

Springwater Community Plan



September 20th – 1st Council Hearing
October 4th – 2nd Council Hearing (if needed or Enactment)
November 1st – Council Enactment (if needed)

CPA 04-8178

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

For more information on the *Springwater Community Plan*, please contact:

Kristy Lakin or Terry Vanderkooy
Community & Economic Development Department
City of Gresham
1333 NW Eastman Parkway
Gresham, OR 97030

Phone: 503-618-2195; 503-618-2407

Fax: 503-669-1376

TTY: 503-618-2882

E-mail: springwater@ci.gresham.or.us

RE: Springwater Community Plan (CPA-04-8178)

To comment on the proposed plan:

- Testify at the City Council hearings:

City Council Hearing:

Tuesday, September 20, 2005

1333 NW Eastman Parkway, Gresham City Hall Council Chambers, Oregon

For the scheduled time of this item, please call 503-618-2842 one week prior to the hearings.

Send written testimony for City Council: Any person who would like to comment on the Springwater Community Plan (CPA 04-8178) may present oral testimony at the hearing or a letter may be submitted to the Council or the Community & Economic Development Department prior to the hearing.

Comments may be sent to:

City of Gresham – CEDD/City Council
Springwater Community Plan (CPA 04-8178)

1333 NW Eastman Parkway

Gresham, OR 97030

FAX comments to 503-669-1376; or

E-mail comments to springwater@ci.gresham.or.us

Written and e-mailed testimony must be received by the time of the hearings and must include your name and street address to be included in the public record.

To help ensure equal access to information, the City of Gresham offers accommodation to persons with disabilities. Call 503-618-2842 in advance to arrange for accommodation. TTY: 503-618-2882

Table of Contents

The Springwater Community Plan Report contains eleven sections, which are listed in the order in which they are found in the report.

1. Springwater Community Plan Summary

This document summarizes the planning process, the extensive public involvement process and the major elements of the plan. It is a “stand alone” summary document that explains the why, where, how and what of the Springwater Community Plan. It summarizes the factual information that is the basis for the proposed Springwater Goals and Policies and for the Springwater Plan District development code. It will be adopted as Appendix 44 of Volume 1 and is Exhibit A1 of the CPA 04-8178 staff report.

2. Springwater Natural Resources Report

The Springwater Natural Resources Report documents the State Goal 5 process for Springwater and provides the foundation for protecting natural resources, and conserving scenic areas and open spaces. Major elements of the report include the natural resources inventory; significance determination; the Economic, Social, Environmental and Energy (ESEE) analysis and recommendations. Recommendations cover management plan objectives, development code for regulated lands, opportunities for protection and enhancement and funding strategies. The Report is the basis for establishing the Environmentally Sensitive Resource Area (ESRA) sub-district, which is intended to promote compatibility between development and conservation of stream corridors, wetlands, floodplains and forests. The proposed ESRA sub-district is included in the Springwater Plan District component of the Springwater Community Plan. The Springwater Natural Resources report will be adopted as Appendix 45 of Volume 1 and is Exhibit A2 of the CPA 04-8178 staff report.

3. Springwater ESEE Analysis Decision Report

The Springwater ESEE Analysis Decision Report documents the State Goal 5 natural resources determination process as it was applied to Springwater. It describes the different types of land uses that impact the streamside areas, wetlands, and upland forest. Specifically, it analyzes the economic, social, environmental and energy (ESEE) consequences that could result from a decision to allow, limit, or prohibit certain uses in the significant resource area (the Environmentally Sensitive Resource Areas – ESRA). It will be adopted as an attachment to Appendix 45 (Natural Resources Report) of Volume 1 and is Exhibit A3 of the CPA 04-8178 staff report.

4. Springwater Annexation and Development Strategies Report

The Springwater Annexation and Development Strategies Report is the basis for a recommended phased approach to annexation in Springwater. It is also the basis for a program of marketing and recruitment of targeted industries and development opportunities in Springwater. It will be adopted as Appendix 46 of Volume 1 and is Exhibit A4 of the CPA 04-8178 staff report.

5. Springwater UGMFP Title 11 Compliance Report

As a new urban area, the planning for Springwater is subject to Title 11 of the Metro Urban Growth Management Functional Plan (UGMFP). This Title is to require and guide planning for the conversion from rural to urban use of areas brought into the Urban Growth Boundary. Section 3.07.1130 requires submittal to Metro of the proposed comprehensive plan amendments

for Springwater and an evaluation report. The evaluation report is to show compliance with the UGMFP and the 2040 Growth Concept. It will be adopted as an addendum to the Springwater Community Plan Summary (Appendix 45 of Volume 1) and is Exhibit A5 of the CPA 04-8178 staff report.

6. Springwater Goals, Policies and Action Measures

Goals, Policies and Action Measures are a comprehensive set of land use statements. They provide the policy basis for the Springwater Plan District *Community Development Plan* map and *Development Code*. Each is accompanied by a background and summary of key issues that describe the process and reasons for each of the goals. There are goals for urbanization and land uses, economic development, sustainability, livability, transportation and natural resources. It will be adopted as an amendment to Volume 2 and is Exhibit B1 of the CPA 04-8178 staff report.

7. Springwater Public Facilities Plan

The Public Facilities plan establishes a framework for how public facilities for the water system, the wastewater system, the stormwater management system and the parks and recreation system will be developed and maintained. For each of the facilities there is a general description of existing facilities and a needs assessment to support the future land uses; goals, policies and action measures for each facility; a list and map of significant parks, water, wastewater and stormwater projects; rough costs estimates for each project; and a general estimate of when projects are needed along with a general discussion of funding strategies. The Public Facilities Plan establishes the basis for a Capital Improvements Program (CIP) for each of the facilities. It will be adopted as an amendment to Volume 2 and is Exhibit B2 of the CPA 04-8178 staff report.

8. Springwater Plan District Plan Map

The Springwater Plan District Plan Map establishes the land use district designations that will be applied to territory upon annexation. Two additional maps will also be adopted: a map showing all slopes 15% or greater and a map showing all FEMA 100 year floodplains. These two categories are regulated under the City's Hillside Physical Constraint District and Floodplain District. These two maps will amend the City's Special Purposes District Map as annexation occurs. The three maps will be adopted as an amendment to Volume 2 and is Exhibit B3 of the CPA 04-8178 staff report.

9. Springwater Plan District Land Use Development Code

The Springwater Plan District Land Use Development Code establishes the Springwater Plan District. A Plan District approach is to use unique planning and regulatory tools to achieve the Springwater Community Plan goals and is based on the Springwater Community Plan. It describes the land use patterns that will be applied to the Springwater Community Plan area and the allowed uses and densities. It also provides the development standards that will be required for future development in Springwater. The proposed development code is arranged in a two-column format. The left side column is the proposed text and the right side column is commentary on the proposed text. Additionally, this includes amendments to the existing code. It amends Volume 3 and is Exhibit C of the CPA 04-8178 staff report.

10. Springwater Transportation System Plan

The Springwater Transportation System Plan (TSP) is a long-range plan for developing a Springwater transportation system. It describes how the Springwater TSP was created and its context with the regional and city transportation system plans. It includes transportation goals, policies and action measures. It describes street functional and design classifications and plans for connectivity, transit service and bicycle and pedestrian systems. It also includes a description

of significant transportation projects that are needed to support future Springwater land uses. It includes rough costs estimates of the projects and funding strategies. It amends Volume 4 and is Exhibit D of the CPA 04-8178 staff report.

11. Appendices

Development of the Springwater Community Plan involved both technical analyses and public process. These technical analyses and public processes have been documented in various technical memorandums and reports. These documents will not be adopted as part of the plan but rather referenced. A list of these documents will be included in the adopted plan. These documents are listed at the end of this cover document and are available as hard copy through the Community and Economic Development Department contact listed on the second page of this document.

Acknowledgements

Gresham City Council

Charles Becker, Mayor
Shane Bemis, Council President
Shirley Craddick, Councilor
Karylenn Echols, Councilor
Jacquenette McIntire, Councilor
Dave Shields, Councilor
Paul Warr-King, Councilor

Gresham Planning Commission

Wes Bell, Chair
Richard Anderson, Vice-Chair
John Andersen
Rob Cook
Rob Diesel
B. Joy Gannett
Pat Speer
Mike Whisler

Gresham Community & Economic Development Department

Ed Gallagher, Director

Gresham Department of Environmental Services

Dave Rouse, Director

Springwater Community Plan Project Staff

Terry Vanderkooy, New Communities and Annexations Manager, Project Manager, CEDD
Guy Graham, Wastewater Division Manager, DES
Jonathan Harker, New Communities and Annexations, Senior Planner, CEDD
Kristy Lakin, New Communities and Annexations, Associate Planner, CEDD
Carrie Pak, Stormwater Division Manager, DES

With Assistance From Gresham Staff

Deborah Bond, Finance and Accounting Services Manager, FMS
Robb Courtney, Parks and Recreation Division Manager, DES
Jonathan David, Transportation Planner, DES
John Dorst, Deputy Director, DES
Deanna Foster, GIS Specialist, DES
Mike Grimm, Water Division, DES
Rita Humphrey, Public Information Officer, CEDD
Dale Jutila, Water Division Manager, DES
Phil Kidby, Parks & Recreation Division, DES
Kathy Majidi, Natural Resources Program Coordinator, DES
Tom McCausland, Stormwater Division, DES
Jay McCoy, Transportation Division, DES
Jim Montgomery, Wastewater Division, DES
Ron Papsdorf, Principal Transportation Planner, DES
John Pettis, Associate Comprehensive Planner, CEDD

Multnomah County Project Staff

Karen Schilling, Planning Director
Ed Abrahamson, Transportation Planning
Charles Beasley, Land Use Planning

With Assistance From Metro Staff

Ray Valone, Growth Management
Kim Ellis, Transportation

Springwater Advisory Group

Mike Agee, *John L. Scott Portland Metro*
Richard Anderson, *Planning Commission Liaison*
Dean Apostol, *Boring CPO*
Frank Boyle, *Kelly Creek Neighborhood Association*
Brenda Brady, *Mt. Hood Community College*
Mark Childs, *Integrated Corp. Property Services*
Shirley Craddick, *City of Gresham City Council Liaison*
Alan Frace, *Furney's Nursery*
Michelle Granger-Moore, *Gresham-Barlow School District*
Willy Helgeson, *Property Owner*
Kathy Henton, *Resident*
Jeff Ingram, *Property Owner*
Dayna Johnson, *Property Owner*
Jim Labbe, *Audubon Society*
David Lerwick, *City of Gresham Police Department*
Scott Lewis, *City of Gresham Fire & Emergency Services*
Wayne Lofton, *Multnomah Co. Sheriff's Office*
Mary Kyle McCurdy, *1000 Friends of Oregon*
Robert Miller, *Trailblazer Foods*
Hiroshi Morihara, *Persimmon Group, Inc.*
Sam Murray, *Park & Recreation Advisory Committee*
Dave Rouse, *City of Gresham Environmental Services*
Dr. Robert M. Silverman, *Mt. Hood Community College*
Jeff Uebel, *Johnson Creek Watershed Council*

Linda Usher, *Butte Conservancy*

Springwater Consultant Team

Karen Beard, TIP Strategies
Glen Bolen, Fregonese Calthorpe Associates
Jamie Damon, Jeanne Lawson Associates
Mike Faha, Greenworks
John Fregonese, Fregonese Calthorpe Associates
Scott Fregonese, Fregonese Calthorpe Associates
John Holroyd, HDR
Paul Matthews, Integrated Utilities Group
Nancy Olmsted, NRPS
J. Michael Read, HDR
Jon Roberts, TIP Strategies
Carl Springer, DKS Associates
Heather Stephens, HDR

OVERVIEW

The Springwater area was added to the region’s Urban Growth Boundary (UGB) in December 2002 to meet a growing demand for industrial land in the region and provide high value, family-wage jobs for east Multnomah County. The 1,272-acre Springwater UGB expansion area is located south of Gresham, adjacent to the southeastern neighborhoods of the existing city. The planning effort also included the 183-acre “Brickworks” area in southern Gresham immediately north of Springwater. The purpose of the Springwater Community Plan is to describe how urbanization of the Springwater area should occur to meet the intent of the December 2002 UGB expansion.

This Springwater Community Plan (the Plan) was developed through an 18-month planning process involving existing residents, area stakeholders, City staff and elected officials, and consultant team members. The Plan was developed with input from the public gained through an advisory group, focus groups, stakeholder interviews, open houses, public workshops, and a web-based survey.

Key features of the Springwater Community Plan include:

- Estimated capacity of 15,330 jobs and 1,609 dwellings.
- 384 acres for industrial development. It is focused primarily east of Johnson Creek, where the topography is relatively flat and has access to Highway 26. Target industries include advanced materials, specialized software applications, recreation equipment and technology and corporate headquarters.
- 106 acres for office professional services development. Office development is focused south of the Village Center between Hogan Road and Johnson Creek. Office uses include research and development, creative services, medical facilities and knowledge-based industries.
- A mixed-use 23-acre Village Center that will allow a mix of retail, services, office and residential. Located east of Hogan Road it is within walking distance of the Springwater Trail, the office district to the south and to residential neighborhoods to the north. It will

provide shopping, services and restaurants, jobs, and housing to service future Springwater residents and employees.

- A seven-acre neighborhood commercial site located west of Orient Drive near the industrial district. It provides retail and services for the adjacent residential neighborhoods and the future industrial development.
- Three residential districts. 43 acres of townhouse development with an average lot size of 1,600 square feet and located at the east end of the Village Center, along 252nd Avenue and along Hogan Road. 99 acres of low density single-family residential with an average lot size of 6,000 square feet and within walking distance of the Village Center to the north. And 97 acres of very low density single-family (estate) residential with an average lot size of 12,000 square feet located in northwest section of Springwater area.
- A reorganization of the Springwater arterial and collector system to create a connected network that can service the new urban level of industrial and office development and the village center and new residential neighborhoods. Highway 26 will be reconfigured to facilitate and enhance future industrial and office economic development with development occurring in phases. Two crossings, a northern bridge and a southern interchange are planned.
- A framework for the protection and enhancement of Springwater's streams, flood plains, wetlands, riparian area and significant tree groves. The natural resources system is focused on integration of Johnson Creek and its tributaries. Natural resources can create a "signature" for Springwater's economic development.
- Two community parks will serve residents and employees in Springwater. A neighborhood park located in the Village Center will consist of a plaza, park blocks, and two small anchoring park areas. A trail system will provide recreational and transportation opportunities for residents and employees with good access to the Springwater Trail and to planned regional trails to the north and west.
- Planned water, wastewater, and stormwater infrastructure to serve the needs of the new community. Green Streets and green development practices will be an important component of the stormwater system.

The process of creating a recommended Springwater Community Plan had a number of major steps:

- Inventory of base conditions and analysis of land use, economic development, transportation, natural resources and infrastructure needs. The inventory and needs analysis documented existing land features and infrastructure needs, and evaluated current market conditions impacting economic development, housing needs, and appropriate village center characteristics in Springwater.
- Establishment of project goals and implementing policies. The Community Working Group developed a series of goals and policies that guided development of the plan.
- Development of four scenarios. Scenario planning involved considering many possible urbanization concepts for Springwater. The scenario planning participants developed scenarios by modifying transportation elements, location and number of industrial, office, retail and housing uses along with open spaces and trails. The project team, the Gresham Planning Commission, and members of the public at a public workshop developed scenarios. These scenario maps were compared and common elements used to formulate three scenarios that were carried forward by the planning team for further analysis. A fourth scenario developed by members of the Community Working Group (CWG) and added for future evaluation.
- The four scenarios were evaluated to determine how well certain elements of the scenarios met the goals and policies for the project. Evaluation measures included the number of new

jobs created, average anticipated annual wage, number of employees or residents within walking distance of parks or public open space, acres of natural resource or open space acres preserved, number of transportation trips generated, and cost of public infrastructure. Through this comparison, certain elements of each scenario were shown to support the Plan goals better than those of other scenarios. A final Concept Plan was developed as a blend of these elements, and approved by the Planning Commission, City Council, and Community Working Group in the fall of 2004 as the basis for moving forward with the Springwater Community Plan.

- The final step was to develop the Springwater Community Plan based on the Concept Plan. This involved developing implementing regulations and plans including the Springwater Plan District land use code, a natural resources protection and enhancement program, public facility plan, a transportation system plan and an annexation and economic development strategy.

The Springwater Community Plan forms the basis for a new community that emphasizes economic development and livability in a sustainable environment. The Plan provides capacity for over 15,000 new jobs. This is accomplished through a mix of employment areas that maintains opportunities for large-scale industrial development while promoting flexibility to respond to market conditions and local land constraints. Residential areas are proposed in portions of Springwater that are not suitable for employment uses; these areas include a mix of housing from high-density attached housing units in an urban setting to large lot residential areas nestled at the foot of Hogan Butte. A Village Center will provide services for employees and residents and serve as a focal point for the community. A natural resource protection and enhancement program will protect water quality and habitat in Springwater, and will help maintain the scenic character of the region as development occurs. Finally, new infrastructure – including a new interchange on Highway 26 – will support the community’s urbanization.

The Springwater Community Plan includes a series of documents that update the Gresham Community Development Plan (GCDP) and meet the requirements of METRO Title 11 regarding planning for urbanization.

GCDP ORGANIZATION

These sections of the Springwater Community Plan will amend the Gresham Community Development Plan (GCDP). The GCDP consist of four volumes:

- Volume 1 is the Findings document. It contains the factual information, which is the basis for the goals and policies found in Volume 2.
- Volume 2 is Policies document. It contains goal and policy statements concerning individual plan topics. It also includes action measures designed to carry out the goals and policies. Each goal includes a summary of the findings in the background and summary of major issues sections. Volume 2 also includes Public Facility Plans that detail the system needs, projects, rough costs and funding strategies for public facilities. Volume 2 also includes the Plan Map, which identifies specific uses for lands within the planning area.
- Volume 3 is the Development Code document. It contains the procedures involved in issuing development permits and the standards that are applied to individual developments. This volume implements goals and policies of Volume 2.
- Volume 4 is the Transportation System Plan (TSP) document. The TSP is a long-range plan for transportation that describes the transportation system plan and includes the

project and programs needed to meet the policies and strategies of the plan. It includes projects, rough costs and funding strategies.

APPENDICIES

These documents are a series of technical memorandums and other reports that provide the technical documentation of the planning process that resulted in the Springwater Community Plan. The list of reference documents will be adopted as an addendum to the Springwater Community Plan Summary (Appendix 45 of Volume 1). They are available for review under separate cover. The list of reference documents is:

- Intergovernmental Agreements
 - Gresham and Multnomah County Intergovernmental Agreement (May 2004)
- Inventory, Data Collection and Needs Analysis Reports (March 2004)
 - Buildable and Constrained Lands Inventory
 - Economic and Employment Site Study, Village Center Study, and Housing Study
 - Natural Resource and Natural Hazard Inventory
 - Transportation Existing Conditions Report
 - Preliminary Stormwater Assessment
 - Preliminary Estimates of Water System Demands
 - Parks, Open Space, and Trails Needs Assessment
 - Preliminary Wastewater Analysis
- Scenario Evaluation
 - Scenario Summary Sheets
 - Scenario Evaluation Summary Report and Evaluation Measures Analysis
- Natural Resources
 - Local Wetland Inventory Report (June 2004)
 - Goal 5 Inventory Data Forms (April 2004)
 - Riparian Characterization
 - Riparian Functional Assessment
 - Tree Grove Vegetation Assessment
 - Tree Grove Functional Assessment
 - Wildlife Habitat Assessment
 - Figures
- Transportation
 - Conceptual Planning Issues and Guidelines for Springwater Master Plan Area (March 2004)
- Public Involvement
 - Public Involvement Plan (November 2003) and Plan Addendum (May 2004)
 - Community Working Group (CWG) Fact Sheet
 - Stakeholder Interview Summaries (December 2004)
 - Community Working Group Adopted Goals and Polices (April 2004)
 - Community Working Group Summaries
- Marketing and Recruitment Plan (December 2004)
- Springwater US 26 Concept Design and Access Plan
 - Existing Transportation Conditions Final Report (January 2005)
 - Future Conditions and Needs Assessment Final Report (January 2005)
 - Concept Corridor Alternatives Draft Report (April 2005)
 - Recommended Corridor Concept Draft Report (June 2005)
- Gresham-Barlow School District Needs Memo

Springwater Community Plan



Springwater Summary

CPA 04-8178

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

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Section 1

Introduction

The purpose of this document is to summarize the planning process, public involvement, and the major elements of the Springwater Community Plan and its implementing Springwater Plan District. It is a “stand alone” summary document that explains the why, where, how, and what of the Springwater Community Plan. It summarizes the factual information that is the basis for the proposed Springwater Goals and Policies and the Springwater Plan District land use and development code. It amends Volume 1 – Findings of the Gresham Community Development Plan.

The preferred concept plan served as the basis for development of the Springwater Community Plan as a series of documents that update the Gresham Community Development Plan (GCDP) and meet the requirements of Metro Urban Growth Management Functional Plan (UGMFP) Title 11 regarding planning for urbanization. The Springwater Community Plan includes the following elements:

- Summary Report (amendment to Volume 1 GCDP)
- Annexation and Development Strategy (amendment to Volume 1 GCDP)
- Development Plan Policies (amendment to Volume 2 GCDP)
- Public Facilities Plans (amendment to Volume 2 GCDP)
- Development Plan Map (map amendment to Volume 2 GCDP)
- Development Code (amendment to Volume 3 GCDP)
- Natural Resources Report with an ESEE Analysis (amendment to Volume 1 GCDP)
- Transportation System Plan (amendment to Volume 4 GCDP)

1.1 EXECUTIVE SUMMARY

The Springwater Community Plan (Plan) describes an urbanization plan for the Springwater Community that will meet the intent of the December 2002 Urban Growth Boundary (UGB) expansion of bringing high value, family-wage jobs to Gresham. The Springwater Community¹ is 1,272 acres of unincorporated Multnomah County land that lies south (to the County line) and east (as far as 282nd Avenue) of the current Gresham city limits (see Figure 1). This Plan was developed by the City of Gresham in partnership with Multnomah County and in cooperation with Metro, Clackamas County, and others through an 18-month planning process involving residents and property owners, area stakeholders, City staff and appointed and elected officials, and consultant team members.

¹It consists of 1,152 acres that were added to the Urban Growth Boundary in December 2002 and 120 acres that have been in the Gresham urban services boundary since 1983 but which has never been annexed to the city or had planning done for future urbanization. The Springwater study area included, in addition to the Springwater Community, the “Brickworks site” and unincorporated Clackamas County land. The Brickworks site is 183 acres of existing Heavy Industrial designated land in Gresham and was analyzed to help determine how it could work with the Springwater Community. A separate report will be issued for the Brickworks site. The Clackamas County land was initially studied for analysis purposes primarily concerning public facilities. It is now part of the City of Damascus. All areas were included in the study, scenario development, and concept plan. Only unincorporated Multnomah County is included in the Springwater Plan District. See Figure 2.

