the Forest Grove Comprehensive Plan Map and Official zoning map for non-residential land uses including retail, office, park land, an elementary school, and a fire station.

Action 3.1.1: Amend the Forest Grove Comprehensive Plan Map and Official Zoning to implement the preferred land use concept for the Westside planning area.

Goal 4.1: Encourage a variety of housing types throughout the Westside Planning area.

Policy 4.1.1: Establish development regulations for planned developments to encourage a variety of housing types within individual developments.

Action 4.1.1: Amend the Forest Grove Development Code to encourage a variety of housing types within individual developments.

Goal 5.1: Provide opportunity for affordable housing types in the Westside planning area.

Policy 5.1.1: Establish development regulations to provide incentives for housing types affordable to households and families earning 80% or less of the Forest Grove area median income as defined by the U.S. Department of Housing and Urban Development.

Action 5.1.1: Amend the Forest Grove Development Code to provide incentives for housing affordable to households earning 80% or less of the Forest Grove area median income as defined by the U.S. Department of Housing and Urban Development.

Goal 6.1: Ensure land development on David Hill considers the visual impacts of development from lower elevation view corridors especially the Town Center.

Policy 6.1.1: Minimize visual impacts of development on David Hill as viewed from lower elevation view corridors especially the Town Center.

Action 6.1.1: Amend the Forest Grove Development Code to require a visual impact assessment and mitigation measure for development proposals west of Thatcher Road.

Public Facilities

Goal 7.1: Ensure that adequate public utilities needed to serve development in the Westside Planning area are provided in an equitable and cost-effective manner.

Policy 7.1.1: The physical limitations of the land should be a basis for determining the location of utility connections so as to provide utilities in a cost effective manner and to minimize development impacts.

Action 7.1.1: Amend the Forest Grove Development Code and Public Works Design Standards to ensure that the physical limitations of the land serve as a basis for determining the location of utility connections to reduce the costs and development impacts.

Policy 7.2.1: Undertake studies and update the City's infrastructure facility plans to incorporate recommendations from the Westside Refinement Plan.

Action 7.2.1: Undertake a siting study to identify possible locations for future water reservoir(s) needed to serve development in the planning area.

Action: 7.2.2: Amend the Forest Grove Water System Plan to include the water system recommendations contained in the Westside Refinement Plan.

Action 7.2.3: Amend the Forest Grove Storm Drainage Master Plan should be updated to incorporate recommendations of the Westside Refinement Plan.

Action 7.2.4: Amend the Forest Grove Sanitary Sewer Master Plan should be incorporated to incorporate the recommendations of the Westside Refinement Plan.

Policy 7.3.1: Low impact design techniques for storm water drainage north of David Hill Road and west of Thatcher Road should be avoided due to poor soil infiltration characteristics in the planning area.

Action 7.3.1: Amend the Forest Grove Development and Public Works Design Standards to restrict the use of low impact design techniques for storm water drainage north of David Hill Road and west of Thatcher Road due to poor soil infiltration characteristics.

Policy 7.4.1: Opportunities for needed public facilities including an elementary school and neighborhood park consistent with the Parks and Recreation Master Plan shall be provided in the Westside planning area.

Action 7.4.1: Recreation needs anticipated from development in the Westside planning area should be included in the Forest Grove Parks, Recreation and Open Space Master Plan and locations of public park land shall be identified on the Forest Grove Comprehensive Plan Map.

Action 7.4.2: All applicable master plans as they may be amended are incorporated by reference into the Westside Plan and facilities in those master plans shall be considered as part of any proposed development where it may apply.

Policy 7.5.1: Through the next update of the City of Forest Grove Wastewater Management Plan, expected in 2018, evaluate the feasibility of implementing sanitary sewer systems such as Septic Tank Effluent Gravity (STEG) and Septic Tank Effluent Pump (STEP) in the Westside Planning area.

Policy 7.6.1: As infrastructure costs are evaluated in future updates of facility master plans and the Transportation System Plan (TSP), these plans consider the following three approaches to pay for the infrastructure costs:

- Westside Area-wide (David Hill and New Urban Growth Boundary Area)
- Divide Westside Area into two subareas:
    - Purdin Road Area (new urban growth boundary area); and
    - David Hill Area (area west of Thatcher Road).