The Plan is the blueprint for a new community that emphasizes economic development and livability in a sustainable environment. It has a planned capacity for 17,000 new jobs through a mix of employment areas that maintains opportunities for large scale industrial development while allowing the flexibility to respond to market conditions and promoting development within the area's natural topography. Residential areas are proposed in portions of Springwater that are not suitable for employment uses. These areas include a mix of housing from medium-density attached housing units in an urban setting to very large lot residential areas nestled at the foot of Hogan Butte. A Village Center will have services for employees and residents and serve as a focal point for the community. A natural resource protection and enhancement program will protect water quality and habitat in Springwater, and will help maintain the scenic character of the region as development occurs. Finally, new infrastructure – including an interchange on Highway 26 – will support the community's urbanization.

The major steps in the planning process were:

- Inventory of base conditions and projections of land-use, transportation, natural resources, and infrastructure needs.
- Market analysis evaluating current market conditions and trends impacting economic development of industrial uses, village center characteristics, and housing needs.
- Initiation of public process to gain input and provide information including utilizing open houses and workshops, newsletters and other mailings, surveys, and posting of draft documents, schedules, and other information on the web at www.ci.gresham.or.us/springwater/.
- Establishment of an advisory group, the Community Working Group (CWG), a 23 member body representing a diversity on interests including Springwater residents and property owners; neighborhood associations; business owners and developers; school districts; fire, police, and urban services providers; elected and appointed officials; and environmental and livability organizations.
- Establishment of project goals.
- Development of four scenario plans.
- Evaluation of the scenarios and preparation of a draft Concept Plan.
- Endorsement of final draft Concept Plan.
- Development of Comprehensive Plan Amendments to establish the Springwater Plan District.

The Springwater Community will be a major employment district. Key elements of the Plan are:

- A 384-acre industrial sub-district located east of Teleford Road and Johnson Creek. These industrial lands will accommodate large site (50+ acres) development but be flexible enough to allow for business park type development. Initial targeted industries include specialized software applications, recreational equipment and technology, corporate headquarters, specialty food processing, and renewable energy technologies.
- A research and technology industrial sub-district of approximately 106-acres located between Hogan Road and Teleford Road south of the proposed Village Center near McNutt Road. This sub-district provides for future industrial uses that primarily occur in office buildings. Targeted uses include corporate headquarters, knowledge-based industries such as graphic communication and creative services; research and prototype development and testing; professional services such as computer, accounting, and legal services; and medical services. Retail and professional service uses that cater to the daily needs of its customers are limited in size and are primarily to serve the industrial workers and businesses.

- A 23-acre mixed-use Village Center located near McNutt Road between Hogan Road and 252nd/Palmland. This sub-district will provide retail and service opportunities for nearby residents and employees. It is intended to be anchored by a grocery store. Housing will be permitted in the second or third stories about the commercial uses. The Village Center will also have civic opportunities including a small park and park blocks.
- The Village Center will be supported by about 43 acres of a townhouse sub-district located near the Village Center along Hogan and 252nd. This is a moderate density sub-district allowing attached or detached housing on individual lots and will provide housing choices for the industrial and office sub-district employees.
- About 99 acres of a low density residential (6,000 square foot lots) sub-district located generally north of the Village Center between Hogan and Johnson Creek with a small area located on the east side of 252nd Avenue/Teleford Road. The lands for this sub-district have modest slopes that are not generally suited for the industrial uses that were originally envisioned in this area at the time the Springwater Community was brought into the UGB.
- About 97 acres of a very low density residential (12,000 square foot lots) sub-district located on the west side of Hogan Road and east side Hogan Road north of Botefuhr Creek. The lands for this sub-district provide large lot and estate housing choices and are generally located on more sloped lands. The acreage does not include the improved golf course lands. Lands on the west side of Hogan Road were brought into the UGB primarily as residential lands.
- An emphasis on sustainable design and in the industrial lands on sustainable industries.
- A new arterial and collector system to serve the new land uses. Phased improvements to US Highway 26 to allow for incremental industrial development. When completed there will a new interchange at a new southern arterial that will connect to Rugg Road and Orient Drive, and a new grade separated bridge-crossing at a new northern collector street that will connect 257th Avenue, Teleford Road, and the Village Center. Regional transit service will loop through the Springwater Community via Hogan Road, the new southern arterial, and 257th Avenue/Orient Drive.
- A natural resources program that integrates the main stem of Johnson Creek and its tributaries with the new urban land uses while providing for the protection and enhancement of its natural resource functions including riparian habitat, water quality, and flood control
- Three new parks that will provide recreational opportunities for residents and workers, and a trails system that will provide connection to the regional trail system and bike and pedestrian travel between employment, village center, and residential neighborhoods.

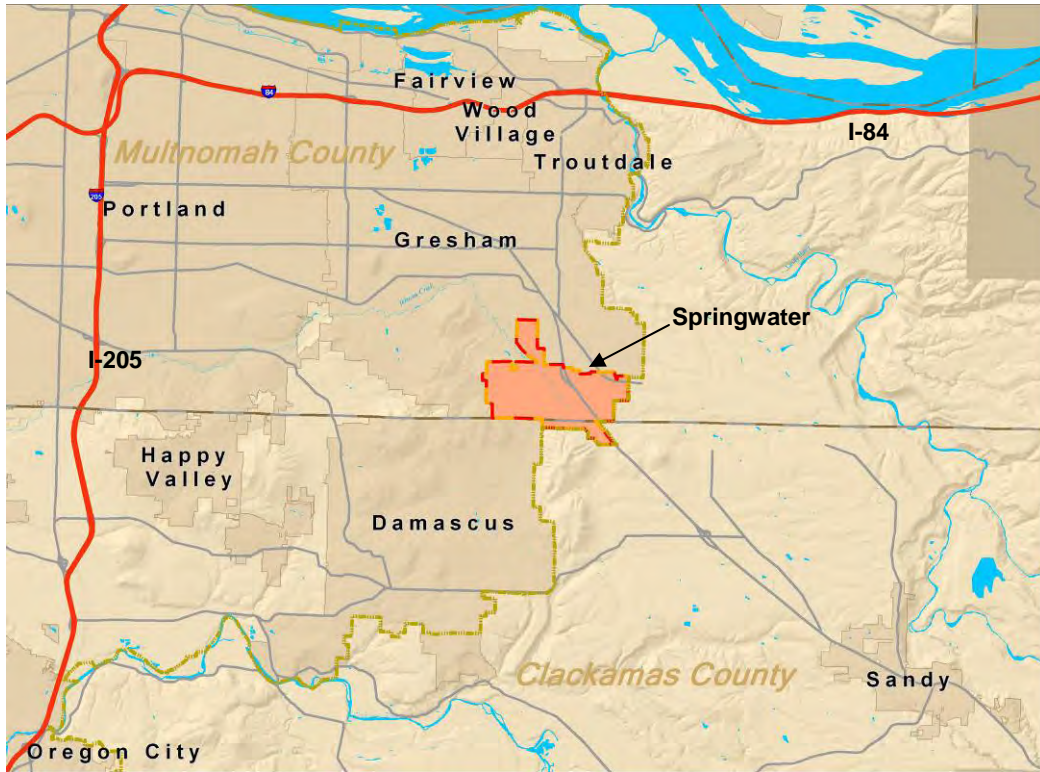


FIGURE 1 – SPRINGWATER REGIONAL CONTEXT

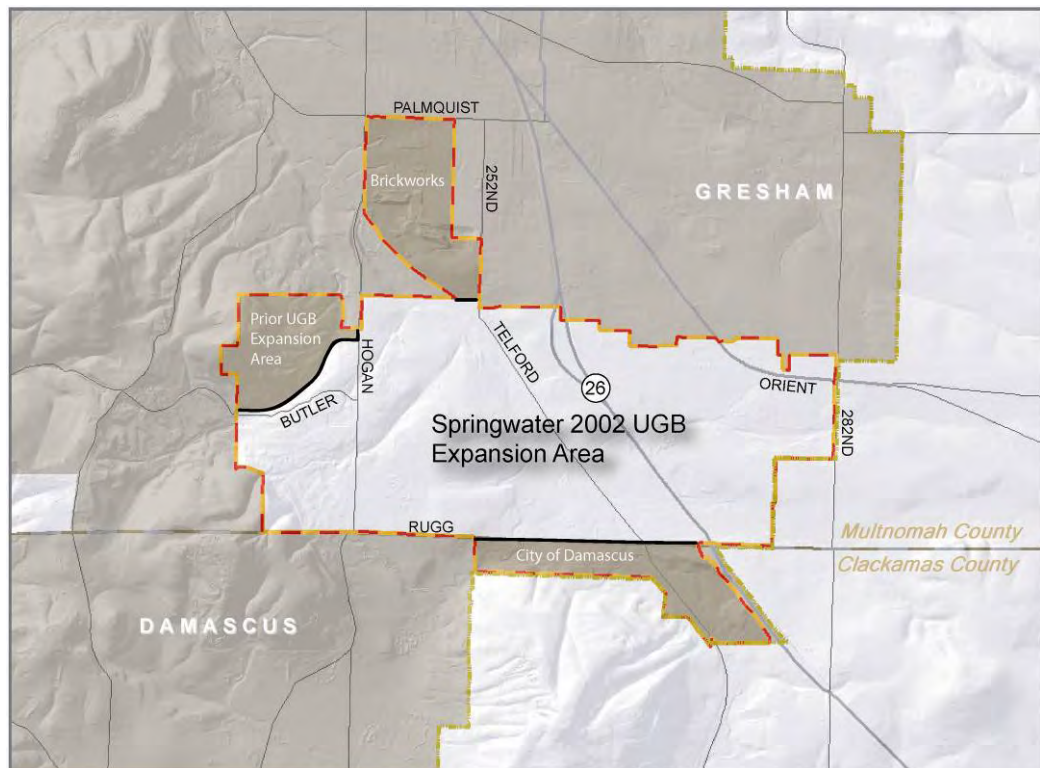


FIGURE 2 – THE SPRINGWATER STUDY AREA

1.2 PURPOSE

In December 2002, Metro brought 18,700 acres of previously unincorporated land into the Metro area UGB for future urbanization. Metro is required by the State to expand the UGB to accommodate future population growth. This expansion included the Springwater area, much of which was designated by Metro as Regionally Significant Industrial Area (RSIA). Previously Springwater was intended primarily for exclusive farm and multiple agricultural uses. The UGB expansion included 4,300 acres of land in Clackamas County south of Gresham and Springwater. The development of the Springwater Community Plan was closely coordinated with planning efforts related for that area.

What is RSIA? RSIA refers to Regionally Significant Industrial Areas. The Springwater area was designated a RSIA by Metro in 2002. The purpose of RSIA is “to provide and protect a supply of sites for employment by limiting the types and scale of non-industrial uses in RSIA’s.” Because there are a limited number of areas appropriate for large-scale industry in the region, it is important to preserve these, and to help industry operate efficiently by ensuring that RSIA’s have access to high-quality transportation facilities.

Before urban development can happen in Springwater a comprehensive planning effort is required. Oregon state law (Planning Goal 14) requires planning for newly urbanized areas in order to ensure orderly, efficient growth. Title 11 of the Metro UGMFP has plan requirements for the UGB expansion area that the City needs to address and adopt into its comprehensive plan. The Metro ordinance bringing Springwater into the UGB and an Intergovernmental Agreement (IGA) between the City of Gresham and Multnomah County also establish guidelines and requirements when planning for the Springwater Community.

Comprehensive planning is also required to ensure that the Plan meets the City and region’s needs of providing high-quality jobs in east Multnomah County, while balancing other priorities for the area such as preserving and enhancing natural resources and providing infrastructure in the most cost-effective method possible.

1.3 PLAN AREA

Springwater enjoys a geographical location that is aesthetically pleasing and ecologically diverse. Its environmentally sensitive natural features include unique habitats such as the western buttes with their steep terrain; seasonal drainages; springs and seeps; ponded wetlands; a two-mile section of mainstem Johnson Creek; and four miles of major tributaries. Johnson Creek is the region’s principal basin that feeds into the Willamette Valley.

Steeper slopes on the western buttes are typically forested and contain some areas of seeps and springs that feed the tributaries of Johnson Creek. The buttes are basaltic lava domes and were formed during the Pliocene epoch, which was a time of sporadic small-scale volcanic activity throughout the region. The buttes were cleared in the early 1900s, but are now covered mostly by mid-succession forest that is 60 to 100 years old. The lowlands were originally forested but were cleared in the late 1800s and early 1900s for farming and timber. The majority of the lowland areas has remained in agricultural and residential use and in many areas has been tiled for drainage.

Johnson Creek is one of the primary tributaries to the Willamette River. Its fish-bearing waters and riparian corridor form the spine of the natural resources through the Springwater Community. Nearly two miles of Johnson Creek runs through Springwater flowing west before entering Gresham. NOAA Fisheries considers the main stem of Johnson Creek (including the Springwater section) as critical habitat for Lower Columbia River steelhead and Chinook, and it has been listed as essential fish habitat for Coho and Chinook. The Oregon Department on

Environmental Quality (DEQ) lists Johnson Creek as a water quality limited stream and on the 303(d) lists for various toxins, temperature, and fecal coliform. DEQ is required by the federal Clean Water Act to maintain a list of stream segments that do not meet water quality standards.

As an urban stream, Johnson Creek is affected by the concentration of human activities along its banks. Numerous groups and jurisdictions, including the City of Gresham, are working to improve fish passage facilities and water quality in Johnson Creek and to restore native vegetation to its banks.

Springwater contains forest types in the Willamette Valley vegetation zone including Douglas fir and Western red cedar that are the primary conifer species while broadleaf trees include red alder, Oregon ash, big leaf maple, and black cottonwood. Other woody vegetation such as Nootka rose, Indian plum, willow, and red-osier dogwood also are found in Springwater. One distinctive species found in Springwater is the Hogan Cedar. Hogan Cedars are a unique species of the Western Red Cedar and are found in a large grove along Johnson Creek at the southern corner of the Brickworks site. These cedars are well over 100 years old and many are as tall as 150 feet, and it is believed they are only found naturally in nearby surrounding areas.

Wildlife in the Springwater area is diverse, but typical for western Oregon. Black-tailed deer are the largest mammals to be commonly found in and around the site. Smaller animals include skunks, raccoons, chipmunks, squirrels, and opossums. Common species of bird include red-tailed hawk, robin, song sparrow, Berwick's wren, house finch, cedar waxwing, violet-green swallow, belted kingfisher, great blue heron, mallard, wood duck, and the black-capped chickadee.

Rural residential uses primarily characterize Springwater. In the 2000 census there were 298 households and 833 people in Springwater (includes Brickworks site but not the City of Damascus.) Of these residents, 58 percent were over 35 years old and 22 percent were school age children. The population in Springwater is older than that of Gresham as a whole although school age children are about the same. White, non-Hispanic/Latino residents made up 90 percent of the Springwater population in 2000, with Hispanic/Latinos comprising the next largest ethnic group, which closely mirrors the ethnic make up of Gresham.

Other uses include a portion of a golf course (Persimmon) that occupies much of Springwater on the west side of Hogan Road, and few small commercial buildings especially near Orient Drive. The study area includes a total of 437 tax lots, of these 27 parcels are over 10 acres, 40 parcels are between 5 and 10 acres, and 370 lots are 5 acres or less. The largest single undeveloped parcel is approximately 40 acres.

The existing transportation system was designed primarily to serve the rural residential uses and farm to market route for past agricultural uses. The existing roadway network has mostly rural characteristics. The arterials are generally fast moving with most intersections either having no traffic control or only stop signs. Highway 26 is the major thoroughfare that traverses the study area, connecting Gresham with both Portland (to the west) and Sandy (to the southeast). Hogan Road/242nd Avenue also provides a north/south connection through the western portion of Springwater between cities north of Gresham and Damascus.

There are no public water, wastewater, or stormwater systems. Water is currently accessed via underground wells and wastewater is primarily treated in private subsurface disposal systems. Stormwater runoff is conveyed to natural drainage areas or to drainage ditches adjacent to local roads.

There are no public parks in Springwater, although the area is bisected by the Springwater Corridor Trail – a regional trail running parallel to Johnson Creek. This trail was created by the cities of Gresham and Portland to replace the rail line that once ran between Portland and Clackamas County.

Section 2

Public Involvement

2.1 INTRODUCTION

Public involvement was used early in the planning process to help identify community values and incorporate goals and opportunities identified by members of the public into initial planning efforts. The public involvement process continued through development of the Plan to gain public input, help evaluate issues and alternatives, and guide the process to maximize the interests of all community stakeholders. A public involvement plan was drafted and submitted to the Citizen Involvement Committee who endorsed it at their November 6, 2003 meeting.

The goals of the public involvement and information program for the Plan were to:

- Maximize the community's voice, provide information about the plan and the process, and to gain community consensus
- Include City and regional stakeholders in the planning process
- Consider the existing diversity of the communities
- Provide specific and relevant information and answers to the public
- Coordinate with Damascus and other regional governments
- Provide community education
- Consider other issues and initiatives

2.2 KEY METHODS

To achieve these goals, the project team developed a public involvement and outreach plan that included the following elements:

- An extensive multi-media public outreach effort including a project website, six newsletters (including four, full-color newspaper inserts), press releases, and four postcards
- Stakeholder interviews with 42 area property owners; neighborhood groups; neighboring jurisdictions; and business, natural resource, and other interest groups
- A 23-member Community Working Group which met monthly throughout the project and participated in open houses and workshops
- Four community open houses and one community workshop used to gain input regarding preferred development patterns, issues to address, and ideas to consider
- Informational displays at the open houses and workshops, and for viewing at Gresham City Hall and the Gresham-Barlow School District
- Two web-based surveys, implemented in conjunction with two open houses, and used to gather community input on the scenarios
- Focus groups used to gather professional experts to discuss issues related to sustainability, industry, residential development, industrial development, natural resources, and the Brickworks site
- A brokers panel to answer questions related to property values, annexation, plan adoption and timing
- Community/Agency briefings with City of Gresham elected officials, appointed commissions, business and neighborhood groups, and interest groups
- A postcard mailing in June 2005 providing information on the legislative hearing and how to testify

Through these efforts and through the personal communications of the project team, a number of stakeholders were included in the planning process. These include the following:

- Gresham Area Chamber of Commerce
- Gresham Chamber Governmental Affairs Committee
- City of Gresham Advisory Committees
 - Transportation
 - Parks
 - Historic Resources
 - Finance Committee
 - Development Advisory Group
 - Neighborhood Coalition
- Educational Groups
- Mount Hood Community College Joint Leadership Council
- Gresham-Barlow School District Long Range Planning Committee
- Partner Jurisdictions
 - Damascus/Boring Advisory Committee
 - Multnomah County Board of Commissioners
 - City of Damascus City Council
 - Clackamas County Commissioners (tour and meeting)
 - City of Sandy
- State Organizations and Agencies
- Oregon Economic and Community Development (tour)
- State Legislators (tour & meetings)
- Joint meeting, Senate Transportation and Economic Development Committee and House Trade and Economic Development Committee
- Governor's Economic Revitalization Team
- Oregon Department of Transportation (tour)
- State Treasurer
- Johnson Creek Watershed Council
- League of Oregon Cities -- Industrial Lands session
- East Metro Cities Regional Issues Forum
- Metro/Hood River Economic Revitalization Team
- City of Gresham Industrial Workshop
- Port of Portland
- Gresham Board of Realtors
- Oregon Science & Technology Partnership
- Kelly Creek Neighborhood Association
- Southwest Gresham Neighborhood Association
- Portland General Electric
- East Metro Association of Realtors

Table 1 shows the timeframe for public involvement activities. Highlights of key findings are included below.

TABLE 1 – TIMELINE OF PUBLIC INVOLVEMENT ACTIVITIES

Task	<i>Technical Steps</i>						
	<i>Inventory & issues identification</i>	<i>Develop scenario alternatives</i>	<i>Evaluate & analyze scenario alternatives</i>		<i>Recommend alternative & develop Concept Plan</i>		<i>Implementation Plan review & adoption</i>
	Fall '03	Winter '04	Spring '04	Summer '04	Fall '04	Winter '04	Spring '05
Public Information	◆						
Stakeholder Interviews/ Meetings	◇	◇					◇
Community Working Group		☼ ☼	☼ ☼ ☼	☼ ☼ ☼	☼ ☼	☼	☼ ☼
Community Open Houses	◇		◇	◇	◇		◇
Community Agency Briefings	◆						
Documentation	◆						

2.3 KEY FINDINGS: STAKEHOLDER INTERVIEWS

In November 2003 the City of Gresham conducted 13 meetings involving 42 property owners and other stakeholders, and also provided a briefing to the Gresham Citizen Involvement Committee. The individuals selected for interviews represented a range of local and regional interest groups, neighborhood associations, developers, agricultural users, property owners, and community facilities. The purpose of the interviews was to provide an opportunity for community leaders and residents to:

- Find out about the project
- Identify other community members who should be involved
- Inform the project team about how they would like to be involved in the project as it developed
- Allow stakeholders to share their perceptions of issues or concerns regarding the project

All participants were asked the same questions related to how they had been involved in Springwater planning to date. Common question were what opportunities or constraints they saw, what they thought would be the biggest issues to address in urbanization and why, and issues or concerns regarding specific topical areas applicable to Springwater (i.e., industrial development, residential development, public services, natural resources, etc.). A complete stakeholder interview summary is included in the Reference Documents. Major opportunities and constraints identified by the stakeholders are outlined in Table 2.

TABLE 2. STAKEHOLDER IDENTIFIED OPPORTUNITIES AND CONSTRAINTS

Opportunities	Constraints
<ul style="list-style-type: none"> ▪ Bringing jobs to the area ▪ High end housing ▪ Regional park facilities ▪ Improving protection for natural areas ▪ Limiting commuter miles driven ▪ Bring high paying jobs to the area not just warehousing or service industry jobs ▪ Balances the region with a good job to housing mix ▪ The natural setting is a unique and compelling selling point 	<ul style="list-style-type: none"> ▪ Transportation connection to I-84 (lack of) ▪ Ability for the area to attract large employers ▪ Competition is on a statewide and national scale for attracting industry ▪ Once the natural areas are removed from consideration for development, there isn't a lot of land to develop ▪ Property owners who don't want to annex or sell ▪ Too much protection for natural resources ▪ Lack of infrastructure and inability to pay to put it in ▪ Assembling property into large parcels may be challenging

2.4 GOALS AND POLICIES ADOPTED BY THE COMMUNITY WORKING GROUP

A 23-member Community Working Group (CWG) was formed to provide "on the ground" guidance to the City regarding issues of importance to the community. The CWG served as the advisory group to City technical staff. The CWG represented the range of interests and issues that needed to be addressed as the Plan was developed.

The CWG helped develop goals and policies to guide the development and evaluation of the planning alternatives. The following Goals² were adopted by the CWG in order to guide the plan and provide a 'yardstick' by which to evaluate plan proposals in the following topic areas:

- Create a Community
- Economic Development
- Sustainability
- Livability
- Transportation
- Natural Resources

Create a Community

The Springwater Community shall be an economically and environmentally sustainable community. The primary focus of the Plan will be on providing a high number of industrial and industrial related jobs that enhance the economic viability of Gresham, the greater east Multnomah County region, and their citizens. Industrial and employment lands will be complemented with a village center and housing and will be carefully integrated with the upper Johnson Creek system. Sustainable "green" building and development practices will enhance the community's unique character while supporting the protection and restoration of the area's natural resources.