- Divide Westside into three subareas:
    - Purdin Road Area;
    - David Hill below the 440 foot contour elevation; and
    - David Hill above the 440 foot contour elevation.

Transportation

Goal 8.1: Establish a context sensitive street network addressing the characteristics of the Westside planning area.

Policy 8.1.1: Required cut and fill for streets should be minimized to reduce cost and environmental impacts.

Action 8.1.1: Amend the Forest Grove Development Code to allow for collector street segments exceeding 12% slope to minimize required cut and fill and environmental impacts.

Action 8.1.2: Amend the Forest Grove Transportation System Plan and Development Code to reduce the minimum right-of-way and street cross-section requirements in areas with environmental constraints.

Policy 8.2.1: Local streets serving individual homes should follow slope contours to minimize necessary cut and fill and avoid street segments exceeding 12% slope.

Action 8.2.1: Amend the Forest Grove Development Code.

Goal 8.2: Establish a transportation system that meets regional transportation planning requirements for transportation facility type and function.

Policy 8.2.1: The collector street network serving the David Hill planning area should strive to meet the Metro Regional Transportation Functional Plan requirements for collector road spacing.

Action 8.2.1: Amend the Forest Grove Transportation System Plan to identify the preferred collector street network for the Westside planning area.

Goal 8.3: Seek funding for needed transportation related improvements necessary to serve development and the wider transportation needs of the City.

Policy 8.3.1: The City should explore the jurisdictional transfer of Thatcher Road to the City and potential funding for improvement to urban standards through the Washington County Major Streets Transportation Improvement Program and regional transportation funding programs.

Action 8.3.1: Initiate discussions with Washington County for jurisdictional transfer of Thatcher Road from Gales Creek Road to Purdin Road.

Action 8.3.2: Pursue funding for improvement of Thatcher Road to City standards through County and regional transportation funding programs such as the Washington County Major Street Transportation Improvement Program and Metro Regional Flexible Funds program.

Goal 8.4: Address local and regional street network capacity constraints anticipated from development.

Policy 8.4.1: Address identified capacity constraints at Highway 47 intersections due to anticipated development in the Westside Planning area.

Action 8.4.1: when updated to address amendments the Regional Transportation Plan, amend the Forest Grove Transportation System Plan to include mitigation measures necessary to address capacity constraints at the David Hill Road/Hwy. 47 and Purdin Road/Hwy. 47 intersections due to development in the Westside planning area.

Natural Resources

Goal 9.1: Minimize development impacts on natural resources.

Policy 9.1.1: Strive to preserve tree stands over one acre to the maximum extent possible.

Action 9.1.1: A tree inventory and tree protection management plan should be prepared by a certified arborist prior to development activity.

Action 9.1.2: The tree protection management strategy should be reviewed by the Community Forestry Commission for recommendations as part of the development review process.

Policy 9.3.1: Priority should be given to clustering development to accommodate needed housing while preserving large blocks of forest land.

Action 9.3.1: Amend the Forest Grove Development to provide incentives for clustering development to avoid impacts on natural resources including forested land.

Natural Hazards

Goal 10.1: All development shall demonstrate suitability relative to the natural hazard limitations of the Westside planning area.

Policy 10.1: Applications for development north of David Hill Road and west of Thatcher Road shall include data verifying locations of potential slope and soil instabilities prior to development.

Action 10.1.1: Development regulations shall require field verification of areas with potential slope and soil instabilities prior to development in order to assess potential impacts of development and risk to the site and other properties. The field verification shall be the basis for determining appropriate mitigation measures including avoidance of the area.

Policy 10.2: Due to the presence of steep terrain (greater than 15% slope) and wooded areas, land use regulations should encourage, and where appropriate require, the use of fire resistant building materials and defensible space to minimize the risk of loss of life and damage to property from wildfires.

Policy 10.3: Applications for development in the Westside planning area shall include a liquefaction analysis for areas susceptible to liquefaction during an earthquake event. Techniques to mitigate potential impacts shall be recommended by the Geotechnical Engineer of Record.

Action 10.3.1: Amend the Forest Grove Development Code to require a liquefaction analysis based on the relevant Oregon Structural Specialty Code prior to development in areas susceptible to liquefaction during an earthquake event.

Funding Approach

Goal 11.1: Establish an equitable funding approach for needed infrastructure serving the Westside planning area.

Policy 11.1: Funding for needed infrastructure in the Westside Planning area may require a variety of funding sources including system development charges, local improvement districts, reimbursement districts, utility fees, or other funding approaches authorized by state law.

Action 11.1.1: Work with affected property owners to implement a fair and equitable funding approach for needed infrastructure.

Policy 11.2: The funding approach for needed infrastructure in the Westside planning area shall consider equity including a fair distribution of cost among property owners, developers, future Westside area residents and existing City residents.

Action 11.2.1: Work with affected property owners to implement a fair and equitable funding approach for needed infrastructure.

Policy 11.3: The funding approach for needed infrastructure in the Westside planning area shall consider timing and reliability of revenue in relationship to the planned schedule of capital expenditures.

Action 11.3.1: Amend City codes as necessary to implement a funding approach for needed infrastructure in the Westside planning area taking into account timing and reliability of revenue.

Policy 11.4: Seek outside funding for these road improvements: Thatcher Road north of David Hill Road, David Hill Road west of Thatcher Road, new collector road connecting David Hill Road with Purdin Road, Highway 47/David Hill Road roundabout improvement, Highway 47/Purdin Road/Verboort Road improvement.

Action 11.4.1: Add the transportation improvements identified above to the Forest Grove Transportation System Plan and Washington County Transportation Development Tax projects list.

Action 11.4.2: Seek adding the projects identified above to the Regional Transportation System Plan projects list.

Action 11.4.3: Apply for funding of road improvements through the Washington County Major Street Transportation Improvement Program (MSTIP), Metro Regional Flexible Funds Program, and State Transportation Improvement Program.

Policy 11.5: Work with Clean Water Services to use a share of sanitary sewer system development charge revenue to fund sewer lines in the Westside planning area.

Action 11.5.1: Initiate discussions with Clean Water Services to use a portion of sanitary sewer system development charge revenue for regional needs to fund sanitary sewer fund improvements in the Westside Planning Area.

Policy 11.6: Establish system development charges for needed infrastructure improvements in the Westside planning area as part of updates to the City's facility master plans beginning in 2018.

Action 11.6.1: Incorporate system development charge funding needs when facilities master plans are updated including the Transportation System Plan, Sanitary Sewer Master Plan, Water Master Plan and Storm Water and Drainage Master Plan.

Policy 11.7: Pursue a storm water rate surcharge to fund needed storm water facility improvements in the Westside planning area.

Action 11.7.1: Draft a resolution for City Council approval to establish a storm water rate surcharge if needed to fund storm water facility improvements in the Westside planning area.