Economic Development

The Springwater Community shall provide industrial land that will generate a variety of family- wage job opportunities. Job creation is aimed at correcting the imbalance between the number of households and the number of jobs in the East Metro region and increasing the City's economic strength. The Plan will actively encourage businesses with an interest in sustainability and protecting the community's rich natural resources. Springwater will include a village center that can serve residents, employees, and businesses.

² A detailed list of the goals and policy statements is provided in the Springwater Goals and Policies section of the Springwater Community Plan report.

Sustainability

The Springwater Community shall foster sustainability through encouraging businesses, industries and homes that are built with and practice good environmental stewardship.

This shall be accomplished through green practices that include energy-efficiency, water conservation, and reduced pollution, but avoid environmentally harmful materials and processes. The Springwater Community strives to be a model for successful sustainable industrial development. Development also shall preserve, restore, and enhance natural resources by meeting or exceeding local and regional standards. Land uses, transportation systems, and natural resources shall be carefully integrated and balanced.

Livability

The Springwater Community shall have a high quality of life. This will be accomplished through compact and sustainable development; a range of housing choices; walkable neighborhoods; access to natural resource areas and open spaces for employees in the community; preservation of natural resources; and a variety of transportation choices. The community will encompass a village center or series of village centers that provides needed services for employees and residents in an attractive and human-scale environment. A range of housing choices will be provided within close proximity to services and/or employment areas. Overall, the community shall be a unique environment that creates a sense of place both for residences and businesses, and acts as economic attractor.

Transportation

The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking and bicycling. Good design can also avoid the effects of heavy traffic on neighborhood safety and the natural environment. A well-connected transportation system using trails, bike routes, and a variety of street types reinforces a sense of community and provides adequate routes for travel. The site should provide good connections to and from the employment areas and the surrounding community, as well as regional freight and transportation centers.

Natural Resources

The plan will preserve, protect and enhance natural resources. It will define, protect, restore, and enhance significant natural resources, including stream corridors, wetlands, and forested areas. Resource areas will provide the basis for identifying development constraints as well as serving as open space amenities for the Springwater Community. Resource protection and enhancement will be a shared responsibility of property owners, developers, and governments.

Section 3

Concept Plan

3.1 INTRODUCTION

An essential step in developing the Plan was to create a Concept Plan. A Concept Plan addresses land use, transportation, natural resources, and public facilities patterns and strategies. It provides the basis for future decisions on land use (land use designation and development code), protection of natural resources, and the provision of urban services and facilities. The Springwater Concept Plan³ was developed using a scenario planning process. Utilizing a number of variables that will impact the development of Springwater over the next 20 to 40 years scenario planning considers several possible land use patterns and sees how they match with the community's goals.

3.2 SCENARIO PLANNING

Scenarios are not forecasts or predictions. The Springwater scenarios (Figure 4) are possible futures as Springwater transitions from a rural to an urban area. They are based on existing conditions; on economic, environmental, demographic, and other trends; and on the community's values, goals, and objectives for Springwater. The scenarios are tools to compare how different land use patterns and policies are likely to affect the urbanization of Springwater and which strategies will best meet the Springwater goals while providing for flexible responses as circumstances change in the future.

Scenario planning involves a hands-on workshop process. For Springwater there were three distinct workshop participant groups. The first participant group was project and City staff. The second group was the Gresham Planning Commission. And the third group was Springwater residents and property owners and other stakeholders at a public workshop held at the Hogan Cedar Elementary School. Volunteers from the City's mediation program facilitated at the public workshop.

The hands-on process is that each table (about 8-10 persons at the public workshop) has a map and a chip set. Each map was the same and included the existing road system as well as environmental and topographic features. Each map showed areas considered unbuildable. These included a 200 foot area along both sides of Johnson Creek, a 100 foot area along both sides of all tributaries to Johnson Creek, a 50 foot area around all wetlands, FEMA 100-year flood plain, 25% or greater slopes, and the golf course.

The workshop also featured other maps to help inform the participants' map-making decisions. These included maps that showed the lands that:

- Are relatively flat, have potential to be in larger sites, are adjacent to Highway 26, and relatively not constrained by environmental features (the lands were east of Teleford Road)

³ A Concept Plan was developed for the entire 1,700-acre Springwater area including the "brickworks site" and the "Clackamas County site". A later decision was made that the Concept Plan could be used as the basis for a future plan map changes to the brickworks site. A Concept Plan was created in Clackamas County for analysis purposes and with its incorporation as part of the new City of Damascus a decision was made to forward the concept plan recommendations to the City of Damascus for their use.

- Have similar characteristics as above but have significant site improvements (primarily housing).
- Have similar characteristics as the first bullet except not adjacent to Highway 26 (these lands west of Telford Road and south of McNutt Road.)
- Moderately sloped (6-15%) and most affected by stream features (primarily between Hogan Road and Telford Road, north of McNutt Road)

Three chip sets were developed, each representing an economic development program based on the economic research and on the land use, transportation, and environmental needs analyses. The dominant element of the chip sets was the type and character of the employment designations. Each set had differing amounts of large lot industrial (RSIA), small lot industrial, and business park/office chips. A commercial component included commercial center and mixed-use chips. The housing component was added to the chip sets according to the types of housing most likely to be demanded by the employment uses and included small and large lots single family and apartments and townhouses.

Each chip was scaled to the map and represented a specific area and a specific number and type of jobs or housing. Participants were able to modify transportation elements, designate the location of industrial, office, retail, and housing uses, and consider access to open space and trails. The same unbuildable lands (steep slopes, wetlands, floodplains, and stream buffers) were held constant in each scenario developed.

3.2.1 January 2004 Community Workshop

A community workshop was held at the Hogan Cedar Elementary School in January 2004 to obtain public input to help create three different scenarios. Approximately 85 persons were in attendance. The hands-on scenario process teaches participants about the land use issues involved in Springwater planning and allows the project team to learn what solutions the participating public will support. The format of the workshop included a presentation; small group development of a scenario map; group presentation of each scenario; and a question and answer session (Figure 4).

At this community workshop, eleven maps were developed. The maps had the following common themes:

- The large site industrial chips tended to be placed on the east side of Telford Road.
- Instead of industrial chips, office and mixed-use chips tended to be placed between Hogan Road and Telford Road.
- Wide spread support for majority of the area to be employment. However, also support for some residential between Hogan Road and Telford Road and west of Hogan Road in the more sloped areas.



Small Group Table



Scenario Presentation



Q & A Session

FIGURE 3 COMMUNITY WORKSHOP

3.2.2 Alternative Scenarios

The January workshop resulted in eleven scenario maps, and five maps were developed by City staff and the Planning Commission. All of the maps were converted to digital maps using a geographic information system (GIS), which allows them to be viewed in combination and separately. By combining all the maps together into a composite it is evident that participants in general saw the eastern portion of the site as the most suitable for large-scale employers and the sloped land to the west for residential uses. The land in between was seen as best for industrial-related office uses. There was no clear distinction on where to locate the Village Center.

Utilizing these digitized maps project staff developed three scenarios. After reviewing the results from the workshop and three preliminary scenario concepts, a small group of CWG members felt that they wanted to derive a fourth option. The fourth scenario was developed as a sketch. These four scenarios are shown in Figure 4.

The three scenarios had similarities and differences. [As the fourth scenario was a sketch it was more difficult to evaluate number of jobs, housing, etc. than the GIS derived scenarios.] The scenarios all emphasized an employment-based community built around a strong natural resource network. Each accommodated more than the target 15,000 new jobs – the scenarios ranged from 16,700 to 17,700 projected jobs, reflecting differences in both the amount of land used for jobs and the types of jobs created. Each of the three scenarios had approximately 1,000 jobs in the commercial center and Village Center (except the Fourth Scenario which had about 400). Each of the scenarios had a balanced mix of housing types, with large lot residential housing being the least amount of housing units. Industrial (large and small site) were located in each scenario east of Teleford. Each had a village center that anticipates housing over retail and is located between Hogan and Johnson Creek, although not in the same place. Each has a park and trail system although located at different place. All of the scenarios were based on the same buildable lands analysis, and therefore used the same amount of land for development. Several key differences between the scenarios are highlighted below and in Table 3.

- Scenario A emphasizes industrial employment, providing more large-scale, regionally significant industrial jobs than the other scenarios. Only the fourth scenario provided less housing. It has the smallest Village Center. A community park is proposed at the confluence of McNutt Road and Johnson Creek. Highway 26 has two elevated crossing and one at-grade intersection.
- Scenario B has more emphasis on smaller-scale industrial and office/business park jobs. It has the second most housing. It has a larger Village Center than Scenario A. A community park is located at the “five creeks” confluence where Johnson Creek bends to the east. Highway 26 has two at-grade intersections.
- Scenario C provides significantly more housing as the other scenarios and focuses much more heavily on office and business park type employment, with less emphasis on industrial employment. It has the largest of the Village Centers. Highway 26 has a interchange at the northern and two southern overpasses.
- The fourth scenario appears to provide for the most industrial jobs and the second most office/business park jobs with the least number of households. It was created primarily to show how development could occur in a way that meets the basic economic development goals of the project while putting more emphasis on environmental protection.

Figures 4 through 7 and Table 3 show the differences between the three scenarios. A rough analysis of the fourth scenario sketch was also included for comparison purposes.

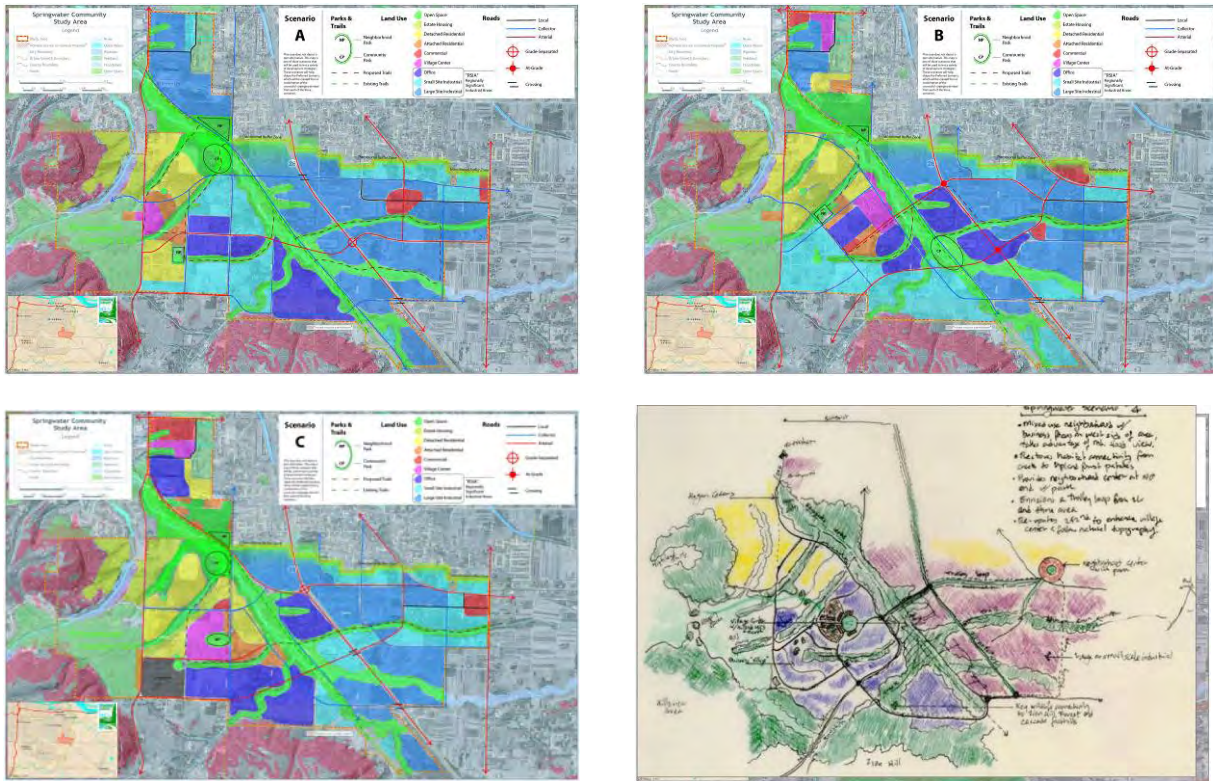


FIGURE 4 – SCENARIO MAPS AND FOURTH SCENARIO SKETCH

TABLE - COMPARISON OF THE SCENARIOS

	Jobs	Housing units
Scenario A	16,724 Includes 6,915 RSIA, 4,929 small scale industrial, 3,840 office/business park*	1,600
Scenario B	17,615 Includes 4,603 RSIA, 5,955 small scale industrial, 5,865 office/business park*	2,542
Scenario C	17,688 Includes 2,120 RSIA, 4,287 small scale industrial, 9,872 office/business park*	3,695
Fourth Scenario	14,847 Includes 6376 RSIA, 2680 small scale industrial, 5360 office/business park*	1,341

See Reference Documents for a full table of acreages and a breakdown of housing types.

* Breakdown of jobs does not include “commercial center” and “village center” employment which averaged around 1,000 jobs in scenarios A, B, and C and about 400 in the fourth scenario.

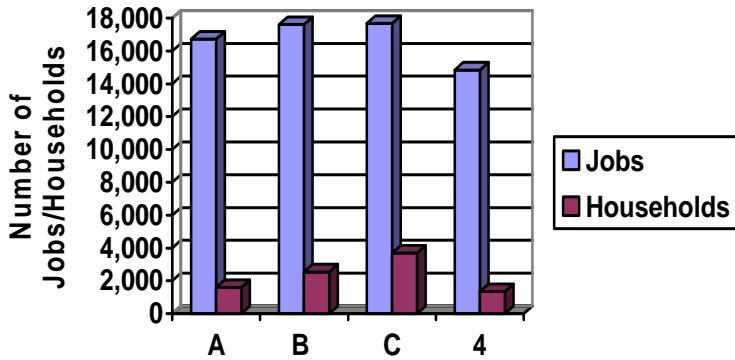


FIGURE 5 – JOBS/HOUSING COMPARISON OF THE SCENARIOS

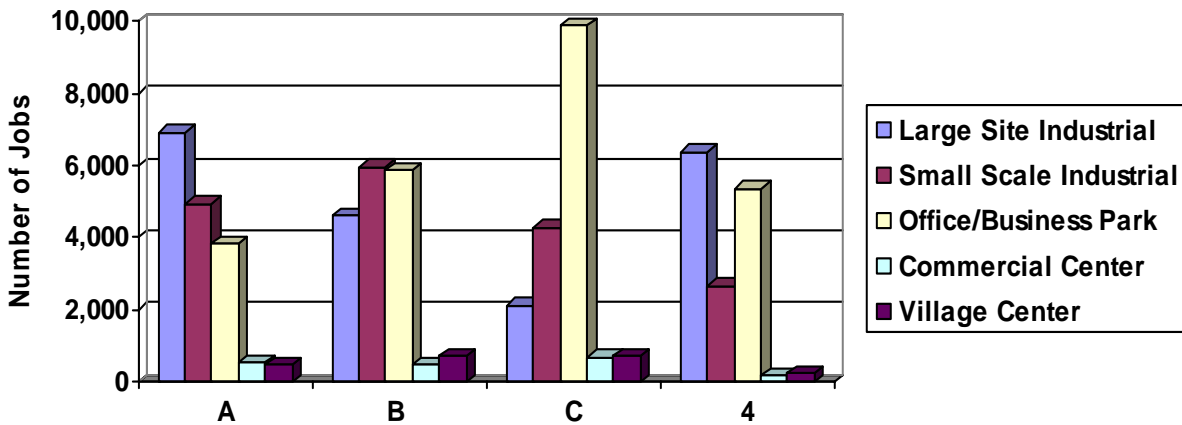


FIGURE 6 – JOBS MIX COMPARISON OF THE SCENARIOS

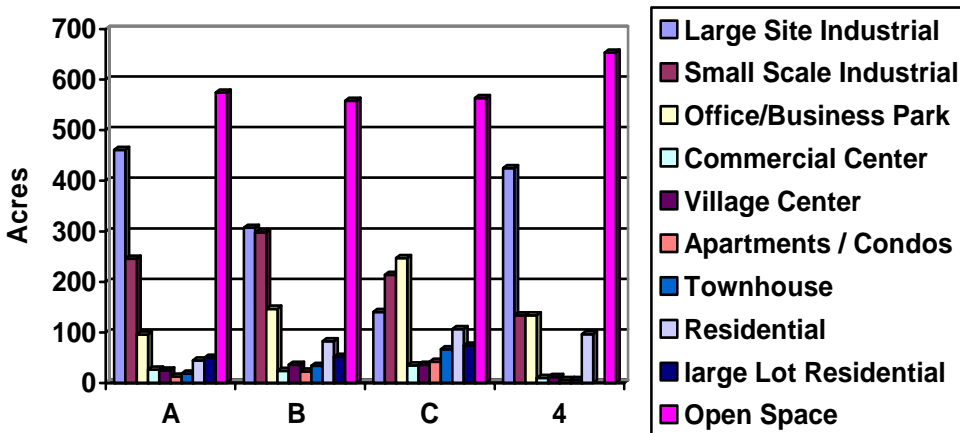


FIGURE 7 – LAND USE COMPARISON OF THE SCENARIOS

3.2.3 Evaluating the Scenarios

The Springwater Project Goals and Policies (as endorsed by the CWG) provided the basis for evaluating the scenarios. Does the scenario show an economically and environmentally sustainable community? Will the scenario foster family-wage job opportunities? Would the

scenario foster environmental stewardship? Would the scenario provide a high quality of life for residents? Does the scenario show a well-planned transportation system that supports non-vehicular transportation? Would it preserve, protect, and enhance natural resources? Each of these questions was answered by evaluating a range of measures for each scenario, and determining which elements from the different scenarios best met the goals and policies.

Computer modeling and other analytical tools were used in evaluating the scenarios.

- A land use model, which not only maps existing conditions but also allocates future growth using various assumptions, was used. The land use model keeps a running inventory of how land resources are used and other data such as number of jobs and households, acreage of parks, and the average annual wage for each of the scenarios.
- A transportation model which is used to design future transportation systems and evaluate the consequences of these systems in terms of congestion measures, pollution, time spent in traffic, and trade-offs between cars and public transportation was used.
- Other models used to evaluate the scenarios included stormwater runoff, sanitary sewage generation, and water demand. This evaluates where public infrastructure should be located, how big it should be, and estimated rough costs.

Based on the model results and input from the project team, evaluation sheets were prepared for each of the project goals. These sheets contained a listing of all of the evaluation measures used to evaluate how well the scenario met the goal, a description of the evaluation measure, and the results of applying that measure to each of the scenarios. The purpose was to use the public values as captured in the goals to objectively evaluate the strengths and weaknesses of each scenario.

Examples of the evaluation criteria include:

- Number of jobs and households
- Amount of land used for jobs and households
- Job to household ratio
- Wastewater, stormwater, and water systems cost
- Total jobs annual wages
- Future assessed property values by development type
- Housing mix
- Employee and residents accessibility to open space
- Land devoted to open space
- Employee and residents distance from trails and parks
- Number of new stream crossings
- Miles of roadways within natural resources areas
- Number of transit trips generated
- Miles of roadway created
- Cost of roadway

Utilizing evaluation sheets, the CWG and the project team determined the best performing elements, or strategies, of the scenarios that should be carried forward for consideration in the Concept Plan.

3.2.4 Key Results of the Scenario Evaluation

The purpose of the scenario evaluation was to develop a Springwater Concept Plan Map as a blueprint for the implementation strategies for a proposed Plan. A key result of the public participation process was that fundamental to the Concept Plan is that it:

- Designate enough land for jobs to meet the project target of 15,000
- Provide housing in support of the jobs and the village
- Preserve the natural environment
- Recognize that topography and existing development patterns may complicate the development process that will require implementation strategies

Other key results were:

- The best opportunities for large site industrial (RSIA on 50 acre parcels) are east of Teleford Road. This is because it is generally level (less than 5% slope); would have good access and visibility at Highway 26 without being constrained by the Springwater Trail and Johnson Creek; and there are a few larger parcels that could be combined with smaller parcels to create 50+ acre sites.
- Large site employers were deemed important, but also significant was the need to provide a mix of different types of employment. Of primary importance was the need to be flexible, allowing a range of uses that can respond to market changes.
- Employment and family wage creation is best achieved by a mix of small and large site industrial uses and by research, technology and professional service uses in office buildings rather than by RSIA designation on all lands east of Hogan Road as originally anticipated by the Metro 2040 Growth Concept Plan.
- The area located between Hogan Road and the Springwater Trail/Johnson Creek and to the south of McNutt Road is suitable for office development. It will have arterial access to Highway 26, have frontage on Hogan Road, and be close the Village Center. Office uses are less constrained by slope than is industrial development and will be supportive of the industrial uses.
- The Village Center is important for establishing a “place” for Springwater, can be a moderate size of retail, mixed use and housing, and should take advantage of views of Mt. Hood.
- Housing was determined necessary for attracting businesses, supporting the Village Center, and providing a balanced, sustainable community. Housing was located in those areas less desirable for employment (mainly slope/environmental and access constraints). Provisions for office uses (shifted from industrial uses) suggest the need for less multi-family and more single family and other homeownership opportunities. Standard size residential subdivisions north of the Village Center would be a good transition from the Village Center and integrate on both sides of Brigman Creek.
- Estate housing would be located in the sloped areas north of Botefuhr Creek and on both side of Hogan Creek.
- Attached housing near the Village Center provides support of the Village Center and the industrial employee housing needs.
- The transportation system should follow the natural terrain to minimize stream crossing, and use existing roadways to the extent possible for costs savings. There should be two locations for access to or crossing of Highway26. Evaluation of specific access configurations is being conducted through a separate study called the Springwater US 26 Concept Design and Access Plan funded by at State Transportation Growth Management grant.
- Already improved parcels pose a greater development constraint than vacant sites especially in the near term. This may be especially true for industrial development as opposed to residential (which can incorporate a residential building) or commercial (which command higher rents). However, the overall marketing/economic development strategies for Springwater can mitigate constraints through techniques such as public-

private partnerships, public investment in infrastructure, fee waivers/tax credits, and tax increment financing.

3.3 CONCEPT PLAN OVERVIEW

As a result of the scenario evaluation a Concept Plan Map was developed. It shows the general locations of different land uses, in broad categories such as industrial, office, village, attached housing, and detached housing. The Concept Plan Map is a blueprint that will be refined and implementation strategies added, and will ultimately shape the community development plan and land use designations. The Concept Plan map shown in Figure 8 represents a blend of elements from the four scenarios that were evaluated to best meet the Springwater goals and policies.

Major elements of the Concept Plan are described below.

Economic Development

The land use plan supports the economic development goals adopted by the CWG. The majority of land in the plan is for economic development; and at buildout could result in approximately 17,000 jobs. These jobs will be varied and not solely in traditional manufacturing and warehousing, providing the flexibility for this area to grow under different economic and job growth conditions. The Concept Plan brings the opportunity to lower Gresham's jobs to households ratio closer to the regional average (approximately 1.5).

Employment Areas

Industrial sites, often with large buildings, generally prefer lands on 5% or less slope. The draft concept plan locates the majority of the large site industrial development on the flatter lands east of Telford Road. To support those industrial areas (and serve the neighborhoods to the north) a small commercial area has been sited near 267th Avenue and Orient Drive. The map depicts two separate types of industrial land. Areas with more potential to attract large scale employers are designated as 'Large Site Industrial', while other industrial areas with smaller parcels or some constraints are labeled 'Small Site Industrial'. A third employment category, 'Office', is also shown on the map. Amid these employment designations is one large single parcel marked with a dotted line. This property was being considered by private parties as a site for a mixed area comprised of education, employment, and living space.

Transportation

An improved transportation system for Springwater was developed as part of the Concept Plan. The transportation system includes a network of arterial, collector, community, and local streets that accommodate travel demands and provides multiple routes for travel. Improvements include new east-west arterial connections from 242nd Avenue to Telford Road, improved access to US 26, regional and community transit service, street and trail improvements to accommodate bicycling and walking, and direct and convenient access to employment centers that lead to regional facilities and reduce the possibility of traffic intrusions into neighborhood and rural areas.

The Village Center

The Village Center is located east of Hogan Road along McNutt Road with good planned access to Highway 26. This site has one of the best perspectives with views of rolling hills, buttes, and Mt. Hood to the east. The Village Center needs to have approximately 2,000 households within a 2-mile radius without competing services for the Village Center to develop a grocery store. The Concept Plan accomplishes this.

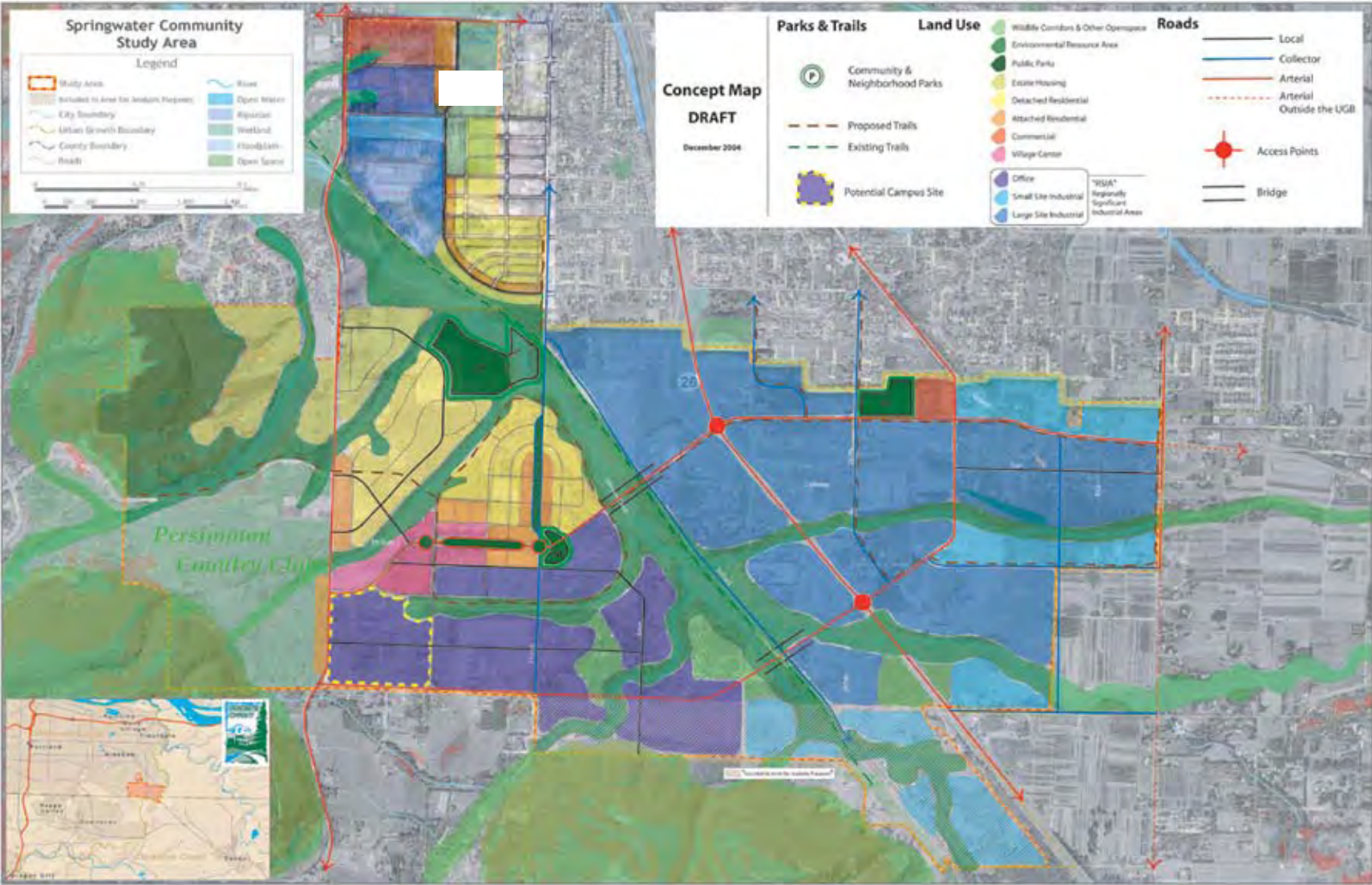


FIGURE 8 – CONCEPT PLAN MAP

Park blocks

Park blocks in the Village Center take advantage of the views of the buttes and Mt. Hood to create a dramatic linear open space. This is an axis for the attached residential uses to be located in a manner that provides ample park space and an appealing pedestrian environment. The park blocks will intersect in a Neighborhood Park Plaza that can serve as a gathering place for the community and help establish an identity for the Village Center.

Development of a “main street”

The main street, as the heart of the Village Center, is envisioned as a comfortable pedestrian environment, with ample on-street parking in front of retail stores, and the location for multi-story, mixed use buildings.

Providing quality housing

The Concept Plan represents a sound housing strategy with a wide variety of housing types including a mixed-use Village Center, small lot housing around the park block, standard lot size single-family housing, and large lot single-family homes with views of Mt. Hood to support executive or estate-type housing. The housing supports the other plan goals by helping to create a real community where residents have close access to services and jobs, and takes advantage of the natural beauty and views of the area to provide attractive housing options for business owners and executives.

Environmentally Sensitive Resource Areas

The Concept Plan identifies over one third of the land in the study as environmentally sensitive. All critical lands have been identified, including the critical habitat located around Johnson Creek and its tributaries. These are areas that are anticipated to have a range of protection, from lightly limited development to City purchase for protection and enhancement. The Concept Plan places a high emphasis on resource protection and habitat connectivity.

Parks and open space

In addition to the park blocks and Neighborhood Park in the Village Center, the Concept Plan includes two community parks, two trail loops, and acquisition of public open space within Springwater. The community parks are located on opposite sides of the study area, and are designed to serve the needs of the surrounding neighbors. The nature-oriented Springwater Community Park is located along the Johnson Creek Corridor adjacent to the residential districts. It will provide two youth sports fields and a regionally significant natural park area, providing interpretive educational opportunities. The athletic facility-oriented East Springwater Park will be located east of US. 26, and will provide sport fields to serve employees in the industrial areas as well as Gresham neighborhoods to the north. The two loop trails – the Village Center Loop and Employee Loop – will provide bicycle and pedestrian connectivity between the Village Center and riparian areas west of Telford Road, employment areas east of Telford Road, and neighborhoods surrounding Springwater.

Public Infrastructure

Recommended infrastructure improvements for transportation, water, wastewater, and stormwater service are designed around supporting the Concept Plan’s implementation, meeting the needs of potential industrial developers, and promoting sustainable development. Water and wastewater improvements were developed to build on Gresham’s existing infrastructure, and minimize cost by locating most facilities in planned road right-of-way. Recommended stormwater improvements include a combination of Green Street swales and

culverts for stormwater conveyance, as well as regional detention and water quality treatment facilities.

Buffering existing neighborhoods

Along the north edge of the site is a “transitional buffer area” that ensures current Gresham neighborhoods adjacent to the study area will not be adversely affected by the new industrial development. The plan requires that planned industrial development adjacent to residential uses reduce conflict with neighboring activities by providing and maintaining proper transitional zones for industrial uses. Section 9.0100 of the Gresham Code contains updated specific guidelines for buffering and screening.

Section 4

Springwater Community Plan

4.1 INTRODUCTION

This section of the report summarizes the Springwater Community Plan. The Plan provides recommendations regarding the unincorporated Multnomah County Springwater area (both the 2002 UGB expansion area and the pre-2002 UGB expansion area), a 1,272 acre area. It does not include the Brickworks area (183 acres) that is already within the city limits. Applying a new land use plan to the Brickworks area will be considered as a separate comprehensive plan amendment process. Nor does the Plan include the portion of the study area in Clackamas County (139 acres) as it is now part of the newly incorporated City of Damascus.

This summary consists of the following elements:

- Land Use
- Economic
- Natural Resources
- Transportation
- Sustainable Development
- Public Facilities (Water, Wastewater, Stormwater)
- Parks

4.2 LAND USE ELEMENT

4.2.1 Springwater Plan District Map and Code

The Springwater Plan District Plan Map (Figure 9) will serve as the key regulatory map for land use in Springwater. The Springwater Plan District Map includes the following land use types: industrial and employment; mixed-use and commercial; and residential. This section summarizes these major land use types.

Part of Metro Council bringing Springwater into the UGB in December 2002 was the adoption of Metro 2040 Growth Concept Design designations. The Metro 2040 Growth Concept map designated the Springwater area east of Hogan Road (242nd Avenue) as Regionally Significant Industrial Areas (RSIA). RSIA are industrial areas with site characteristics that are relatively rare in the region that render them especially suitable for industrial use. The area adjacent to Hogan Road was designated as a Corridor. Corridors are along good quality transit lines, feature a high-quality pedestrian environment, convenient access to transit, and a density recommendation of 25 persons per acre. The rest of the lands were designated as Inner Neighborhood. Inner Neighborhoods are residential areas accessible to jobs and neighborhood businesses with smaller lot sizes with a density recommendation of 14 persons per acre. In developing this Plan, some land was found to be unsuitable for industrial uses; however, most of the developable lands have been designated for industrial and employment related uses.

The Plan represents a greater level of detailed planning, site analysis, and setting community goals than was done at the time it was brought into the UGB and Metro 2040 Growth Concept Design designations were applied. Part of the Plan adoption process is to show compliance with Metro UGMFP, specifically Title 11 – *Planning For New Urban Areas*. Included in the Plan are recommended revisions to the 2040 Growth Concept Design designations based on this greater level of planning. The Plan compliance is outlined in the separate UGMFP Title 11 Compliance Report. The following 2040 Growth Concept Design Types are proposed:

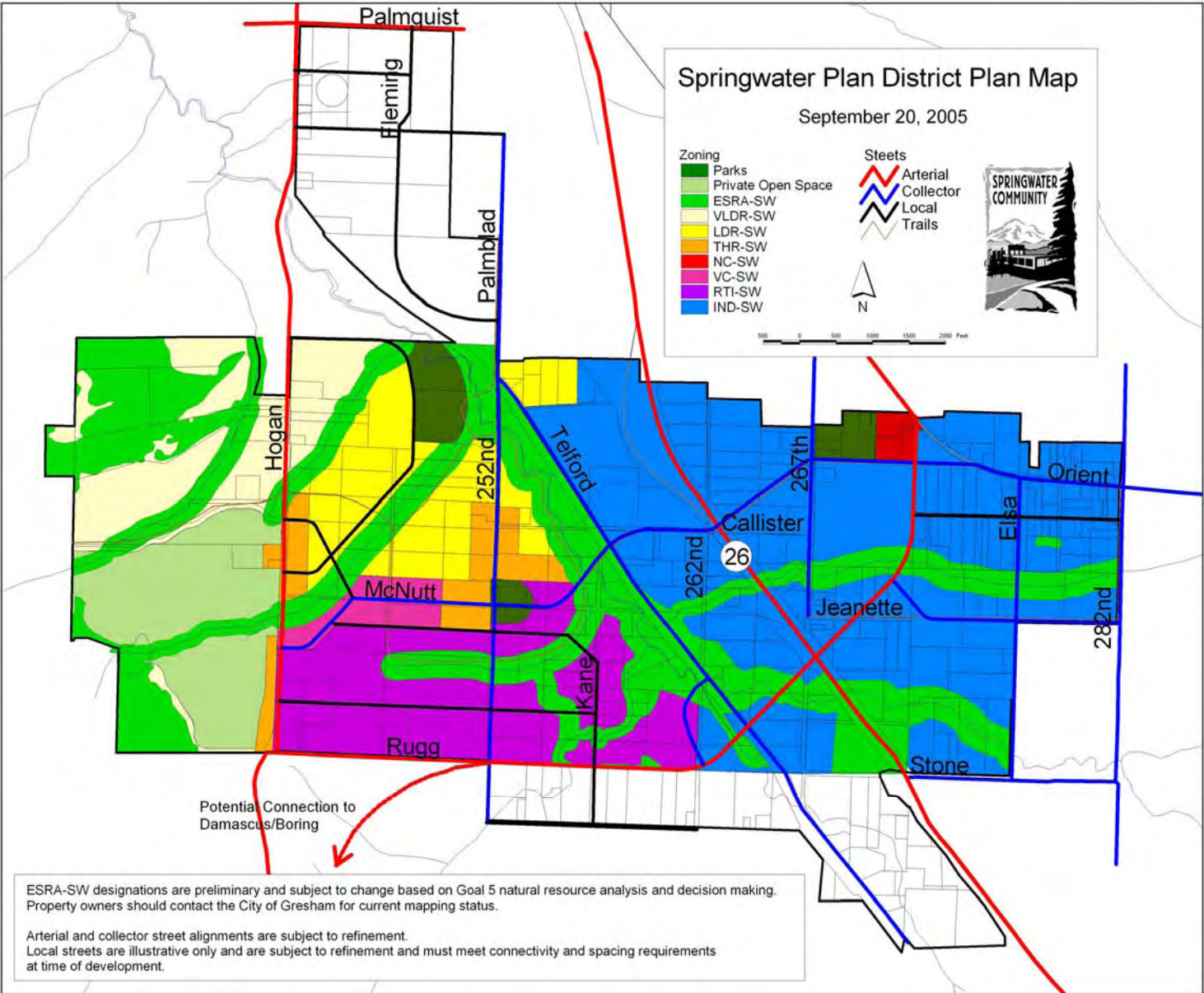


FIGURE 9 – SPRINGWATER LAND USE PLAN

- The land east of Teleford Road and 262nd Avenue will remain as RSIA with two exceptions. One is a small area of sloped land southeast of Palmbled Road/262nd Avenue and Teleford Road that is proposed as Low Density Residential and would be Inner Neighborhood. The second is a small commercial area near Orient Drive that is proposed as Neighborhood Commercial and would be Employment. Employment areas include various types of employment and some residential development with limited commercial uses and recommended density of 20 persons per acre.
- The Corridor designation along Hogan Road would remain and would encompass the Village Center along with some of the Townhouse residential sub-district.
- The land generally between Hogan Road and Teleford Road/262nd Avenue and just to the south of McNutt Road that is proposed as Office would be Employment.
- The rest of the land, including the Low Density Residential, Village Low Density Residential, and the Townhouse sub-districts that are not on the corridor would be Inner Neighborhood.

Employment and housing capacity estimates are 15,330 jobs and 1,609 dwellings. One hundred and fifty three of the dwellings are located in the "Prior UGB Expansion Area" (see figure 2) in the VLDR-SW sub-district. The rest of dwellings and all of the jobs are located in the "2002 UGB Expansion Area". The following tables illustrate assumptions used arriving at the capacity estimates.

Table 1: Springwater Buildable Land Analysis – Gross Acres by Classification

Plan Sub-District	Plan Data Estimate Prior UGB Expansion Area	Plan Data Estimate 2002 UGB Expansion	Plan Data Estimate Total
ESRA	66.2	304.8	371.0
Parks		33.6	33.6
VLDR-SW	54.0	43.1	97.1
VLDR-SW (Private Open Space) ¹		105.1	105.1
LDR-SW		99.4	99.4
THR-SW		43.5	43.5
NC-SW		7.4	7.4
VC-SW		23.3	23.3
RTI-SW		106.8	106.8
IND-SW		384.2	384.2
Total Acres	120.1	1,151.3	1,271.5

¹ Comprised entirely of Persimmon Golf Course lands - not expected for development

Table 2: Springwater Buildable Land Analysis – Gross to Net Assumption

Plan Sub-District	Description	Gross Buildable Acres	Gross to Net Calculation²	Net Buildable Acres
VLDR-SW (Prior UGB Expansion Area)	Very Low Density Residential	54.1	22%	42.2
VLDR-SW (2002 UGB Expansion Area)	Very Low Density Residential	43.1	22%	33.6
LDR-SW	Low Density Residential	99.4	22%	77.5
THR-SW	Townhouse Residential	43.5	22%	33.9
NC-SW	Neighborhood Commercial	7.4	22%	5.8
VC-SW	Village Commercial (mixed use)	23.3	22%	18.2
RTI-SW	Industrial (office buildings)	106.8	22%	83.3
IND-SW	RSIA Industrial	384.2	22%	299.7
Total Acres		761.9		594.3

² Gross-To-Net of 22% is based on the 25% standard presented by Metro in the 2002-2022 Urban Growth Report: A Residential Land Need Analysis Final Report - December 2002 Page 20 Appendix A, Item #3, Ordinance 02-969. The 3% discount represents land deducted in Table 1 to account for parks.

Table 3: Springwater Buildable Land Analysis – Density Assumptions

Plan Sub-District	Net Buildable Acres	Assumed Residential Lot Size	Assumed Square Feet Per Unit ³	Assumed Floor Area Ratio	Dwelling Units	Employment Land Building Square Feet	Square Feet Per Employee	Jobs
VLDR-SW (Prior UGB Expansion Area)	42.2	12,000		NA	153		0	
VLDR-SW (2002 UGB Expansion Area)	33.6	12,000		NA	122		0	
LDR-SW	77.5	6,000		NA	563		0	
THR-SW	33.9	2,500		NA	591		0	
NC-SW	5.8	0		0.33		83,316.7	550	151
VC-SW ³	12.7	0	1,000	0.71	396		0	
VC-SW (Employment Portion)	5.5	0		0.50		118,820.8	350	339
RTI-SW	83.3	0		0.55		1,995,797.2	350	5,702
IND-SW	299.7	0		0.35		4,568,860.3	500	9,138
					1,825			
					(216)	village capacity beyond requirement		
Total	594.3				1,609			15,330
Village In Residential	70%							
Village In Employment	30%							

³ Unit size applies only in potential capacity for mixed-use housing development

Table 4: Springwater Buildable Lands Analysis - Summary of Development Capacity

New Dwelling Capacity	Net DU Per Residential Acre	Net Residential Land Acres	DWELLING UNITS
VLDR-SW (Prior UGB Expansion Area)	3.63	42.20	153
VLDR-SW (2002 UGB Expansion Area)	3.63	33.62	122
LDR-SW	7.26	77.55	563
THR-SW	17.42	33.93	591
VC-SW		NA = MU Land ⁴	180
Total New Units			1,609
New Net Residential Land Acres		187.30	
Dwelling Units per Net Residential Buildable Acre			8.6⁵
New Job Capacity			
NC-SW			151
VC-SW (Employment Portion)			339
RTI-SW			5,702
IND-SW			9,138
Total Job Capacity			15,330

⁴ The residential component of the mixed-use village will be stipulated in the master plan requirement for certainty of capacity.

⁵ For 2002 UGB Expansion area, the dwelling units capacity is 1,456; the net residential land acreage is 145.1; and the dwelling units per net residential acre is 10.04.

The CWG adopted a series of goals that were used in evaluating the scenarios and creating the Concept Plan and the Springwater Plan District. The goal for the overall community was:

Create a Community

The Springwater Community shall be an economically and environmentally sustainable community. The primary focus of the plan will be on providing a high number of industrial and industrial related jobs that enhance the economic viability of Gresham, the greater East County region and its citizens. Industrial and employment lands will be complemented with a village center and housing and will be carefully integrated with the upper Johnson Creek system. Sustainable “green” building and development practices will enhance the community’s unique character, while supporting the protection and restoration of the area’s natural resources.

4.2.2 Industrial Lands

4.2.2.1 Background

The major goal of the Springwater Community Plan is to develop new land for future employment, primarily for specific targeted industries. This is consistent with the regional and local goals of improving the jobs-housing balance in east Multnomah County, and also of improving the region’s competitiveness and supply of land for economic growth.

To comply with Metro UGMFP Title 11, Gresham’s planning for Springwater must include:

*Provision for sufficient commercial and **industrial** development for the needs of the area to be developed for the needs of the area to be development consistent with 2040 Growth Design types.*

The CWG adopted a series of goals that were used in evaluating the scenarios and creating the Concept Plan and the Springwater Plan District. The goal for industrial and employment lands was:

Economic Development

The Springwater Community shall provide industrial land that will generate a variety of family-wage job opportunities. Job creation is aimed at correcting the imbalance between the number of households and the number of jobs in the East Metro region and increasing the City's economic strength. The plan will actively encourage businesses with an interest in sustainability and protecting the community's rich natural resources. Springwater will include a village center that can serve residents, employees and businesses.

The following are some of the major issues that were considered in the urban plan for industrial and employment lands in Springwater:

4.2.2.2 Summary of the Major Issues

Fulfilling the expected role of the Springwater area for regional and City employment

In addition to the area being identified for industrial land, a Springwater project target of approximately 15,000 jobs was set. A goal of the Plan is to help achieve the jobs-housing balance generally experienced in the region. If at least 15,000 jobs can be located in Springwater, east Multnomah County's jobs-housing balance would rise from the current 1.1 jobs per household to 1.5 jobs per household, greatly improving regional transportation performance, and reducing commute times for Gresham residents.

Creating an area that is attractive for targeted industries and other employment

A number of amenities that will be attractive to targeted industries are planned. This includes a Village Center that will serve as a gather place for nearby employees and residents as well as support services. It also includes an interconnected system of trails and open spaces that will be a transportation corridor and a recreational opportunity for employees and nearby residents. In addition, a neighborhood commercial area adjacent to a community park has been located in the northeast area between 267th Avenue and Orient Drive. Together these serve both the residents of the eastern part of the city and the employees that desire either convenient retail services, or recreation opportunities (such as ball fields).

Identifying the best areas for the targeted industries to locate

Generally the constraints to development for employment uses were used to decide the extent of the industrial (RSIA) sub-district and the research and technology industrial (office buildings) sub-district. Factors in making this decision were slope, streams, and other topographic concerns. Additionally access and visibility to an improved Highway 26 and planned arterial and collectors were considered. The flattest and most accessible and visible sites were designated for industrial use. These sites are generally between Johnson Creek to the west and the Springwater (UGB) boundary to the east. The area generally between Hogan Road and Johnson Creek and south of McNutt Road has some slope and access concerns so that it is suitable for research and technology industrial development in office buildings rather than the large industrial sites planned on the east side of Johnson Creek (Teleford Road).