Chapter 14 – Implementation Actions

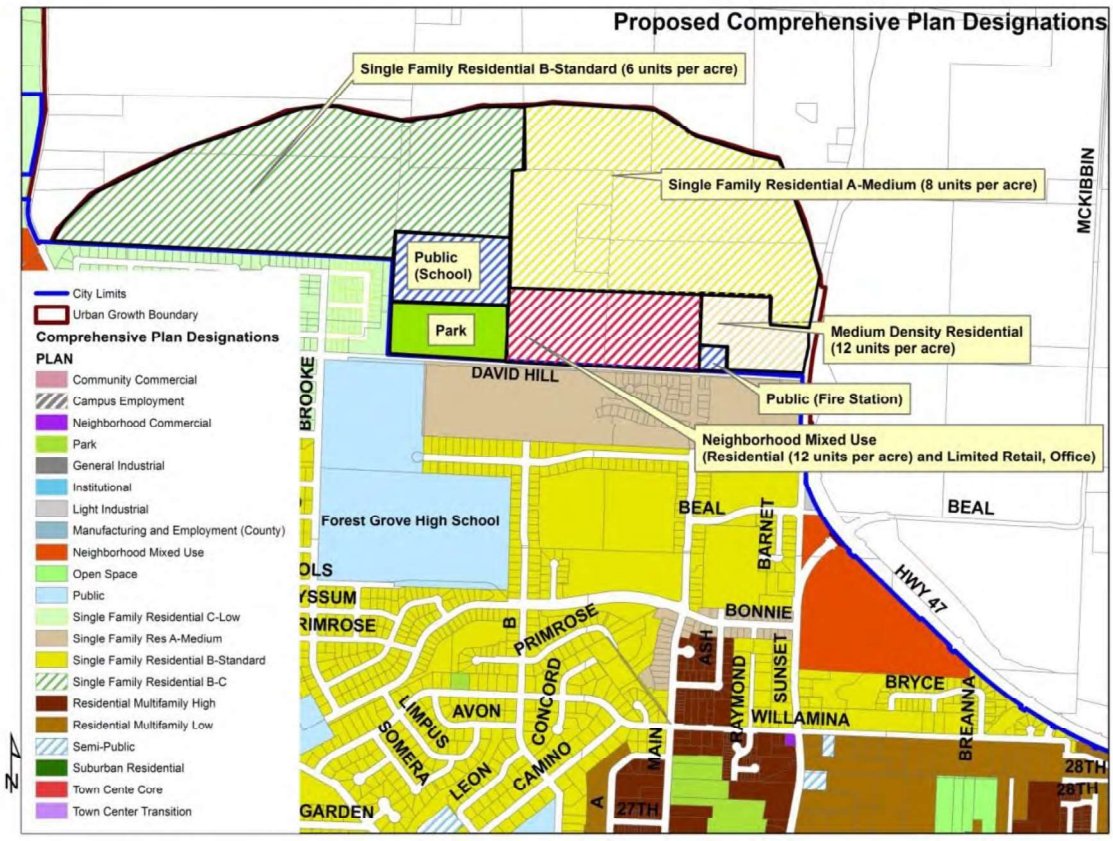
The following implementation actions are recommended for the Westside Planning Refinement Area:

Comprehensive Plan Amendments

The following amendments to the Forest Grove Comprehensive Plan Map are proposed for the Westside planning areas consistent with the land use concept described in Chapter 4.

New Urban Growth Boundary Area

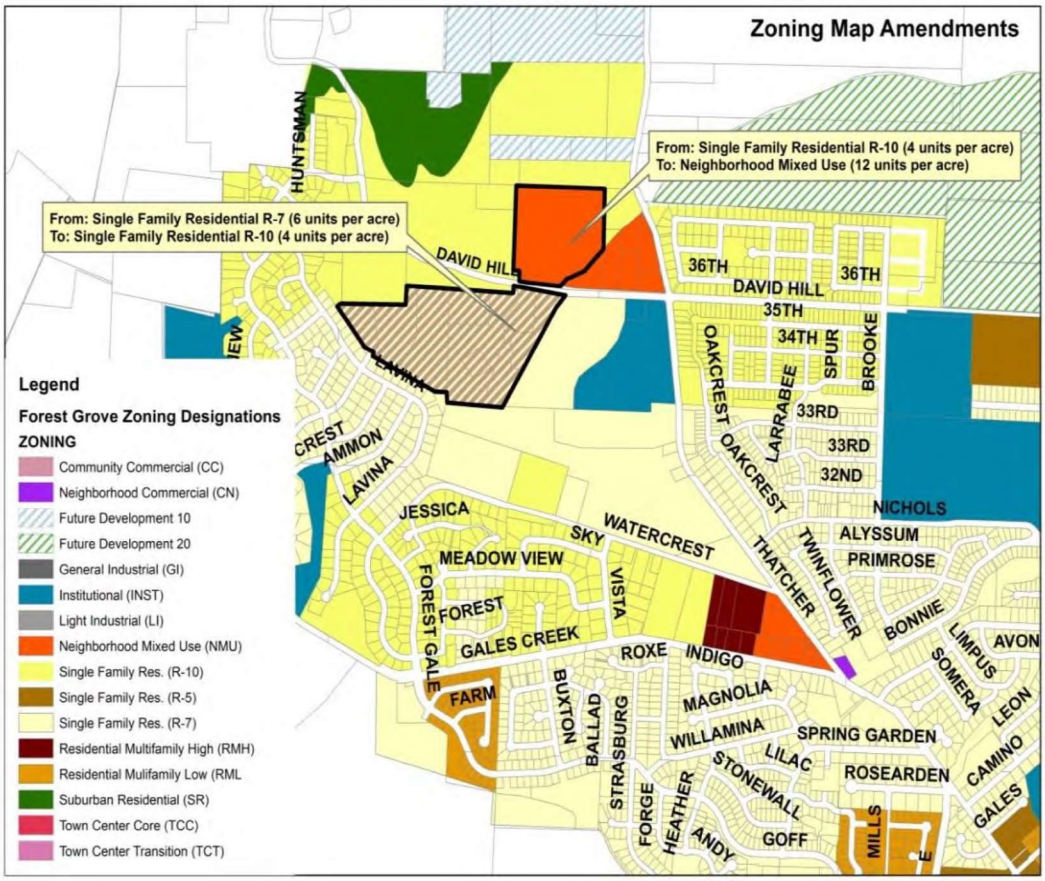
From	To	Gross Acres
Future Development-20 acre min.	**A-Medium**	86.18
Future Development-20 acre min.	**B-Standard**	98.62
Future Development-20 acre min.	**Medium Density Residential**	10.82
Future Development-20 acre min.	**Neighborhood Mixed Use**	24.63
Future Development-20 acre min.	**Public (School)**	10.00
Future Development-20 acre min.	**Public (Fire Station)**	2.40
Future Development-20 acre min.	**Park**	6.00