Developing this area while meeting the high environmental standards included in the Plan

A key attraction and goal for Springwater and especially the industrial and employment development is sustainable design. Springwater development can enhance the sensitive environmental areas and the Johnson Creek watershed by using stormwater management techniques that mimic the natural hydraulic system. Other sustainable techniques will include landscaping that maximizes plantings that are adapted to the climate and the use of LEED building techniques. Future actions will include developing programs to attract eco-park industries, waste stream recycling, on-site energy generation and other Natural Step programs.

4.2.2.3 Summary of the Plan Element

The Plan designates about 70% of the gross buildable lands of the site for industrial and related employment uses. Two sub-districts form the bulk of the plan district and lands for industrial and related employment jobs - Industrial-SW (IND-SW) and Research and Technology Industrial-SW (RTI-SW). Both use the North American Industrial Classification System (NAICS) as the use definition. This provides a detailed and standardized way to identify permitted and prohibited uses. On the east side, a single, industrial land use designation (IND-SW) was used rather than the two designations (large site industrial/small site industrial) included in the Concept Plan in order to maximize the Plan's ability to be responsive to market drivers while meeting the intent of Metro's expectations for large site industrial development. Research and Technology Industrial (RTI-SW) was used rather than the office designation in the Concept Plan in order to better describe it as an industrial district that occurs in office buildings.

Industrial-SW (IND-SW)

This sub-district provides a wide range of uses, including all the targeted industries such as advance materials, specialized software applications, recreational equipment and technology, and corporate headquarters as well as many traditional industrial uses. The prohibited uses include those that are heavy, traditional industrial uses (tanneries, metals manufacturing, chemical plants). Large format retail is restricted to ensure the availability and vitality of the lands for industrial uses. Warehousing and distribution are permitted only as accessory uses and for no more than 20 percent of the site. Limits are placed on retail commercial and professional services that cater to daily customers by limiting such uses to no more than 3,000 square feet for a single use, and to no more than 20,000 square feet for multiple uses in single building or multiple buildings that are part of the same development project.

Research and Technology Industrial-SW (RTI-SW)

This sub-district is intended to provide industrial and related employment opportunities in office buildings. Primary uses include knowledge-based industries (graphic communications, creative services), research and development facilities, professional services primarily serving industrial businesses and workers, and medical facilities. The design will create pedestrian friendly areas and utilize green development practices. Development can take advantage of the views and access to creeks in the area. Its proximity to the Springwater Trail, Village Center, and Village Center Loop trail provides amenities. Limits are placed on retail commercial and professional services that cater to daily customers by limiting such uses to no more than 5,000 square feet for a single use, and to no more than 20,000 square feet for multiple uses in single building or multiple buildings that are part of the same development project.

4.2.3 Village Center and Commercial Lands**4.2.3.1 Background**

The need for a Village Center comes from a desire to deliver a high degree of amenities to the industrial employees by providing a place for commercial and retail services to gather and to

live. These employees will need commercial services, and generally have the ability to work in an environment that meets many of their daily needs. In addition a small Neighborhood Commercial site will be located adjacent to the Industrial-SW sub-district and provide for daily needs of nearby employees and residents to the north.

To comply with Metro UGMFP Title 11, Gresham's planning for Springwater must include:

*Provision for sufficient **commercial** and industrial development for the needs of the area to be developed for the needs of the area to be development consistent with 2040 Growth Design types.*

The CWG adopted a series of goals that were used in evaluating the scenarios and creating the Concept Plan and the Springwater Plan District. The goal for commercial lands was:

Economic Development

*The Springwater Community shall provide industrial land that will generate a variety of family-wage job opportunities. Job creation is aimed at correcting the imbalance between the number of households and the number of jobs in the East Metro region and increasing the City's economic strength. The plan will actively encourage businesses with an interest in sustainability and protecting the community's rich natural resources. **Springwater will include a village center that can serve residents, employees, and businesses.***

The following are some of the major issues that were considered in the urban plan for industrial and employment lands in Springwater:

4.2.3.2 Summary of the Major Issues

The following is a summary of the major issues associated with the development of the Village Center and Neighborhood Commercial.

Develop it to provide day-to-day services for residents to the north and east, and off site as well
Future housing as well as existing housing nearby needs a neighborhood retail center for everyday needs such as groceries, personal services, and other neighborhood uses. The Village Center should be close by, within walking distance. The Village Center is also easily accessed by the employment areas to the east using trails and roadways. An additional Neighborhood Commercial area is needed near the Industrial district but should be located away from 282nd Avenue to avoid conflict with rural commercial uses and the rural arterial street in unincorporated Multnomah County adjacent to the east of Springwater.

Provide for a variety of small-scale retail and upper-floor residential uses in a mixed-use environment and size the Village Center so that it will not compete with the larger Town Centers to the west and south

One of the key issues in designing a Village Center is that it not compete for customers with the Gresham Regional Center and the planned Damascus and Pleasant Valley Town Centers. To meet the day-to-day needs of residents and the commercial service and entertainment needs of employees, the development program conceived was for one to three-stories, mixed-use buildings, and a small urban grocery store. This Village Center can be located on only 15 acres of land.

Design an area that is appealing to walk in, and provides social gathering places on its wide sidewalks. Design a district that encourages sidewalk uses such as outdoor eating and limited marketing including a "Main Street" design with ample on street parking.

The urban design concept for the Village Neighborhood is integrated with the nearby residential neighborhood to the north and the employment/office area to the south. The design is centered on a pedestrian friendly main street, with the buildings located close to the sidewalk. In order to reduce the size of parking lots, to provide a shared parking resource, and to develop an active street life, the main street is conceived as a broad boulevard with ample on street parking, with both curbside and median parking. Bike lanes are incorporated to enhance opportunities for multi-modal transportation.

Maximize views of Mt. Hood

The small, walkable Village Center was conceived on a site that is between the employment and housing areas. It is located on top of a small hill, and has excellent views of Mt. Hood.

4.2.3.3 Summary of the Plan Element

Village Center-SW (VC-SW)

This sub-district is intended to be gathering place for employees and residents of Springwater. It will contain a mix of retail, office, and civic uses, and housing opportunities in a pedestrian oriented area. It will serve the daily needs of the local neighborhood and the adjacent employment areas. It shall be served by a multi-modal transportation system with good access by vehicular, pedestrian, bicycle, and when appropriate, transit traffic.

Neighborhood Commercial-SW (NC-SW)

This sub-district is to provide for small to medium sized shopping and service facilities and limited office uses adjacent to the existing residential neighborhoods to the north and the adjacent planned industrial district. It is located at the intersection of planned arterial and a collector street.

4.2.4 Residential Lands

4.3.4.1 Background

The Springwater area was brought into the UGB primarily for employment uses; however, residential uses were intended west of Hogan Road. The planning process found that some areas east of Hogan Road were better suited for residential development. The planning process also found that housing was needed to support the Village Center and the large industrial and employment areas. The areas selected for residential uses are generally less suitable for industrial and office development. They often have significant slope and relatively small parcel sizes. Several small creeks flow the residential areas, and they are the least accessible from the planned Highway 26 access points and are more oriented to Hogan Road corridor.

A portion of the site is very suitable for large lot “estate”-type housing, a housing product that can help attract top executives to Springwater.

The housing element provides workforce housing close to the major employment district. People could work, live, and play in a neighborhood designed around the area’s natural amenities – Johnson Creek and its tributaries. The extensive trail and park system provide for recreation, and also make walking to work in the employment areas not only feasible but very pleasant. This adds an amenity to employers and employees that increases the livability of the area, and will help with the marketing of the employment areas.

To comply with Metro UGMFP Title 11, Gresham’s planning for Springwater must address “provisions for residential densities”, “measures that will provide a diversity of housing stock that will fulfill needed housing, and “demonstration of affordable housing”.

The CWG adopted a series of goals that were used in evaluating the scenarios and creating the Concept Plan and the Springwater Plan District. The goal for residential lands was:

Livability

The Springwater Community shall have a high quality of life. This will be accomplished through compact and sustainable development; a range of housing choices; walkable neighborhoods; access to natural resource areas and open spaces for employees in the community; preservation of natural resources; and, a variety of transportation choices. The community will encompass a village center, or series of village centers that provide needed services for employees and residents in an attractive and human-scale environment. A range of housing choices will be provided within close proximity to services and/or employment areas. Overall, the community shall be a unique environment that creates a sense of place both for residences and businesses, and acts as economic attractor.

The following are some of the major issues that were considered in the urban plan for industrial and employment lands in Springwater:

4.2.4.2 Summary of the Major Issues

The following are the major issues that were addressed in developing the residential component of the plan:

Develop a variety of housing types that take advantage of the varied landscape in this area
Several kinds of homes are anticipated for this area. They are placed in an area that provides opportunities that are well suited to their characteristics.

Large lots with views

Hogan Butte (west of Hogan Road) provides a perfect site for large lots as with slopes ranging from 15% to 25%. The concept is to allow for flexible site development standards at fairly low densities. Large lots also extend on the east side of Hogan Road on the west side of Botefuhr Creek. These areas are adjacent to the existing golf course. Maximum density is 3.6 units per net acre – the lowest current density in Gresham.

Single-Family Residential near creeks

In the less sloped areas east of Hogan Road (and Botefuhr Creek), two small creeks that have extensive natural resources bisect an area of about 108 acres of gross buildable land. This area is rolling terrain, with extensive natural areas and streams. It provides an excellent site for more conventional single-family detached homes. Development densities would be from 5.8 to 7.3 units per net acre. With the extensive protected natural areas associated with the creek, however, the streams will provide an amenity and lower the density of the overall development.

The development pattern envisioned provides a quiet residential area surrounded by creeks, but near the Village center – accessible by an easy walk, on streets or trails.

Townhouse/Small Lot

Small lot single-family home – either attached as a townhouse or detached on a small lot can be located near the Village Center and along the Hogan corridor. The Hogan corridor is planned for regional transit service to support these additional housing options. Density ranges from –

12.0 to 15.6 units per net. Design elements can include incorporating common open spaces or greens.

Mixed-use in Village Center

The Village Center can provide for attached residential on upper floors. This can be cost effective either as owner occupied units or as rental units.

Provide opportunities for affordable housing and a variety of housing types, particularly new housing types designed for ownership

The mixed density and size of units, especially the smaller lots coming from the Townhouse and Mixed-use Village, provide attractive affordable options. These designations will enable housing to be developed for a price that the median income can afford.

Ensure quality design, especially in the smaller lot homes and in the mixed-use housing, ensuring that they contribute to a quality neighborhood

The higher density homes have some basic design standards applied in the zoning. Homes on less than 75 feet of width require that alley access to garages be provided. Safe Neighborhood Design Performance Standards also apply. Attached housing and housing on small lots in the Townhome Residential sub-district also have special design standards to ensure that these homes have the requisite open and private space for a successful neighborhood.

Residential variety

As described previously, residential uses were directed primarily to lands less suitable for industrial or employment use, and in sufficient quantity to serve a successful Village Center. Accordingly residential designations have been limited to the northwestern portion of the site. The higher density home sites are located in close proximity to the walkable village, while the larger lots have been targeted for the sloping hillsides and other areas where development impacts should be minimized.

4.2.4.3 Summary Of The Plan Element

The plan element resolves these issues with the development of three new sub-districts, which, when combined with the natural area protection in the plan, the park and trail system, and the sustainable development practices, result in the development of a residential area with a high degree of variety and quality.

Very Low Density Residential-SW (VLDR-SW)

This sub-district is designed for the most constrained lands where low-density development will result in less disruption of the landscape. In addition, the areas on the small volcanic butte with views of Mt. Hood are included, offering the opportunities for larger lots with scenic views. The expected average lot size is 12,000 square feet.

Low Density Residential-SW (LDR-SW)

This sub-district permits detached single-family dwellings on an average 6,000 square foot lot. Duplexes are allowed only on corner lots.

Townhouse Residential-SW (THR-SW)

This sub-district is intended to allow for single-family homes on small lots, as small as 3,000 square feet for detached homes, and 2,200 square feet for attached houses. Like the LDR-SW sub-district, each home must be on its own lot, and duplexes are not allowed.

Pedestrian Orientation and Crime Reduction

Gresham has adopted a Safe Neighborhoods Design program that increases casual surveillance of the street by requiring that a number of windows and doors face the street. This has been adopted for the residential sub-districts in Springwater. In addition, alley access is required for lots of less than 75 feet in width.

4.3 ECONOMIC ELEMENT

The following section describes the background, major issues, and plan elements associated with economic development in Springwater.

4.3.1 Background

Bringing industrial development and family-wage jobs to east Multnomah County was one of the primary drivers for bringing the Springwater area into the UGB. Gresham offers several advantages as an employment center, including a skilled manufacturing workforce, close proximity to the Portland International Airport and regional rail hubs, a respected community college system, and a strong economic development program backed by committed leadership. The Springwater area has scenic views and access to high-end recreational amenities such as the Springwater Corridor Trail, Mt. Hood, and the Columbia River Gorge.

An economic and industrial employment site study, a Village Center study, and a residential housing study were completed to help inform the land use and economic planning for Springwater. They have informed the planning process and helped shape the scenarios and the concept and the final Plan.

The CWG adopted a series of goals that were used in evaluating the scenarios and creating the Concept Plan and the Springwater Plan District. Two of the goals address economic development:

Create a Community

The Springwater Community shall be an economically and environmentally sustainable community. The primary focus of the plan will be on providing a high number of industrial and industrial related jobs that enhance the economic viability of Gresham, the greater East County region and its citizens. Industrial and employment lands will be complemented with a village center and housing and will be carefully integrated with the upper Johnson Creek system. Sustainable “green” building and development practices will enhance the community’s unique character, while supporting the protection and restoration of the area’s natural resources.

Economic Development

The Springwater Community shall provide industrial land that will generate a variety of family-wage job opportunities. Job creation is aimed at correcting the imbalance between the number of households and the number of jobs in the East Metro region and increasing the City’s economic strength. The plan will actively encourage businesses with an interest in sustainability and protecting the community’s rich natural resources. Springwater will include a village center that can serve residents, employees and businesses.

The following are some of the major issues that were considered in the urban plan for economic development in Springwater:

4.3.2 Summary of Major Issues

Industrial Development – Current and Projected Employment Trends

While recent employment growth trends in the region have reflected the recession, economic indicators show that the Portland area is in a good position relative to other urban areas to take advantage of industrial growth as the economy recovers. Furthermore, based on its 2025 forecast, Metro clearly sees the East Multnomah County area emerging as more of a job center than it has been in the past, with the area forecast to gain more than 20,000 jobs in the 2000-2010 period. This is more than one-fifth of all new jobs in Multnomah County and 8 to 9 percent of all new jobs metro wide during the decade. Another 30,000 jobs are anticipated for East Multnomah County over the following 15 years, from 2010 to 2025.

However, Metro's forecast suggests that traditional manufacturing will not be a significant factor in the region's job growth. East Multnomah County currently has less than 5 percent of the metro wide industrial employment, and this share is only projected to rise modestly over the next 20 years. As a percent of total jobs added, industrial employment falls from 1 in every 3 jobs added in the 2000-2005 period (32.3 percent) to roughly 1 in 7 by 2020-2025 (13.7 percent).

In addition to global trends affecting manufacturing expansion in general, one reason for the area's relative lag in anticipated industrial job growth may be its occupational structure. Although Gresham does have a skilled blue-collar labor force, these existing skill sets may not be compatible with the new technology job growth (such as those in advanced processing, and computer and design, for instance) that the metro area – and Gresham – hopes to attract in the coming years.

Land Use Implications

The Portland area industrial vacancy rate is above average for the metro area, and analysis of current trends seems to show sufficient industrial land to support future job growth over the long-term. However, if industrial jobs are targeted successfully, the demand for industrial land in east Multnomah County could be higher than the regional average. Furthermore, in the short-term, some recent studies indicate that the region's supply of "shovel-ready" land is quite constrained. Therefore, while the region as a whole may not be at a shortage for industrial land in the long-term, large parcels such as those available in Springwater may be successfully marketed for development in the short term.

Target Industries

The team used a combination of quantitative and qualitative methods to identify appropriate industrial targets for Springwater. The target industry list is based on consideration of:

- Existing regional industries and their support services as revealed by an analysis of historical and projected employment patterns in the region and interviews with local economic development and industry professionals
- National growth trends and current market conditions
- A review of published reports and industry cluster studies completed by other researchers and economic development organizations for the region and the state
- The limitations and advantages presented by the Springwater site
- The experience of the project team

The target industries were selected based on existing industry strength in Multnomah County and the Metro region, local industry growth trends higher than those seen nationally, potential to leverage existing research initiatives in the region, ability of the industry to bring high-wage occupations, and the interest of state and local officials in targeting the industry.

Based on this analysis, the target industry list in Table 4 was prepared. Each of these industry targets is profiled in detail in a Target Industry Matrix included in the Reference Documents. For purposes of this table, “Short-term” timeframe refers to 1 to 3 years, “Mid-term” 3 to 5 years, and “Long-term” greater than 5 years.

TABLE 4 - SUMMARY OF TARGET INDUSTRIES

Target	Appropriate for Springwater?	Timeframe
Advanced Materials	Yes	Short-term
Medical Devices	Yes	Mid-term
Specialized Software Applications	Yes	Short-term
Forestry & Agricultural Biotechnology	Yes	Mid-term
Nanotechnology	Yes	Long-term
Recreational Equipment/Recreation Technology	Yes	Short-term
Headquarters	Yes	Short-term
Professional Services	Yes	Short-term
Specialty Food Processing	Possible	Short-term
Transportation Equipment/Technology	Possible	Short-term
Logistics	Not Likely	Short-term
Renewable Energy Technology	Yes	Mid-term

Core industries (those companies already established in the region) represent the first tier of economic development opportunity. However, the ability to retain “traditional manufacturing,” even if successfully lured to an area, is increasingly unlikely. With increasingly advanced fabrication requirements, manufacturing should be seen in a new light. Industries were once thought of as the working of raw material, but are now a matter of design, process control, and assembly. Therefore, identifying companies employing specialized engineering and advanced manufacturing processes should be part of a successful recruitment strategy for Springwater. Within this broad concept, a few specific industries are worthy of consideration, including medical devices, advanced materials, recreational technology, and specialized software applications.

An additional target, corporate headquarters, is also recommended for the study area. There are several obvious benefits from professional service employment, especially when connected with a corporate center. These include environmental friendliness, highly educated workers, and the prestige factor associated with a corporate “brand.” Add to these the potential cluster effect of additional professional activity, such as the need for ancillary services in legal, marketing and accounting activity and the argument becomes stronger.

Portions of the Springwater area are in many ways extraordinarily well suited for a corporate center. The quality golf course, the beauty of the setting, and the availability of housing all come into play. In addition, corporate center recruitment in other parts of the country has resulted in the ability to attract manufacturing, distribution, and commercial development in near proximity. Recruiting a corporate headquarters may prove to be the signature project by which the Springwater study area can become known throughout the State.

Village Center

Workers and residents of the Springwater community will require supporting commercial services. The development of a Village Center is one means for accomplishing this goal. Two important assumptions guided planning for the Village Center:

- The design of the Village Center should meet the needs of future area industries, businesses and residents, as well as nearby existing urban and rural residents. It should not compete directly with existing retail centers in the Gresham area, such as Historic Downtown, the Rockwood Town Center and planned new areas such as the Pleasant Valley Town Center.
- The Village Center should be a walkable, mixed-use district, including medium-density housing, retail and commercial areas.

An assessment was made of the current retail environment in Gresham and the broader region, and of national data on shopping center characteristics to develop an understanding of uses typically found in neighborhood-serving retail areas. There was an evaluation of whether projected population growth in east Multnomah County and expected increases in retail spending would be sufficient to support a Village Center.

The market assessment indicates sufficient demand in east Multnomah County to support the retail portion of the proposed Village Center. The analysis of market demand, coupled with the City's vision for the area, and Metro's regulations governing neighborhood-serving retail developments⁴, suggests that an incremental, long-term build-out of the Village Center may be the best strategy for serving the needs of future area industries, businesses, and residents, as well as nearby existing urban and rural residents. The use of an incremental build-out plan would allow specific phases that could be triggered by certain population and employment thresholds.

Residential

Springwater was envisioned as a community in which people could live, work, and play. Accomplishing this vision requires some level of housing. As part of the planning process the characteristics of housing needed for the Springwater community and crafting an overall strategy for housing within the area were assessed.

Based on the average number of jobs per household in the region, it would take more than 10,000 households to provide the targeted 15,000 employees in Springwater. While some of these jobs could be filled by current residents of Gresham and Springwater or residents of nearby communities such as Pleasant Valley, it is unlikely that all of them would be. Furthermore, one of the key planning requirements was that the commercial and retail services in Springwater would not compete with adjacent centers. For Springwater's commercial and retail services to be self-supporting, a minimum population of approximately 3,000 people is required. While some of the support for the Village Center may come from outside Springwater, it is difficult to estimate the extent to which existing residents would help support the Village Center. Both of these issues point to the need, and capability, of Springwater to support a certain level of housing.

⁴ The Metro Code does not yet provide density recommendations for the Village Center design type. However, an appropriate target would be 25-30 people per acre. This figure is less than the 39 to 40 people per acre recommended under Title 3.07.170 for the Main Street and Town Center design types, respectively, but above the 20 person per acre for Employment Areas. This level of density should accommodate the housing and employment generated by a mixed-used development.

Housing demand within Springwater is likely to be driven to some extent by the industry targets chosen and the City's success in attracting specific companies to the area. However, given the City's goals and the characteristics of the property, the team views some executive housing as a logical strategy for Springwater. The topography of the site, particularly the buttes on the western edge, and the abundant natural features make it an appealing site for high-end residential development. Existing amenities, such as the Persimmon Golf Course and access to Mt. Hood, make the area attractive to outdoor enthusiasts. With the right mix of uses and scale, the Village Center development could be an important element in creating the "complete environment" for corporate executives and upper-level management.

4.3.3 Summary of Challenges

There are several challenges associated with economic development in Springwater.

Interstate Access

Perhaps the most significant drawback of the Springwater area for many industrial uses is the lack of interstate access. The property is served primarily by US 26, which currently does not offer direct connection to either I-84 or I-205. Scheduled improvements contained in Metro's regional transportation plan, including plans to improve the linkage with both interstates from US 26, will improve access to the area. Businesses with a strong distribution/warehousing component will likely look for sites that are better connected to the region's transportation infrastructure. On the other hand, many businesses such as the recreation technology group, particularly those start up businesses with small component products, are minimally dependent on interstate access.

The transportation network will be significantly improved over time as the results of the concurrent North-South Transportation Corridor Study and the Damascus/Boring Concept Plan work for the area to the south of Springwater are implemented. These studies will result in recommendations that will provide more direct linkages to both I-84 to the north and to I-205 to the south and west through the Damascus area.