Zoning Map Amendments

The Purdin Road Urban Growth Area will be rezoned upon annexation into the City consistent with the adopted Comprehensive Plan designations. The following zoning map amendments are proposed for the David Hill urban growth area.

From	To	Gross Acres
R-7	**R-10**	36.96
R-10	**SR**	7.13



Development Code Amendments

The following amendments to the Forest Grove Development Code are proposed to implement the Westside Refinement Plan:

§10.4.315(F) TABLE 4-2: Commercial/Institutional Uses within the Village Center

NMU Zoned Area	Minimum Square Footage	Maximum Square Footage
Area 1 - David Hill/Nixon	None	15,000 SF Gross Floor Area

Area 2 - Gales Creek	None	25,000 SF Gross Floor Area
Area 3 - Davidson	25,000 SF Gross Floor Area	130,000 SF Gross Floor Area[5]
Area 4 – East David Hill Rd.	10,000 SF Gross Floor Area	150,000 SF Gross Floor Area[6]

Amendment to Development Code Section 10.8.110(E):

Transit Agency Referral: The City shall submit all development proposals along the Pacific Avenue/19th Avenue transit corridor to Tri-Met and along existing and proposed collectors and arterials in the Westside Planning area to Ride Connection/GroveLink for review and comment regarding facilities necessary to support transit. The following facilities may be required as a condition of a permit: 1. Walkways to transit stops; 2. Bus stop shelters or waiting areas; 3. Turnouts for buses.

§10.8.310 (Hazard Areas)

2. For development sites having slopes of ~~20%~~ **10%** or more, the following requirements shall be met. To ensure compliance with the provisions of this ordinance, prior to the issuance of a building permit for the construction of any new building[7] within the city, and prior to any grading, excavation or filling or other site modification within areas having a slope of ~~20%~~ **10%** or greater, there shall be submitted to the Community Development Department for review and approval, or approval with modifications:

    a. A site plan (showing any grading, excavating or filling) drawn to scale of the entire property developed and of the proposed construction;

    b. The submission of a geological assessment and geotechnical report prepared and stamped by a Certified Engineering Geologist who is a registered geologist certified in the specialty of Engineering Geology under provisions of ORS 672.505 to 672.705 **and a Geotechnical Engineer under provisions of ORS 672.002 to 672.325**. The assessment and report shall address the entire site and meet the following requirements:

        i. The geological **and engineering** assessment shall include information and data regarding the nature, distribution of underlying geology, and the physical and chemical properties of existing soils; an opinion as to stability of the site, and conclusions regarding the effect of geo-logic conditions on the proposed development.

[5] Maximum building footprint is 50,000 square feet.
[6] Maximum building footprint is 50,000 square feet.
[7] Building: That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed of parts joined together in some definite manner.

Transportation System Plan Amendments

Figure 8-1: Updated Street Classification System

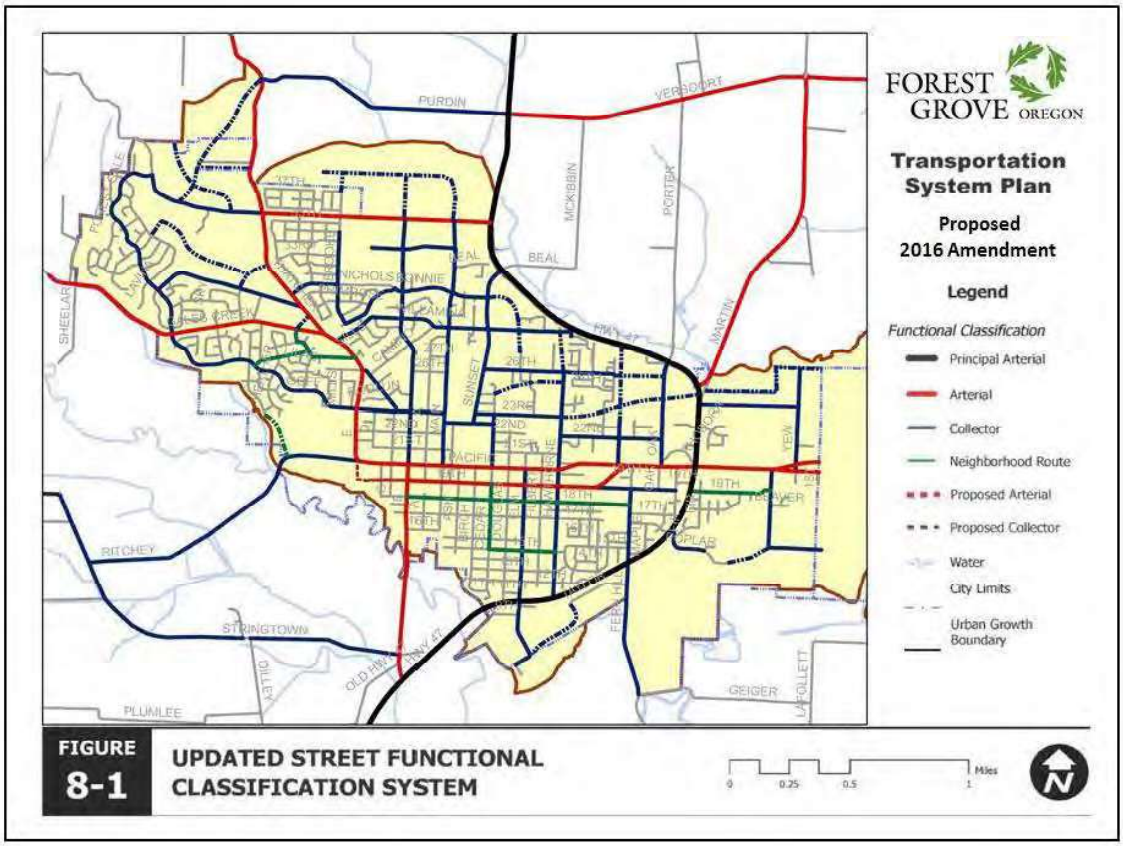
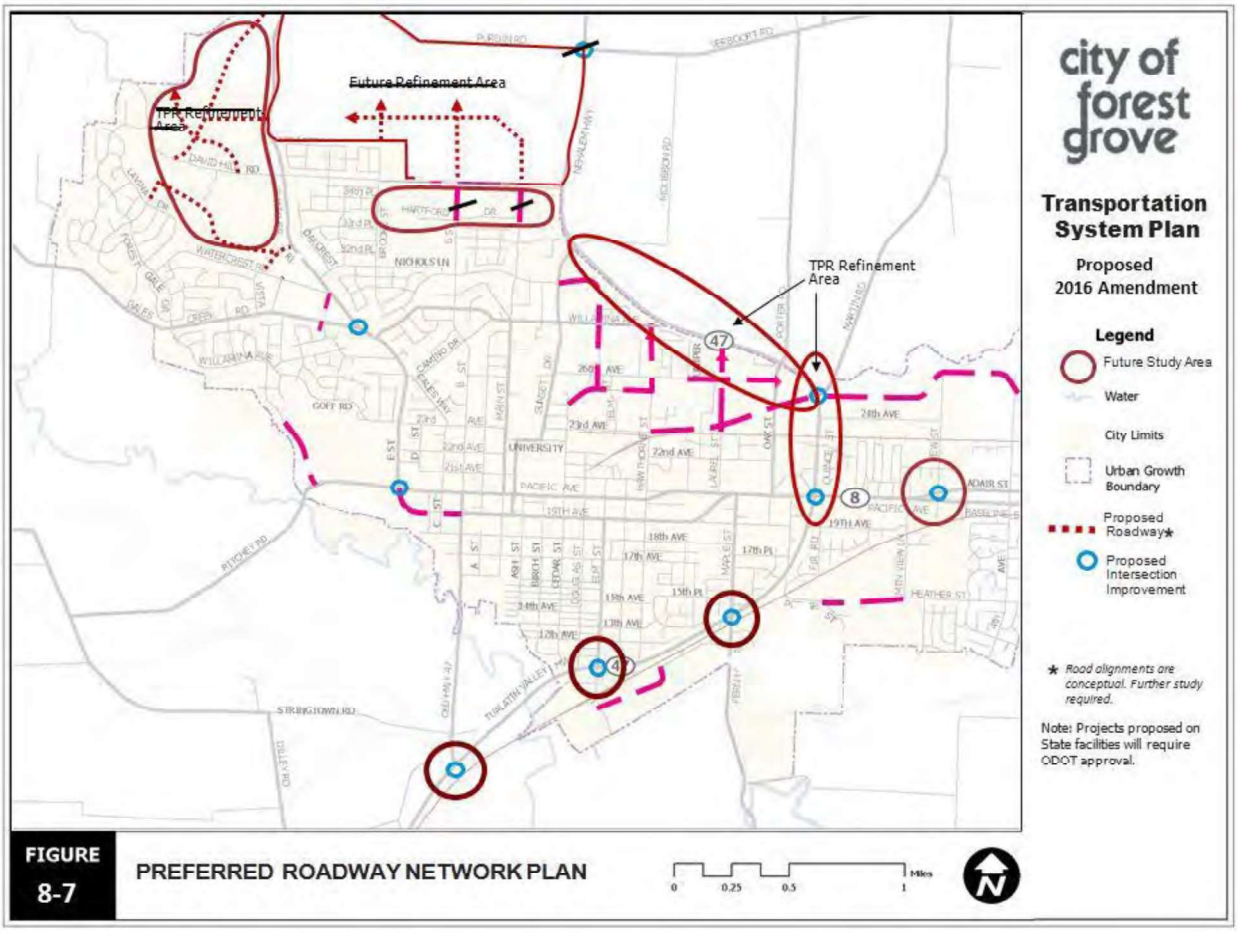
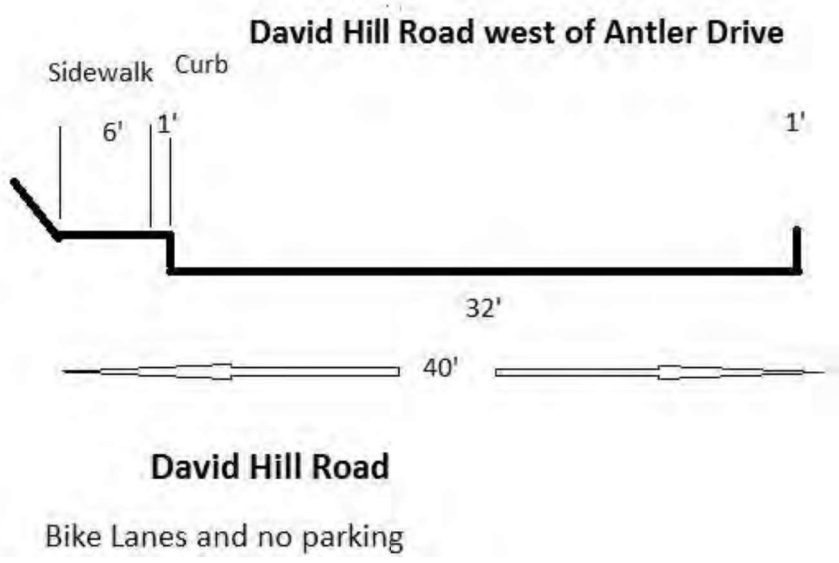