Land Assembly

Land assembly will also be a significant challenge for very large-scale industrial development. An analysis of tax lot value per acre revealed a few areas where land assembly would be important for near-term marketing of sites. These are generally areas where there are smaller lots, many with improvements such as existing residences already on the parcel, and where owners may feel less motivated to sell. In more general terms, the number of parcels also creates challenges for land assembly - the more owners involved, the more complicated the process.

There are several examples of property owners agreements, and new ones can be created, which can be effective in land assembly, and in both giving more control to a group of property owners and in providing a simpler negotiations and potential purchase process for a potential buyer/end user. A Real Estate Investment Trust (REIT) is one of those entities, which could be explored to achieve these goals.

The City has identified this issue and has taken some steps, such as a "Brokers Forum", to help property owners in the Springwater area to consider this issue as it relates to future sale of properties. A second forum will be scheduled focusing on the land assembly strategies that property owners may want to consider. Ongoing work may be needed in this area to overcome the challenge.

Recruitment

Recruitment of technology-related companies is likely to be hampered by a number of issues. In the short-term, Springwater faces competition from existing vacant industrial property in the Metro area, particularly for tech-related space. In addition to existing sites in the Portland region, the feasibility of attracting certain high-tech companies and prominent industrial developers to Springwater is complicated by competition from other metropolitan areas in the Northwest, primarily the Puget Sound. Finally, the state's relatively low ranking in terms of federal research and development funding suggests a challenge for technology-related recruitment. However, the development of signature research centers, such as the new MMD Signature Research Center and the collaboration between Hewlett Packard and Oregon's higher educational infrastructure, indicates the leadership's willingness to address some of these challenges. Some industry groups such as recreation technology where an individual may be marketing his or her own "invention" or idea for an improved product, or is in fact, marketing the idea itself, are well suited as short-term recruitment targets.

There are also existing significant efforts on a statewide economic development level which would be natural venues for Springwater recruitment. The State's emphasis on the official list of "shovel-ready" sites for potential new industrial recruitments would provide a broad forum and exposure for sites in Springwater once the planning and annexations have been completed.

4.3.4 Summary of Proposed Plan Element

The information gained through the Village Center, residential, and economic and employment industrial site studies were used to help develop the land use allocations that were used in the scenarios and the selected Concept Plan for Springwater. However, this is just the start of the economic development effort. Implementing the plan will require an effective recruiting and marketing program to ensure that the Plan can be carried forward as intended. This section focuses on the marketing and recruiting strategy necessary to attract economic development to Springwater.

In light of the competitive nature of industrial recruitment and Springwater's challenges, City leaders will need to be innovative and flexible in their approach to developing the area, both in terms of the targets selected and the incentives offered.

Flexibility and innovation in terms of the targets selected means that the City must not limit its recruitment efforts to the manufacturing sector. While these jobs were once seen as the primary drivers of the economy because they paid high wages and served non-local demand, this notion is outdated. As the country transitions to a service-oriented economy, there are many high-end business and professional services that pay wages above that of manufacturing and are exporters of their services, thereby also bringing in outside dollars. Furthermore, global trends suggest that many traditional manufacturing industries are poor targets for expansion. This is due to the diminishing number of such firms in the U.S. and the intense competition among jurisdictions to attract those companies that remain on-shore.

The City may be in a good position to take maximum advantage of the unique opportunities in the Springwater area for professional and technical services, which may not otherwise be attracted to a more traditional historic downtown setting, and which may not be suited to some of the RSIA lands.

Flexibility and innovation in terms of incentives offered means that the City must identify specific actions that can serve as a stimulus for the private sector. Current trends, including the region's high vacancy rates, suggest that market demand will not bring Springwater to the attention of

developers for a number of years. Providing developer incentives, such as road improvements, sewer and water lines, utilities, as well as non-traditional infrastructure such as cable and wireless connectivity, landscaping, signage, and other scenic enhancements could help move Springwater up the list.

Recruitment Team

One of the first steps in marketing Springwater is developing a recruitment team including representation from the City, the development community, local residents and neighborhood associations affected by the City's plans, and business leaders from the region with specific areas of expertise related to marketing or to the industries being recruited.

As with any economic development effort, it is essential that barriers to a successful strategy be made as clear as possible. One barrier to marketing Springwater is that, for the most part, specific industrial and commercial sites do not have clearly defined individual ownership. As a result, the promotion of those sites may simply drive up land prices and make acquisition more difficult. Infrastructure requirements (especially road and highway access) and site preparation (including run-off issues and related environmental concerns) compound this problem regardless of how the land is zoned.

The City should begin addressing these issues by conducting a parcel-level inventory for all land within industrial and commercially zoned tracts of Springwater. This inventory should result in the creation of "land briefs" for each parcel that describes all available information on the property including ownership, assessed valuation, current sales listing and pricing, and available infrastructure.

In addition to the parcel inventory, the City should prepare a list of brokers and owners and establish a meeting schedule with those brokers and owners to ascertain interest levels in selling the land. Since the land will be zoned industrial-commercial, it should be in the interest of sellers to work with the community both in the sale and assembly of land. City supported infrastructure improvements will most likely be the strongest incentive both for businesses to locate there and for owners to sell at reasonable costs. These steps should be undertaken before any formal marketing or promotion is undertaken. To initiate an actual campaign before there is definitive understanding of what land is available (and at what level of service) could seriously compromise the Springwater development effort.

Target Market

The primary purpose of economic development marketing is to generate interest in an area from companies with expansion or relocation plans. However, economic development marketing must also focus on attracting workers to the region. To do so, the City will need to clearly differentiate Springwater from its competitors, both regionally and nationally, and provide focus to the community's efforts.

One important yet often overlooked audience is the people and businesses that are already in Gresham. These people have made some level of investment in the city already. They are also the ones who represent the city on a daily basis and who can best tell the Gresham story to the outside world. Building awareness locally among the region's business leadership that the community is dedicated to advancing business opportunities is another key step. Other significant groups include employers in the targeted industries, major allies (such as state and regional economic development organizations, institutions of higher education), members of the media, and site location consultants.

Springwater and other key sites should be promoted through a combination of partner advertising, public relations, and networking. An important decision point for this action is whether the City should hire a professional marketing firm to assist it. While this approach has obvious benefits, it should not be undertaken until the development community and, if possible, major employers have had an opportunity to comment on the sites.

Incentives

The successful recruitment of corporations, as well as high profile start-ups, always involves some form of public inducement. In fact, incentive packages now typically involve multiple units of government. In broad terms, the degree to which incentives tie back to the economic well-being of the community affects the degree to which their use can be defended. For example, infrastructure improvements are tangible assets a City can draw upon even if the business does not achieve its goals. Direct cash subsidies represent the opposite end of the spectrum.

In the case of Springwater, incentives should be made available to developers and businesses that conform to the broad goals of the project, and should be developed in conjunction with the State when possible. Potential incentives include:

- *Infrastructure (developer-oriented)* — Roads, road improvements, sewer and water lines, utilities, and other traditional and non-traditional infrastructure (such as cable and wireless connectivity, as well as landscaping, signage, and other scenic enhancements) may be candidates for incentives. In a broad sense, these can be subsumed under a tax increment financing (TIF) or tax increment reinvestment zone (TIRZ) program.
- *Tax abatements* — Tax increment financing is unlikely to be a viable tool in a greenfield development such as Springwater. Graduated tax forgiveness for capital intensive businesses, however, should be an option. Proposed changes to the state's Strategic Investment Program (SIP) may make this incentive an important tool, particularly if Springwater becomes a designated zone under the program. An additional related incentive is the state's lack of sales tax.
- *Developer support* — It is reasonable to expect that the initial marketing and recruitment of businesses will be conducted in tandem with the development community. Marketing assistance, both from a technical as well as a financial standpoint, should be available to the developers.
- *Promotions* — In addition to joint marketing with developers, the City should actively promote Springwater sites in its overall economic development efforts. The same should be true of the State and the Portland metropolitan area (including the Portland Development Commission, Regional Partners, and Metro).
- *Industry-specific* — If Gresham is to be successful in attracting companies in emerging industries or advanced technologies to Springwater, the State would need to be aggressive in providing tax incentives that encourage investment and aid capital formation. Ideal targets such as biotechnology or nanotechnology would almost certainly require significant state incentives, and marketing to reach these targets would also have to be a joint effort. The marketing package should address the question of incentives, based on the State's available resources. These include:
 - Tax incentives that encourage investment (such as capital gains tax cuts; tax credit transferability; research and development tax credits; and investment tax credits)
 - Government programs that encourage capital formation (such as capital access funds; targeted pension fund investments; incubators or other means of shared facilities; and loan programs targeted for the mid-level or clinical trials stage of product development)

- Indirect assistance (such as legal support from the City to developers, builders and target industry representatives; off-budget financing, such as lease arrangements and land swaps; and planning and zoning related bonuses for conforming uses)

Sustainability

There is significant interest in the region in progressing Springwater as a sustainable community. This positioning could take several forms. Some level of sustainability will be achieved through the development standards adopted for Springwater. Additional incentives could be provided by developing an outreach program to inform developers of the benefits of green building practices. A Developer's Forum could be used to promote green site development and building practices by educating local developers about the benefits, preferably through the use of local examples (e.g., American Honda).

The formation of an eco-industrial park (EIP) at Springwater would be another way to incorporate sustainability into the community. The EIP concept entails identifying manufacturing and service companies that would benefit from co-location and collaboration in the management of resources and environmental concerns such as energy, water, and materials management. One promoter of EIPs, Indigo Development, suggests the following types of companies as targets for this type of facility: "manufacturers using recycled feed stocks; remanufactures of capital or consumer equipment; companies with major supply requirements that could be filled by the outputs of other tenants or plants in the area; users of reclaimed materials and energy by-products or agriculture and aquaculture firms if there is by-product energy or water available to the site." The region's existing metal cluster (primarily small and medium sized companies in plating and steel products) could be considered as a foundation for the development of an EIP in Springwater, or the City could identify other potential industries with synergistic needs through the recruiting process. Such an effort may require developing a more detailed understanding of the industries' manufacturing processes, raw product needs, and waste characteristics than may typically be considered during recruiting.

Third would be the targeting of green companies — those that produce environmentally friendly or "holistic" products (i.e., products that use organically produced materials). There is currently no clear method for identifying such companies as a group, although these types of companies are clearly a growing business sector. Because these companies are responding to a consumer trend that cuts across many different industries, marketing Springwater to environmentally responsible companies may require developing marketing messages that are tailored to each specific industry identified.

While none of these concepts would necessarily change the targeting approach recommended in this document, they do provide a set of criteria that could be applied when deciding among alternatives or in developing the incentive package that would be offered to a particular company.

Land Development

A major land development project is a long and painstaking process. From the community's point of view, managing the process is essential. As a result, organizational issues must be addressed as early as feasible. Other communities often deal with this time consuming effort by forming a development authority or similar commission. This has several advantages, including the ability to communicate clearly with landowners and developers, and to address concerns expressed by neighborhood associations and private individuals. Finally, such an organization provides continuity often lost as a result of elections or staff changes.

City's Role

The City should assess how development can occur and its own role in that process. If it is decided that the public sector should play an active part in developing specific properties, a long-term approach for development is necessary. Possible approaches include:

- *Master developer strategy* — In this scenario, the City serves as a primary participant. The City acquires land, and then leases or sells land to a private developer and allows that party to develop the land according to pre-approved guidelines. In return, the developer is allowed to realize the long-term revenue streams.
- *Cooperative city-developer acquisition* — Here, the City serves as a facilitator. For instance, a developer agrees to make an investment in a property in return for improvements to the existing physical infrastructure by the city.
- *Public/private partnership* — In this case, the City serves as both a participant and a facilitator. The City could choose to develop a portion of a development on its own or could confer the rights to a property in exchange for certain improvements. In addition, the City could enter into ground leases (short or long-term) with individual landowners as a way of assembling property for development purposes. From a financing and marketing standpoint, long-term ground leasing is more viable for commercial/industrial property, than it is for residential property.
- *Private equity models* — There are many examples of private development in conjunction with existing landowners. Individual properties or groups of properties could be optioned by the City through an LLC (Limited Liability Company) or REIT for the purpose of assembling the property subject to various contingencies. The option holder could then assemble the needed properties, obtain the necessary entitlements and financing, and begin to negotiate with future tenants/buyers. They would then be in a position to exercise the option to purchase.

Such an approach, encouraged and supported by the City, can function as a useful mechanism for enfranchising landowners who might not otherwise want to sell their land. Under this scenario, landowners would retain ownership of the land while allowing development to occur according to established “preferred uses.” In other words, through a REIT or similar mechanism, the City could purchase the land, with the underlying landowners holding shares in the REIT. This innovative land assembly tool allows landowners to participate in the overall economic growth of the district, while providing a defined mechanism for purchasing and selling land within the REIT.

Closely related to this model are quasi-private corporations such as the Milwaukee Economic Development Corporation. While it remains private, it is non-profit and works closely with the municipality to see that development occurs in way beneficial to the city.

Additional closely related options include:

- *Development Agreements.* While not traditionally used as a land assembly tool in Oregon, ORS 94.504 et seq, provides a statutory mechanism for cities and counties to enter into development agreements with persons having legal or equitable interests in real property to facilitate development of that property. A development agreement could be used to assemble land, seek entitlements, and market the property based upon the terms of a development agreement approved by the governing body of the city or county involved.
- *Urban Renewal/Tax Increment Financing.* ORS Chapter 457 defines the urban renewal and tax increment financing powers of a city, under state law. Under this scenario, the City would form an urban renewal agency, area and plan, which would allow the agency

to sell bonds to acquire and develop property in the district. The bonds would be financed by the property taxes attributable to the increased value of property within the district, over the life of the urban renewal plan. The agency would have the power to assemble, plan for, clear, acquire, rehabilitate and develop property within the urban renewal district, as provided for in the plan.

Financing Considerations

The Springwater project must be of financial benefit for the City. Monies lost through typical planned unit (housing) developments can be regained through a project in which commercial and industrial properties carry the cost of services. This is also true of housing development that exceeds the break-even point of residential property taxes versus cost of City services.

Since the financial viability of cities is always of concern, the use of tax incentives must be structured with great care. The best way to achieve that goal is to reserve tax abatements for those businesses that meet high standards of wage and capital investment. Typically, this would be in the total number of jobs at 125 percent of the regional median wage, and with significant capital investment.

The timing of development has a specific relationship to its financial performance. The community's goal for Springwater to be a self-sustaining community requires that a broad range of services be made available to residents, employees, and business owners. The presence of services and other amenities, including food and retail services, has a bearing on the appeal to potential homeowners and business location decision-makers. Based on this consideration, the Village Center should be seriously considered as one of the potential initial sites for development.

From a financial standpoint, high-end retail and commercial property envisioned for the area would provide an immediate source of tax revenue. Starting with industrial property, in contrast, would likely delay tax revenues due to the longer timeframe required for industrial recruitment and the potential for any tax abatements to take effect. The Village Center, if properly conceived, can also help to establish an image for Springwater, increasing its desirability as a location for both residential and industrial users.

One tool for spurring investment in a specific site is the inclusion of public uses, such as post offices or City services like police and fire. The advantage of beginning development with those uses (which a community can influence directly) is especially important. The location of a public use in a commercial area, such as the Village Center, can increase the viability of related activity, such as medical and professional services, as well as retail, which would benefit from the traffic generated by the public facility.

4.4 NATURAL RESOURCES

4.4.1 Background

The Springwater Community has an extensive natural resource system that includes a two-mile section of mainstream Johnson Creek, four miles of major tributaries, and other unique habitats such as the steep slopes of Hogan Butte. The Johnson Creek Watershed Council has characterized one reach of Johnson Creek (JC16) that flows through Springwater as one of the watershed's highest quality reaches.

To comply with Metro UGMFP Title 11 in bringing the Springwater area into the UGB, Gresham's planning for this area must include:

Identification, mapping, and a funding strategy for protecting areas from development due to fish and wildlife habitat protection, water quality enhancement and mitigation, and natural hazards mitigation. A natural resource protection plan to protect fish and wildlife habitat, water quality enhancement areas and natural hazard areas shall be completed as part of the comprehensive plan and zoning for lands added to the Urban Growth Boundary prior to urban development. The plan shall include preliminary cost estimates and funding strategies, including likely financing approaches, for options such as mitigation, site acquisition, restoration, enhancement, or easement dedication to ensure that all significant natural resources are protected.

The Natural Resources Plan must also comply with Metro Ordinance 02-969B, Exhibit M regarding the inclusion of the project area in the UGB, and an IGA between the City of Gresham and Multnomah County establishing guidance for planning for urbanization in Springwater. Specifically, the IGA states that the Springwater Plan shall:

Establish a consistent and comprehensive plan for urban and rural watershed management of stormwater, stream corridors and confluences, and riparian areas for the Upper Johnson Creek Basin (upstream of the 2002 Gresham city limits). Utilize the City's Johnson Creek Master Plan, Metro Goal 5 requirements (which consider the Endangered Species Act, Clean Water Act, and Statewide Goal 5 planning provisions), and habitat protection measures that are at least equivalent in the level of protection to the County's West of Sandy River Rural Area Plan in development of the watershed plan.

The CWG was convened to provide input through the planning effort. Together, the CWG and the project team developed a set of goals and policies that were ultimately adopted by the CWG. The purpose of the goals and policies was to identify the City's intent to accomplish certain results through the Plan. The following goal was adopted for natural resources:

The plan will preserve, protect, and enhance natural resources. It will define, protect, restore and enhance significant natural resources, including stream corridors, wetlands, and forested areas. Resource areas will provide the basis for identifying development constraints as well as serving as open space amenities for the Springwater Community. Resource protection and enhancement will be a shared responsibility of property owners, developers and governments.

The work of the Natural Resource team used this goal as a basis for developing the Environmentally Sensitive Resource Areas (ESRAs). After a thorough inventory of resources in the study area, the work team presented its findings through a series of inventory maps at public meetings. Local residents made additions and corrections to the maps. This information, combined with extensive field studies conducted by the project team, formed the basis for assigning significance levels to each resource in the study area. The final ESRA was determined through an Environmental, Social, Energy, and Economic (ESEE) study to determine where urban development in resource areas should be allowed, limited, or prohibited.

4.4.2 Summary of Major Issues

The following are the major issues that were addressed in development a natural resources component of the plan:

Inventory

Considerable inventory data was available from Metro, Johnson Creek Watershed Council, Multnomah County, the Oregon Department of Fish and Wildlife (ODFW), and others. However,

some of this data needed to be supplemented with field surveys that were conducted by project staff.

Existing Regulatory Issues

In creating a natural resources plan for Springwater, consideration of other programs related to Springwater was necessary. Multnomah County has adopted a protection plan (West of Sandy River Plan) for unincorporated rural Multnomah County including Springwater. A Gresham and Multnomah County adopted agreement is that the Plan will be at least as protective as the West of Sandy River Plan. Metro requirements for water quality, floodplain, and erosion control (Title 3) apply to Springwater. These, however, do not address all natural resource issues. Metro is in the process of creating a regional Goal 5 program. Metro has adopted a Goal 5 Inventory that is included in the Springwater program. To the extent possible consistency with the Metro process was maintained.

Johnson Creek

Nearly two miles of Johnson Creek runs through Springwater flowing west before entering Gresham. Two (16 and 17) of the four Johnson Creek reaches (ODFW stream segments) are exceptional for their high channel complexity, lack of human disturbance, and good fish habitat. NOAA Fisheries considers the main stem of Johnson Creek (including the Springwater section) as critical habitat for Lower Columbia River steelhead and Chinook and it has been listed as essential fish habitat for Coho and Chinook. Oregon DEQ lists Johnson Creek as a water quality limited stream and on the 303(d) lists for various toxins, temperature, and fecal coliform. DEQ is required by the federal Clean Water Act to maintain a list of stream segments that do not meet water quality standards.

Tributaries

Six creeks feed Johnson Creek from the west and one from the east. The creeks are: Hogan Creek; Botefuhr Creek; Brigman Creek; Sunshine Creek; Badge Creek; seasonal Bus and Ops Creeks, and the North Fork Johnson Creek.

Natural Resources Wetland

A local wetland inventory was conducted and six emergent marsh type wetlands were identified to be locally significant. The wetlands total less than six acres and are generally part of larger a wetland, floodplain, and/or forest complex.

Riparian Areas

Riparian areas are essential to wildlife passage, stream bank protection and erosion control, fish and aquatic habitat, and other ecological functions. Some of the Springwater riparian reaches have relatively intact diverse, mature riparian growth, however many areas lack high quality riparian vegetation. Areas that appear as wide canopy trees in aerial photography hide understory that has been cleared, with significant stream bank erosion occurring. There are about 430 acres of riparian acres (in the Springwater study area) of which about 14% has been altered, e.g. mowed, cut down or lacking in high quality riparian vegetation.

Wildlife Habitat

Wildlife habitats include woodland and tree groves and riparian wetland complexes. Springwater's mature forests are valuable wildlife areas within the watershed's landscape because of their relatively pristine natures, large patch size, and proximity to the Johnson Creek riparian zone. Forested patches often provided continuous wildlife passages between the major western tributaries and Johnson Creek.

Rural Development and Agricultural Practices

Major issues associated with natural resource planning and enhancements in Springwater are related to the existing rural development and agricultural practices in the area. MacDonald Creek (Badger) has been modified by Telford Road, and urban development at the headwaters of Botefuhr Creek has changed the flow regime of the creek channel. A Himalayan blackberry monoculture has been established in the area west of Hogan Road, and an incised channel has minimized the channel's connectivity to its floodplain. Open (ditched) stormwater systems and failing septic systems contribute negatively to water quality in Johnson Creek and the other tributaries in the study area.

State Goal 5 Natural Resources

In order to protect natural resource values, Statewide Planning Goal 5 and its administrative rules require that jurisdictions complete a natural resource inventory, a determination of resource significance, an analysis of the consequences of resource protection (to the resource and adjacent areas), and develop resource protections standards. This work is one of the major elements in the effort to create an urban industrial and employment district in Springwater.

4.4.3 Summary of Proposed Plan Element

The ESRA forms the green infrastructure around which other Plan elements were developed. The intent of protecting and enhancing the natural resources in Springwater is not only to preserve and protect the natural resources in the area to recognize their contribution to the environmental and ecological health of the watershed and the region, but to maintain these areas as amenities for future employees and residents of Springwater.

Selected characteristics of the ESRA include:

- The ESRA designation is applied to 200 feet from top of bank on both sides of Johnson Creek and associated tree groves, locally significant wetlands, or unique habitats; to locally significant wetlands, to tributary reaches (100 feet from top of bank on both sides) and associated tree groves (within 150 feet of top of bank).
- Wetlands, riparian habitat, and upland habitat offering both opportunities for protection of high value resources and opportunities for enhancement of degraded resources
- Habitat migration routes along the waterways and between the buttes
- Implementation strategies including planning-level project cost, funding strategies, regulatory and incentive options, and enhancement priorities

In addition to defining the ESRA, the team identified key objective elements of the environmentally sensitive resource areas management. These measures are intended to allow the entire planning area to be more ecologically sustainable, to improve the aquatic habitat through healthy streams with cool, clear water, and allow continued wildlife migration within and beyond Springwater. The measures include:

- Restoring the headwater wetlands of McNutt Creek and riparian habitat along the tributaries of Johnson Creek
- Retaining undeveloped land as green wildlife corridors between the buttes and major tributaries of Johnson Creek
- Protecting the mature forests and riparian habitat within the five-creek confluence area in the southeastern part of the study area
- Preserving the integrity of large stands of mature forests such as the Hogan Cedars grove

Specific projects, project costs, and potential funding sources to achieve these objectives are identified in the Springwater Natural Resources Report.

4.5 TRANSPORTATION

4.5.1 Background

A well-planned transportation system is critical to attracting economic development to Springwater and to achieving the area's goals for livability and sustainable development.

Metro UGMFP Title 11 requires “a transportation plan consistent with the applicable provisions of the Regional Transportation Plan” and “the protection of natural resources”.

The CWG was convened to provide input through the planning effort. Together, the CWG and the project team developed a set of goals and policies that were ultimately adopted by the CWG. The purpose of the goals and policies was to identify the City of Gresham's intent to accomplish certain results through the Springwater Community Plan. The following goal was adopted for transportation:

The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking, and bicycling. Good design can avoid the effects of heavy traffic on neighborhood safety and the natural environment. A well-connected transportation system using trails, bicycle routes and a variety of street types reinforces a sense of community and provides adequate routes for travel. The site should provide good connections to and from the employment areas and the surrounding community, as well as regional freight and transportation centers.

The transportation plan for Springwater was developed in compliance with transportation plans adopted by the State, Metro, Multnomah County, and the City. Guidelines from these entities were used as a primary resource to develop the policy framework for the mobility standards and street spacing set forth in the Springwater Transportation System Plan (TSP). Review of the Gresham and Multnomah County Transportation System Plans also revealed the current street functional class designations for existing streets and highways, any planned pathways or trails, and any planned transportation improvements within or close to the Springwater area that should be included in the basic framework of the new planning area.

4.5.1 Summary of Major Issues

Major issues faced in the transportation planning for Springwater are described below.

Develop a network of arterial and collector streets adequate to serve future growth in Springwater, while protecting environmentally sensitive areas and adjacent neighborhoods and rural areas from the effects of urbanization.

Traffic analysis conducted as part of the update to the Regional Transportation Plan (RTP) demonstrated that future growth in Springwater would likely have widespread effects on the regional transportation system, despite significant improvements to the primary routes serving the area. Springwater's transportation plan must support the land use goals of the community, protect the natural features that define the area, and improve community access by all modes of travel by providing a variety of travel choices.

The availability of alternative arterials and highways leading away from Springwater are limited. The rural Springwater community today, in general, is adequately served by US 26, and several City and County two-lane arterial roadways. Recurring congestion occurs during peak periods at major intersections along Burnside Road, Hogan Drive, and Powell Boulevard just north of Springwater inside city limits, but delays are within acceptable levels according to City and State standards.

The planned job growth will create much higher demand for regional travel to I-84, I-205, and the future Sunrise Corridor. A long-time need for freight traffic on US 26 has been more direct and reliable routes connecting to I-84 and I-205. On-going work by the City and east Multnomah County communities on a parallel study to the Springwater Master Plan is reconsidering the north / south corridor issue which is identified as a need in the Regional Transportation Plan. A separate study has been conducted to examine options for access to US 26 within Springwater. This study is included in the Reference Documents. Gresham's ongoing participation in these studies is critical to coordinate the studies' evaluations and outcomes with needs for Springwater.

The existing street system is not adequate to serve future growth. Connect Springwater to major streets in Gresham, Pleasant Valley, and Damascus/Boring in a manner that provides alternatives to US 26 while protecting existing neighborhoods from traffic infiltration. Additional connections and improvements to existing streets are needed to increase access from Springwater to other parts of the region. However, evaluation of appropriate north/south street connections needs to address the potential impact of traffic generated in Springwater area on adjacent neighborhoods. The Plan must balance the need to provide appropriate connectivity between Springwater and the surrounding neighborhoods while minimizing "through" traffic from Springwater to residential Gresham neighborhoods and maintaining a "hard urban edge" at the eastern boundary of the community as required by Gresham's intergovernmental agreement with Multnomah County.

US 26 Concept Design and Access Plan study. The City with the Oregon Department of Transportation analyzed and created a design and access plan for the Springwater segment of US 26 in order to support the Springwater Plan. This plan identifies US 26 improvements for traffic, freight, transit, and pedestrian travel that will be needed to support the land uses planned for Springwater.

4.5.3 Summary of Proposed Plan Element

Key features of the transportation element of the Plan are:

- Create a network of arterial, collector, neighborhood, connector, and local streets that accommodate travel demands and provide multiple routes for travel. Key new street extensions and connections include:
 - One (or two) new east-west arterial connections from 242nd Avenue to Telford Road between Rugg Road and 252nd Avenue
 - Phased improvements to provide access to US 26, including a new at-grade controlled intersection in the northern part of Springwater (intersection with a new collector) that ultimately will be a grade separated bridge crossing after an interchange with an new arterial is constructed at the southern part of Springwater
 - A new street connection to Orient Drive around the east side of the existing Gresham neighborhoods

- Upgrade existing streets and design all new streets to accommodate biking and walking, with special pedestrian amenities on transit streets. Upgrade intersections with safety issues identified as part of the inventory work.
- Provide regional and community transit service on key roads in Springwater, with direct connections to Gresham, Sandy, Clackamas regional center, Damascus, the Columbia Corridor, and downtown Portland. Transit streets include 242nd Avenue, Orient Drive, and US 26.
- Provide a logical and connected street system that connects directly to community destinations while also avoiding the ESRA where possible. Plan for a local street system that complements the arterial and collector street system and meets regional connectivity requirements within the residential areas of the plan.
- Provide for direct and convenient access to employment centers that lead to regional facilities, and reduce the possibility of traffic intrusions into neighborhood and rural areas.
- Use Green Street designs that are an integral part of the stormwater management system and provide walkable, tree lined streets.
- Plan for a long-term arterial connection from Hogan Road to US 26 north of the Springwater Corridor Trail, to serve long-term regional mobility needs.
- Implement a Transit Plan that includes a primary transit route on Hogan as well as secondary and neighborhood circulation routes.

4.6 SUSTAINABLE DEVELOPMENT

4.6.1 Background

The City's goal for Springwater is to develop an economically, environmentally, and socially sustainable community. Providing sustainable development will help integrate the quality of life with the quality of the community that develops as Springwater is urbanized and annexed. The philosophy of sustainable development starts at the community planning level and continues through the design and construction of individual buildings. Each element along the continuum from community to structure is critical to this systematic model. This approach seeks to balance the use of natural resources with the creation of spaces and places needed to meet the community's social, functional, and economic needs.

Early in development of the Plan, a Community Working Group (CWG) was convened to provide input through the planning effort. Together, the CWG and the project team developed a set of goals and policies that were ultimately adopted by the CWG. The purpose of the goals and policies was to identify the intent of the City to accomplish certain results through the Plan. The following goal was adopted for sustainability:

The Springwater Community shall foster sustainability through encouraging businesses, industries and homes that are designed and built with good environmental stewardship. This shall be accomplished through green practices that provide for energy efficiency, water conservation, reduced pollution, and avoid environmentally harmful materials and processes. The Springwater Community strives to be a model for successful sustainable industrial development. Development shall also preserve, restore, and enhance natural resources by meeting or exceeding local and regional standards. Land uses, transportation systems and natural resources shall be carefully integrated and balanced.

4.6.1 Summary of Major Issues

The following are some of the major issues that were considered in planning for sustainable development in Springwater. These issues represent the full range of sustainable development opportunities, from the community level to the building level.

Economic Development

Positioning Springwater as a sustainable community can take several approaches, all of which should be considered during implementation of the Plan.

- Targeting companies that produce environmentally-friendly or holistic products
- Targeting groups of industries that would benefit from co-location and collaboration in the management of resources and environmental concerns such as energy, water, and materials management
- Promoting or requiring green building practices for industrial, commercial, and residential development. The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System includes standards for building construction and operation that aim to improve occupant wellbeing, environmental performance, and economic returns of buildings. The LEED program uses both established and innovative practices, standards, and technologies to improve the environment for building occupants and minimize the impact of building construction. Incorporating elements of the LEED program in the Springwater code and supporting developer participation in the U.S. Green Building Council's LEED Program will result in a more sustainable built environment in Springwater, as well as supporting other sustainability goals.

Site Development Practice

Green site development practices are implemented through a combination of techniques that minimize the impact of development on the natural areas and surrounding communities. Green site development incorporates the following elements:

- *Stormwater Management.* The high level of industrial and urban development planned for Springwater will increase stormwater runoff and pollutant load beyond what is currently experienced. Green or low impact development uses a system of landscaping features that treat and infiltrate stormwater on the development site instead of using a traditional piped collection and conveyance system. Stormwater that is not managed on individual sites will be conveyed using Green Street swales rather than a conventional piped system. The benefit of green development is that it minimizes the production of stormwater runoff and manages it close to the source. These practices mimic the natural hydrology of the area, minimizing erosion and enhancing water quality in the streams. Green development practices include the following:
 - Minimizing impervious surface coverage
 - Using eco-roofs to absorb precipitation and reduce runoff from developed areas.
 - Maximizing tree canopy through preserving and planting trees in landscaped areas and parking lots, on residential property, in street medians, and in neighborhood and community parks
 - Using onsite stormwater treatment techniques such as bioswales and landscape planters.
 - Using Green Streets for all streets that do not have a high level of on-street parking (as in the Village Center).
- *Xeriscape Landscaping.* Xeriscape landscaping promotes water conservation by minimizing the amount of native vegetation removed, limiting new vegetation to native or drought tolerant vegetation, and limiting irrigation. This approach also supports and

encourages protection and restoration of natural areas where development occurs on parcels adjacent to Environmentally Sensitive Resource Areas.

- *Minimizing Night Sky Impacts.* Urbanization of Springwater will result in new lighting sources that could increase night sky illumination and impact the nocturnal environment. Applying site lighting restrictions reduces the development impact by avoiding off-site lighting and night sky pollution.
- *Water Reuse.* The high density of proposed industrial development, distance from the City's existing wastewater treatment plant, and potential demand for reclaimed water for either non-contact industrial uses or environmental benefits (such as aquifer recharge, stream flow augmentation, etc.) support investigating wastewater reuse in Springwater.

4.6.3 Summary of Proposed Plan Element

The City is encouraging sustainability in Springwater in three ways: regulation, recruitment, and incentives.

Regulation

Several green building techniques are incorporated into the Springwater Land Use Code in order to promote sustainability. The code requires all mixed-use, industrial, and office building to earn three points toward meeting Green Building standards by applying two or more of the practices identified in the development code. These practices include:

- Alternative transportation measures (bicycle storage, alternative fuel vehicle parking or refueling stations)
- Vegetated roofs (Eco-roofs)
- Wastewater reuse
- Water conservation
- Renewable energy
- Building recycling and use of recycled materials for construction
- Improving the building working environment (prohibiting smoking, providing operable windows, improving daylighting)

The code also requires developers to comply with low impact stormwater development practices, minimize impervious surfaces, reduce night lighting, and use xeriscape landscaping principles.

While the Springwater code does not require buildings to be certified by the U.S. Green Building Council's LEED program, it does provide a straightforward starting point if a developer elects to apply for certification.

Recruitment

Springwater's marketing and recruitment plan suggests several methods for positioning Springwater as a sustainable community. One of the suggestions is to incorporate elements of green building techniques in the development code, which as been addressed as described above. Other options include:

- Targeting "green" companies that produce environmentally friendly or holistic products
- Considering forming an eco-industrial park (EIP). This concept entails identifying manufacturing and service companies that benefit from co-location and collaboration in the management of resources and environmental concerns such as energy, water, and materials management.

Incentives

A group of Portland State University graduate students is working with the City to identify incentives for sustainable practices within Springwater. Incentives might include funding from outside sources (such as State or federal programs), tax credits, fee reductions and other City programs.

The City is also exploring the option of certifying Springwater as a LEED Neighborhood Development. This is a program under development by the U.S. Green Building Council. It is similar to the LEED certification for individual buildings, but looks at the neighborhood as a whole.

4.7 PUBLIC FACILITIES

4.7.1 Background

The Metro Council brought Springwater into the UGB in December 2002. When land is brought into the UGB, Metro UGMFP Title 11 requires that the added territory be brought into a City's Comprehensive Plan prior to urbanization with the intent to promote the integration of the new land into existing communities.

Title 11 requires conceptual public facilities plans for each of these services that demonstrate how Springwater can be served. The conceptual plans are to include preliminary cost estimates and funding strategies, including likely financing approaches and maps that show general locations of the public facilities.

To address this need, conceptual public facility plans were developed for water, wastewater, stormwater, and parks during the Concept Plan phase of the project. The general steps in generating the conceptual public facilities plans were:

- Inventory of existing system
- Needs analysis based on planned future uses
- Developing a conceptual system layout for each planning scenario, including facility needs and cost estimates
- Evaluating each conceptual public facility system with respect to project evaluation criteria
- Creating a preferred public facility alternative based on the preferred land use, transportation, and natural resource concepts and the scenario evaluation results.
- Refining facility needs, cost estimates, and funding strategies for the recommended plan.

The Concept Plan also included the CWG's adoption of plan goals. No specific goals were developed for water, wastewater, stormwater, or parks public facilities. However, evaluation measures associated with these public infrastructure areas were incorporated into evaluation measures for the broader community goals (i.e., create a community, livability, sustainability, etc.).

The Concept Plan and concurrent master utility plan work was the basis for the Public Facilities Plans that are included in this document. These Public Facilities Plans describe the elements necessary to comply with Statewide Planning Goal 11 and OAR 660-011-000 necessary to amend the City's Public Facility Plan for each of the public facilities:

660-011-0010

The public facility plan shall contain the following items:

- An inventory and general assessment of the condition of all the significant public facility systems which support the land uses designated in the acknowledged comprehensive plan
- A list of the significant public facility projects that are to support the land uses designated in the acknowledged comprehensive plan. Public facility project descriptions or specifications of these projects as necessary
- Rough cost estimates of each public facility project
- A map or written description of each public facility project's general location or service area
- Policy statement(s) or urban growth management agreement identifying the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated
- An estimate of when each facility project will be needed; and
- A discussion of the provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each public facility project or system

4.7.2 Summary of Major Issues

Current residents of Springwater have no public water, wastewater or stormwater systems. Water is currently accessed via underground wells and wastewater is primarily treated in private subsurface disposal systems. Stormwater runoff is conveyed to natural drainage areas or to drainage ditches adjacent to local roads.

Urbanization of Springwater requires that a public infrastructure system be constructed and maintained. Therefore, new water services, wastewater services, and stormwater management services will be required for Springwater. Urban service needs were evaluated for the entire Springwater area, although service provider responsibility for the portion of Springwater in Clackamas County has not yet been determined.

The major issues associated with the water and wastewater network revolved around providing connections to the existing City systems that maximize the use of available capacity without providing undue strain on the existing system. The City is currently taking measures to maximize the amount of wastewater conveyed by gravity and eliminate pump stations wherever possible, so wastewater system alternatives were designed to minimize or eliminate the need for future pump stations.

The stormwater system was designed around low impact development practices to be consistent with the desire to make Springwater a sustainable community, minimize public infrastructure needs, and be consistent with the stormwater management approach adopted for Pleasant Valley.

4.7.3 Summary of Proposed Plan Element

4.7.3.1 Water System

Recommendations for the water system in Springwater include a distribution network to serve the Springwater community, and improvements to existing infrastructure in the City to provide additional flow to Springwater from the City's current sources. To maintain consistency with the City's current practices, parallel piping is included in some areas to minimize the use of pressure reducing valves where possible. Improvements are summarized below.

- The Springwater system is divided into three service levels – extensions of the South Hills, Intermediate, and Lusted service levels. Within each service level there is a network of distribution mains ranging in size from 12-inch to 18-inch. These mains are looped to the maximum extent possible.
- Existing 8-inch and 12-inch mains in two areas will need to be upsized to accommodate the demands anticipated in Springwater.
- Two new pumps will need to be added to Regner Pump Station. These pumps are to be of similar capacity to those existing at the pump station (1,100 gpm capacity).
- Two new reservoirs will be required. One will be located near and of a similar size as the existing South Hills Reservoir (2.6 MG) and the other will be located near and of the same size as the existing Wheeler Reservoir (3.2 MG). Controls at the Regner, Barnes, and Salquist Pump Stations will have to be modified to incorporate these new tanks.

No provisions are included in the recommended plan to serve the Phase 2 Springwater area. It is possible that service will be provided by the Sunrise Water Authority, but no formal agreements regarding potable water service have been reached.

The estimated cost of the water system is \$23.2 million. These improvements will be funded through system development charges (SDCs). SDCs adopted for Springwater should be sufficient to fund required improvements over the life of the development; however depending on the location of the early developments, initial investment by Gresham may be required. This investment will be minimized if the initial development is within a single service area, and is located in relatively close proximity to an existing storage tank.

4.7.3.2 Wastewater System

The recommended wastewater system for Springwater includes a gravity collection system to serve the Springwater community, and improvements to existing infrastructure in the City to convey the additional flow from Springwater to the City's treatment plant. Improvements are summarized below.

- The backbone of the Springwater collection system is the extension of the Johnson Creek interceptor along Telford Road. The interceptor will extend from the terminus of the existing system at 252nd Avenue/Telford Road to approximately Stone Road/Telford Road. The interceptor size will range in diameter from 12 inches at Stone Road to 21 inches at the connection to the existing system.
- A series of 8-inch to 18-inch gravity sewers will convey wastewater from the development areas to the interceptor extension. These new sewers will be routed in existing or proposed roadways.
- Two new 8-inch collectors are required to facilitate proposed development on the Brickworks site.
- Several new sewers will discharge directly to the existing Johnson Creek interceptor. These include the collectors from the Village Center area, the residential neighborhood north of the Village Center.
- A portion of the existing Johnson Creek Interceptor pipeline will require upsizing (approximately 2,100 feet of 15-inch diameter pipe will be replaced with 21-inch diameter pipe) between Hogan Road and the Linneman Pump (lift) Station near SW Pleasant View Drive (190th Street).
- The Linneman Pump (lift) Station is currently capacity limited and will be replaced by a larger pump station (and force main) or a gravity pipeline to convey the Johnson Creek Interceptor flows to the City's treatment plant.

- Preliminary infrastructure improvements to serve Springwater Phase 2 (southwest of the current planning area) were developed. These improvements are based on the assumption that all of the area that drains by gravity to Springwater will be served by the City of Gresham. The topography in the Phase 2 area results in gravity wastewater flow being conveyed along Sunshine Creek. It is anticipated that flow from the Phase 2 area would enter the Springwater system at approximately the intersection of 252nd Avenue and Rugg Road. In order for the City to provide service to this area, the main interceptor through Springwater would need to be upsized, and a new interceptor provided to route this flow from approximately the intersection of 252nd Avenue and Telford Road to the treatment plant. An alignment study for this new interceptor would need to be provided in the future to determine the optimal routing of such an interceptor.

The estimated cost of the wastewater conveyance system to provide service for Springwater is \$26.7 million. This cost does not include the reimbursement (or future investment required) for wastewater treatment plant capacity.

While the system was developed based around conventional conveyance and treatment of wastewater, there may be opportunities to investigate alternative treatment and reuse in Springwater. Satellite wastewater treatment is becoming more cost-effective for onsite treatment of sanitary wastewater from large industrial sites. There could be multiple benefits of satellite treatment in Springwater, including:

- Providing irrigation water for public parks or other public areas (schools, government facilities, etc.)
- Providing flow augmentation in Johnson Creek
- Providing irrigation water for nursery or agricultural land outside of the study area in exchange for water rights

In addition to these benefits, satellite treatment and effluent reuse is consistent with the desire to make Springwater a green development. Use of satellite or onsite treatment could even be incorporated in a public demonstration project in a highly visible area such as the Village Center to educate the public and further promote sustainable development in the community. The opportunities associated with reuse are strongly dependent on the specific types of industries that locate in Springwater. The City should continue to evaluate opportunities for satellite treatment and effluent reuse as development occurs, and should conduct early discussions with the Oregon DEQ to determine requirements associated with this type of system.

4.7.3.3 Stormwater System

Historical drainage practices in Springwater have resulted in a significantly altered watershed and have had a dramatic adverse impact on watershed health, especially in riparian areas. The recommended stormwater system for Springwater is intended to minimize the impact of development and maintain or restore watershed functionality.

As in Pleasant Valley, stormwater management in Springwater is based on green practices that include both onsite stormwater management and public infrastructure facilities. Both components use techniques and processes that mimic natural hydrology to the greatest extent practical, reducing impacts of runoff to pre-development conditions, or improving over current conditions.

Rather than routing runoff to underground pipes for conveyance, runoff will be conveyed through green street swales and swale culverts. Vegetated swales located between the

roadway and sidewalks will slow the flow of runoff and also provide some infiltration, reducing the quantity of stormwater that must be managed in regional facilities. These swales will generally have an 8-foot top width, 2-foot bottom width, and 4:1 side slope. In areas where the standard swale geometry does not provide adequate capacity, a 10-foot top width will be provided. Approximately four miles of swale improvements are recommended. In addition, 21 stream crossings have been identified. These crossings, which will be a combination of reinforced concrete box culverts, circular culverts, and bridges, will be constructed in conjunction with roadway improvements and will be designed to provide fish passage.

Regional facilities will control the flow of runoff back to the streams in order to regulate the rate and volume of flow entering the stream. In addition, vegetation in the facility will improve water quality by “polishing” the runoff to remove excessive sediment and pollutants⁵. Fifteen new regional stormwater facilities have been identified for the Springwater planning area. This includes two facilities in the Brickyard area in the existing city limits, one facility at the base of the Persimmon Country Club, and 13 facilities within the area added as part of the 2002 Urban Growth Boundary expansion. All of the proposed facilities are located in Multnomah County. The facilities range in size from 4 acre-feet to 22 acre-feet, providing volume for flood control, channel stability enhancement, and water quality enhancement. Flow that does not enter a regional facility will be treated in local facilities. The total cost of recommend stormwater improvements in Springwater is \$22.6 million.

In conjunction with recommended capital improvements for stormwater management, onsite stormwater management in Springwater will require the use of green development practices. Green development practices are a set of techniques that mimic and incorporate the predevelopment hydrology of a site into future development. Green development practices include site management techniques that minimize (1) disturbance to existing soils, tree canopy, and other sensitive natural resource features and (2) impervious surfaces, to reduce the production of surface runoff. They also manage runoff through techniques that use natural areas and landscaping to treat, retain, attenuate, and infiltrate stormwater within each development site instead of using traditional piped collection and conveyance systems.