Figure 8-7: Preferred Roadway Network Plan



Proposed David Hill Road Cross-Section (Add to TSP Section 8-3)



Amend TSP Table 8-3: Roadway Projects and Programs

Recommended Street Projects

No.	Street Name	Project Limits	Description	Estimated Cost
1	Road 1 (Vista Drive Extension)	Watercrest Road to Thatcher Road	Construct new north-south 1,050 foot urban collector street	$1,000,300
2	Road 2	From Vista Drive Extension west 3,200 feet	Construct new east-west urban collector street	$4,246,000
3	Road 3 (Valley Crest Extension)	From terminus of Valley Crest Way north to Road 2	Construct new 600-foot urban collector street	$787,200
4	Road 4	David Hill Road north to Purdin Road	Construct new 4,700 foot urban collector street	$6,409,200
5	Road 5 (Plum Hill Improvement)	Existing Plum Hill Lane (privately-owned) to Road 4	Improve Plum Hill Lane to urban collector standards	$1,212,200
6	Road 6	David Hill Road to urban growth boundary	Construct new 2,300 foot urban collector street	$2,391,000
7	Road 7 (Brooke Street Extension)	Brooke Street to David Hill Road	Construct new 5,500 foot urban collector street	$4,766,200
8	Road 8 (B Street Extension)	David Hill Road to Brooke Street	Construct new 1,750 foot urban collector street	$1,583,700
9	Road 9 (Thatcher Improvement)	David Hill Road to Purdin Road	Full improvements to Council Creek crossing (short-term)	$1,454,000
9	Road 9 (Thatcher Improvement)	David Hill Road to Purdin Road	Half street reconstruction between David Hill Road to Purdin Road excluding Council Creek crossing (long-term)	$2,437,500
10	Road 10 (David Hill Improvement)	Thatcher Road to urban growth boundary	Full street reconstruction for 5,100 feet to urban collector street standards	$3,943,500
			TOTAL ESTIMATED COST	$30,230,800

Amend TSP Section 8.9.2 Future Study Areas

~~*David Hill Study Area*~~

~~The northwestern portion of the City, in the vicinity of David Hill Road, also includes transportation system challenges that require further study. These challenges relate both to the long term need to improve David Hill Road to an urban section (portions of this road are currently narrow and winding with minimal shoulders), to connect David Hill Road to Highway 47, and to provide a system of local streets serving the expected residential and mixed use development in this area. Topography and the need to preserve vegetative corridors must also be considered. Identification of this study area including a commitment by the City to evaluate local circulation options is necessary to comply with the requirements of the Transportation Planning Rule (TPR) – hence its identification as a TPR Refinement Area. Compliance with the Regional Transportation Plan (RTP) and Regional Transportation Functional Plan (RTFP) will also require evaluation of local circulation options in this study.~~

~~*Northern Urban Reserve Area*~~

~~While this area is currently outside of the Forest Grove Urban Growth Boundary (UGB), it lies immediately north of existing development, including the future alignment of David Hill Road between that development and Highway 47. Evaluation of potential concept level local circulation options in this area is necessary to ensure that the proposed David Hill Road improvements and the recommended extensions of B and Main Streets to David Hill Road can be accommodated further north when the area is developed in the future. Additionally, identification of a backbone local circulation system will benefit the orderly development of the area in the future.~~

Implementation Actions to Address Post Adoption

Full implementation of the recommendations contained in the Westside Plan requires amendment to several infrastructure facility plans including:

- Water System Master Plan;
- Sanitary Sewer Master Plan; and
- Storm Water/Drainage Master Plan

These plans will be updated when the facility master plans are updated by the Engineering Division.