4.8 PARKS, TRAILS, AND OPEN SPACE

4.8.1 Background

There are currently no parks in Springwater. There is one trail – the Springwater Trail – that bisects the planning area. Both regional and site conditions directly affect the potential of parks, open space, and trails in Springwater. These regional and site conditions include the following:

- *Regional Trails* outlined in Metro’s Trails Master Plan, including the Springwater Trail that runs through Springwater, the 40 Mile Loop Trail planned to be located less than a mile to the northeast of Springwater along Beaver Creek, and the proposed East Buttes Loop Trail that will be located directly to the west of Springwater.
- *Natural Features* including the local buttes (Hogan Butte in the northwest portion of Springwater, and additional buttes directly south of Springwater), Johnson Creek and its tributaries running throughout the study area, and significant forested areas along creek corridors and in upland areas.
- *Nearby parks and open spaces* including the Gradin Youth Sports Park, Southeast Neighborhood Park, the privately owned Persimmon Golf Course, and public open space adjacent to the Springwater Trail.

⁵ Pleasant Valley Implementation Plan Report, December 2003.

The City provides a number of park and recreational amenities for the community. These are categorized as follows:

- *Neighborhood Parks* provide access to basic recreation opportunities for nearby residents of all ages. They are located within walking and biking distance of all users, and may include urban plazas in denser areas to provide space for community events.
- *Community Parks* are generally located adjacent to natural resources and/or in areas with good vehicular access. They accommodate larger group activities, provide a variety of accessible recreation opportunities for all age groups, offer environmental education opportunities, serve recreational needs of families, and create opportunities for community social activities.
- *Open Space, greenways, and corridors* protect natural and scenic resources, and create nature-oriented outdoor recreation and trail-oriented activities.

4.8.2 Summary of Major Issues

The City currently has Level of Service standards for determining the acreage of particular park types required to meet the needs of a community. Historically, parks have been developed largely to serve the needs of residential communities. Therefore, using the City's current Level of Service standards would not provide amenities to support the anticipated 17,000 employees working in Springwater. To address this need, a Level of Service standard for employees was added to the typical residential Level of Service standards for community park areas. Similarly, and employee contribution was included in the Level of Service calculation for open space needs, with the intent of providing appropriate opportunities for employees to recreate in Springwater. The Level of Service was based on the City of Portland's practice of calculating parks levels of service including each employee as 0.32 residential equivalents. Subsequent to completion of the Parks Master Plan for Springwater, it was determined through a separate study that the City of Gresham's current ratio is 0.10 employees per resident.

Determining trail locations also reflected the unique nature of Springwater. The purpose of trails is to interconnect parks and open spaces; to maximize access to programs and facilities; to promote physical fitness and health for a variety of users; to encourage social interaction and community pride; to provide opportunities for rest and relaxation within natural settings through trail related recreation; to reduce auto-dependency and enhance connections to transit facilities; to link open space amenities with homes, workplaces and other community facilities; and to provide outdoor classroom opportunities for environmental education. Balancing these various purposes in Springwater resulted in the identification of two distinctly different trail facilities.

4.8.3 Summary of Proposed Plan Element

The proposed parks and open space plan for Springwater incorporates the following elements:

Neighborhood Park

Recommended neighborhood parks include a Village Center park and park blocks. The park blocks are proposed along the north-south and east-west axes of the Village Center, and provide pedestrian access to the Village Center through the heart of the commercial and mixed-use development. At the intersection of these park blocks is a Village Center Park and Plaza that will serve as the primary public park for the area. The Village Center Park is envisioned to include a multi-use plaza with seating, public art, pedestrian walks, permanent restrooms, children's play equipment, and room for non-organized sports such as bocce ball. The Village Center Park could also be used for sustainable demonstration projects such as small-scale stormwater management or wastewater treatment and reuse facilities.

Community Parks

The Plan recommends creating two new community parks, located adjacent to natural resources and/or in areas with good vehicular accessibility.

The nature-oriented Springwater Community Park is envisioned to be located along the Johnson Creek Corridor and adjacent to the residential districts. It will provide two youth sports fields, and a regionally significant natural park area, providing interpretive educational opportunities. This park is intended to tie together open space, trails, and interpretive opportunities into a respectful and educational encounter with the natural environment. By locating the park along the Johnson Creek and Springwater Trail corridor, visitors would be able to enjoy the natural features of the district and become informed of the challenges facing the overall watershed. It is envisioned that this park would become the identity of the district. The larger district goals of sustainability should be expressed in the design and implementation of the park.

The athletic facility-oriented East Springwater Park will be located east of US. 26, and will provide two to three adult sports fields for employee recreational opportunities as well as for the adjacent neighborhood to the north. This park is intended to be a community-wide resource with organized sports fields for adults and youth, and therefore be accessible by pedestrians, bikes and cars.

Trails

The recommended trails plan for Springwater creates two loop trails to provide resident and employee access within the area, and also creates connections to existing and planned trails adjacent to Springwater. The precise alignment of the Employee Loop Trail will need to be further considered during implementation of the Springwater Plan.

Village Center Loop Trail

To the west of US 26, the trail system will follow creek corridors to create a roughly 1-mile trail loop. This loop trail will be located between the protected creek corridors and either street right of way or residential parcels. At special points along the trail an overlook can be implemented to allow better views into the protected corridor. The overlook should be implemented to create the least impact possible. Requirements for trail construction in the ESRAs are outlined in the ESRA section of the Springwater Community Plan Development Code.

Employee Loop Trail

To the east of US. 26 the trail system will follow the road network or parallel stream corridors. The option providing trails adjacent to the roadway would be implemented as a multi-use corridor located between private property and the roadway swales. This option would include a slightly wider trail corridor to allow for a more informal planting arrangement of native species to distinguish the street edge as a special corridor. The option providing trails adjacent to stream corridors would include a multi-use trail located between private property and the ESRA adjacent to the stream. The trail could be located immediately adjacent to private property, or separated from the private property by a vegetated stormwater swale.

The Employee Loop Trail alignment options (roadside and streamside) are under continuing investigation. The following considerations will be weighed in selection of the final location of the Employee Loop Trail:

- *Maintenance:* The selection of the roadside vs. streamside alignment option has potential implications for on-going maintenance responsibilities and practices. The roadside option could result in shared maintenance responsibilities between parks and transportation divisions within the City, while the streamside option and its more complex natural area maintenance requirements requires specialized expertise that could be developed in the Parks and Recreation Division. The approach to maintenance practices in the roadside option are pathway litter patrol and conventional landscape maintenance. The streamside option would require litter patrol and a carefully-considered vegetation management plan for habitat preservation and enhancement goals.
- *Trail R.O.W. Acquisition:* The evaluation of the acquisition costs for trail ROW alignment options is on-going. The roadside trail has the advantage of being incorporated in the Street ROW acquisition effort, while the streamside option would require a separate negotiation.
- *Implementation Cost:* Trails along creeks are potentially more costly to implement because of environmental restrictions and access limitations.
- *Connectivity:* Both the roadside and streamside trail alignment options offer similar connections to surrounding neighborhoods and the broader Gresham community. The primary difference in this evaluation is that the streamside option greatly enhances trail users connections to the natural environment over the roadside alignment.

Open Space/Greenways

The Plan recommends purchasing between 120 and 150 acres of Parks-funded open space and greenways to make available as a public amenity for residents and employees of Springwater. This allocation will be prioritized first for the acquisition of property along the Johnson Creek and Springwater Trail corridor, and along the McNutt and Brigman Creek corridors for the Village Center Loop Trail. Additional open space acquisition should be used for the acquisition of natural resource areas, based on the strategy identified in the Natural Resources Report.

Springwater Community Plan



Springwater Natural Resources Report

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

SPRINGWATER COMMUNITY PLAN REPORT NATURAL RESOURCES REPORT

Introduction/Overview

SITE LOCATION

The Springwater Phase I Planning Area (Springwater) begins at the southeastern edge of the City of Gresham’s urban growth boundary in Multnomah County. The Springwater planning area (Figure 1) also includes a portion of Clackamas County south of Rugg Road and part of incorporated Gresham in the “brickworks” area. The total study area for resources comprises about 1,727 acres and is a roughly rectangular piece of land bounded in the east by 282nd Avenue and in the west by Hogan Butte and other volcanic geologic features.

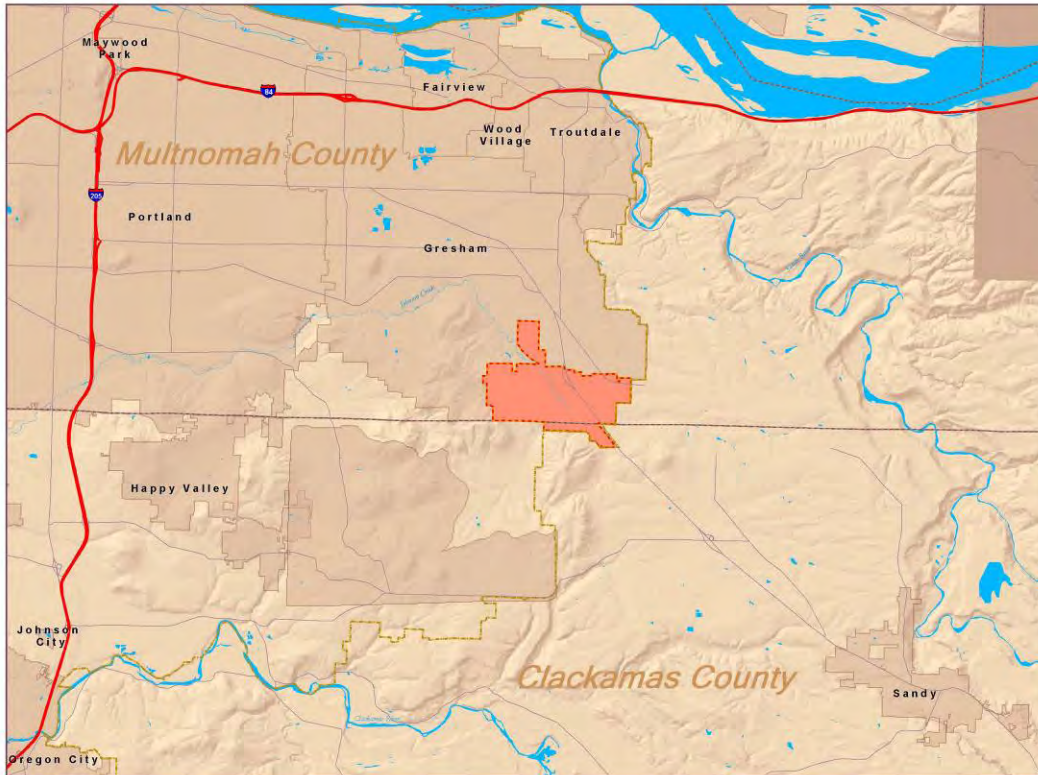


Figure 1. Site Location - Springwater Phase I Planning Area

OVERVIEW OF AREA’S NATURAL RESOURCES

Natural resources and significant physiographic features within the Springwater planning area are aesthetically pleasing and ecologically diverse (Figure 2). Its environmentally sensitive natural features include unique habitats such as the buttes with their steep terrain; seasonal drainages, springs and seeps; ponded wetlands; a two-mile section of mainstem Johnson Creek (Figure 3). Johnson Creek is the region’s principal basin that feeds into the Willamette Valley, and four miles of major tributaries.



Figure 2. Landscape of the Springwater Planning Area June 2004

The portion of Johnson Creek flowing through Springwater features a wide range of habitat and water quality conditions. There are areas where the main stem or tributaries have been channelized and denuded of riparian vegetation, but there do also exist intact sections of high quality. The small portion of Reach 16 (ODFW 2000), for instance, that is located within the plan area includes some of the highest functioning riparian and aquatic resources in the watershed, according to analyses completed by the Oregon Department of Fish and Wildlife (2000).



Figure 3. Johnson Creek at Bankfull Flow 2004

HISTORICAL CONTEXT

The natural resource planning area for Springwater extends just beyond the Multnomah and Clackamas County line into the Sunshine Creek basin. It is defined by rolling hills in the west and a series of highways and flat agricultural parcels with mostly single-family residential areas along most of the areas local roads. Steeper slopes on the western buttes are typically forested and contain some areas of seeps and springs that feed the tributaries of Johnson Creek. The buttes also feature a number of seasonal drainages that collect precipitation during the rainy season and direct it to receiving tributaries on the eastern portion of the plan area. The buttes were cleared in the early 1900's, but are now covered mostly by mid-succession forest that is 60 to 100 years old. The lowlands were originally forested but were cleared in the late 1800's and early 1900's for farming and timber. The majority of the lowland areas have remained in agricultural and residential use, and in many areas have been tilled for drainage. The site contains forest types in the Willamette Valley vegetation zone (Franklin and Dyrness, 1988).

Johnson Creek is one of the last streams in the Portland Metro region with anadromous salmon and steelhead present, albeit in small numbers. These fish-bearing waters and the associated floodplains and riparian corridor form the spine of the natural resources through the Springwater Community. The mainstem of Johnson Creek runs through the study area flowing west, then entering the urban growth boundary of Gresham at the edge of study area about 500 feet east of SE Palmsblad Rd. Its headwaters are to the east of the study area where nursery and other agricultural industrial inputs from upstream introduce pollutants and sediments into the water column. Paralleling the creek throughout the plan area is the Springwater Recreational Trail, which was created by the City of Portland on the rail line that once ran between Portland and Clackamas County. This trail is still maintained by the City. Large areas of cleared riparian corridor and multiple manmade discharge outlets from surrounding rural agricultural uses have changed the stream hydraulics, resulting in increased flood damage and downcutting in many areas within the entire basin.

Natural Resources as a Framework for the Springwater Community

The resources of the natural and physical environment within the Springwater planning area are beautiful to view and rich with a variety of landscape types. Central to the planning area is the confluence of four major tributaries with the Johnson Creek mainstem. There are also several other tributaries (Figure 4) as well as the steep butte slopes at the western border. The planning team and community members agreed that the physical layout of the landscape and creeks provided an environmental framework around which development decisions could be made, based upon features of the landscape that best lend to certain land uses. As such, careful analysis of the current and potential function of Springwater's natural resources was needed in order to develop a green framework that adequately considered the landscape's unique features. This analysis would be used to inform the decision making process regarding the siting of the roadway network, determining land use designations, placement of public infrastructure, providing adequate open space and habitat areas, and ensuring optimal function of the creek system to help meet water quality goals and minimize potential downstream impacts from Springwater development.

NATURAL RESOURCE PLANNING OVERVIEW

This section of the report describes the framework in which the natural resource planning was conducted. It describes the goals and policies of the natural resource planning effort, reviews existing regulatory guidance, and describes data used to conduct the natural resource inventory.



Figure 4. Riparian Condition on Bus Creek Brickworks Site

Goals

The Community Working Group (CWG) – the public committee that provided input through the planning process – worked with the project team to develop a goal and set of policies to guide natural resource protection and enhancement in Springwater. The goal established for Springwater natural resources reads:

The plan will preserve, protect and enhance natural resources. It will define, protect, restore and enhance significant natural resources, including stream corridors, wetlands, and forested areas. Resource areas will provide the basis for identifying development constraints as well as serving as open space amenities for the Springwater community. Resource protection and enhancement will be a shared responsibility of property owners, developers, and governments.

To achieve this goal, a natural resource needs analysis and protection strategy for Springwater was developed to:

- Embrace community values for regionally connected greenspaces that have outstanding views, healthy wildlife habitats, clean water, and can support diverse plant assemblages.
- Conform to the legal requirements and policies adopted by the City, Metro, the State of Oregon Goal 5 process and the Federal Government.

- Consider the role that natural resources play in sustainable land development and incentives for economic growth.
- Include land use code and ordinance responsibilities that are simple to understand and limit costly maintenance or monitoring for compliance.
- Integrate with the design and implementation of public parks and recreation, roads, sewer and stormwater facilities.

Policy Statements

The project team and CWG also developed policy statements to guide the team in developing a plan to achieve the natural resource goal. These policy statements directed the Springwater Community Plan to:

1. The Springwater Community Plan shall recognize the importance of the upper Johnson Creek system for Gresham, the Portland Metro region and the Willamette Valley.
2. Mitigation for any impacts of development in Springwater to stream corridor function shall be prioritized first to other sites in the Springwater Plan District and second to within the upper Johnson Creek basin.
3. The Plan will result in a green infrastructure that will provide regional natural amenities for future generations.
4. The plan will identify potential opportunities for “natural park” facilities that would enhance the sense of place for economic developments and that could be an attraction for residents and businesses.
5. Stream crossings will be minimized to the greatest extent feasible.
6. Road and pedestrian crossings of the natural resources areas shall be designed for the least impact practical.
7. The entire Johnson Creek Watershed and ecosystem will be considered.
8. To the extent practical, watershed functions and sensitive/natural species will be restored.
9. Barriers to wildlife habitat corridors, such as bridges and roads, shall be designed to provide proper opportunities for wildlife migration.
10. The urbanization of the Springwater Community shall be balanced with the protection of sensitive species and habitat, water quality, and groundwater resources.
11. The urbanization of the Springwater Community shall achieve, to the maximum extent practical, low levels of effective impervious surfaces, high levels of tree protection and reforestation, management of stormwater as close to the point of origin as possible, improved hydrology and flood protection, and removal of barriers to fish passages.
12. Urbanization of the Springwater Community shall provide appropriate erosion control and shall control sedimentation through the use of green development practices, context sensitive design, and appropriate construction management practices, re-vegetation of disturbed areas, and regular maintenance and monitoring.

13. Lands with slopes of 25 percent or above shall be protected.
14. The use of native plants shall be a priority for re-vegetation and Green Streets.
15. The development code for Springwater shall maintain fish and wildlife habitat protection measures that are at least as protective as those adopted by Multnomah County for the West of Sandy River Plan Area upon annexation.

Furthermore, the plan was developed to support urbanization in Springwater that is:

- Balanced with the protection of sensitive species and habitat, water quality, and groundwater resources.
- Achieves, to the maximum extent practical, low levels of effective impervious surfaces, high levels of tree protection and reforestation, management of stormwater as close to the point of origin as possible, improved hydrology and flood protection, and removal of barriers to fish passages.
- Provides appropriate erosion control and controls sedimentation through the use of green development practices, context sensitive design, appropriate construction management practices, vegetation of disturbed areas with native plants, and regular maintenance and monitoring.

Regulatory Guidance

The lands within Springwater are managed by an array of laws, ordinances, regulations, plans and policies via various jurisdictions that have authority in the area. One of the primary regulatory programs guiding the land use in Springwater is Oregon’s land use planning goal for “Open Spaces, Scenic and Historic Areas, and Natural Resources,” known as Goal 5 (Oregon Administrative Rule (OAR) 600-023-0000, et. al.; Goal 5 is “to protect natural resources and conserve scenic and historic areas and open spaces”). Various jurisdictions have developed programs to meet the Goal 5 vision. The City of Gresham has specifically adopted Multnomah County’s program for Goal 5 protection. For Springwater, however, the City’s intention is to establish a new district that has a unique set of guidance, a separate Goal 5 Resource Inventory, a separate Economic, Social, Environmental and Energy (ESEE) analysis and a development code unique to Springwater. To achieve this, it is prudent to research and compare the Goal 5 programs and floodplain protections currently in place to use as references in developing the Springwater Community guidelines.

Multnomah County and the City of Gresham entered into an intergovernmental agreement (IGA) that provides a concept of environmental protection measures that are at least as protective as those of Multnomah County. Multnomah County has recently adopted wildlife habitat protection measures for the Springwater area, has adopted a Metro Title 3 implementation program, and the Senate Bill 1010 Basin Plan that is implemented by the Oregon Department of Agriculture has also recently been adopted. As well, the County currently has a Goal 5 resource map and manages all County lands in accordance with the West of Sandy River Rural Area Transportation and Land Use Plan. The results of the ESEE analysis propose conserving a 200-foot corridor on either side of the stream channels and limiting development (while allowing existing uses to continue) within that 200-foot corridor. This is further discussed within the section describing the West of Sandy Plan and Metro’s Allow/Limit/Prohibit (ALP) discussion in the ESEE analysis report for this Springwater Community Plan.

The Metro Council recently developed the definitions for allowing, limiting and prohibiting development within the Metro Goal 5 resource areas. Metro Council proposes to adopt these definitions in the fall of 2005 as part of the Functional Plan adoption. Once adopted, Metro's Goal 5 Protection Program will define the level of protection that is necessary for natural resources within the entire tri-county Metro area. The various regulatory programs within Metro's plan do not prohibit activities; rather they suggest varying levels of limited activity based upon the activity's proximity to the resource and magnitude of impact. Although not protective of all Goal 5 resources, the guidance in Metro's Title 3 - Water Quality and Flood Management Plan is a good basis for protection of aquatic habitat and riparian areas from perturbations such as flooding and erosion. For water quality protection and flood control, this plan recommends that structures not be built and activities are limited with a specified distance from top of bank on either side of all the channels. The actual distance varies between 50 and 200 feet depending on the creek flow volume, the slope of the bank, and the extent of the drainage basin. Table 1 compares the recommendations or development limits under the current programs for the Metro Tri-County Region, Multnomah County, and the City of Gresham.

Table 1. Current CODES, Regulatory Guidelines and Policies

Resource	Multnomah County Code and Policies ²	Metro's Title 3 Water Quality and Flood Management Standards	Metro's Goal 5 Recommendations ¹	City of Gresham Code ³
Riparian Corridors	Development permit required within 200 feet and requires mitigation for development within that area, allows development as close as 100" of the stream where slopes are <25% implements Metro Title 3	50 feet from top of bank on slopes <25%; up to 200 feet from top of bank on slopes >200%; 15 to 50 feet from top of bank for streams that drain between 50 and 99 acres of land	Class I and II Riparian Habitats are protected with variable regulatory width from 50 to 200 feet from top of bank	50 feet from top of bank on slopes <25%; and up to 200 feet from top of bank with slopes >25%
Trees and Wildlife Habitat	Riparian areas protected as wildlife habitat, standards applicable >200" from stream require development in cleared areas or wildlife conservation plan required, cleared area limit of 1 acre	N/A	Riparian areas are protected as wildlife habitat	One grove of the City's Hogan Cedars is protected
Floodplains and Wetlands	Consistent with Metro Title 3, no increase in fill allowed	Implement FEMA standards and require balanced cut and fill in 100 year floodplains; maintain a 50 foot buffer around wetlands.	Avoid undeveloped floodplains; protect any locally significant wetlands	Consistent with Metro Title 3
Steep Slopes (>25%)	Geotechnical review/development permit on slopes >25%	N/A	Avoid landslide prone areas and geologic hazards such as faults according to the USGS	Hillside Physical Constraint Density 1 DU per acre; Maximum Average = 1 acre; Preserve all areas exhibiting slopes >35%

¹ Source: Metro ESEE Analysis 2003 and Phase II Analysis of program options 2004

² Source: West of Sandy River Rural Plan Area Chapter 36.4500 Significant Environmental Concern Overlay Zone

³ Source: City of Gresham Development Code, Section(s) 4.1300, 5.0103, 5.0200; 5.0600

Planning Steps

The planning process used to determine the Springwater resources that would be protected under the State's Goal 5 rule followed a sequence using similar methods as those used by Metro and Multnomah County, but at a higher level of resolution, pursuant to the Goal 5 process in OAR 660-023. Consistent with the standard Goal 5 process, the team:

- Collected and reviewed existing information
- Determined the adequacy of the information
- Conducted field studies and determined habitat quantity and quality
- Prepared map layers of resources
- Determined the significance of all resources mapped
- Adopted a list of significant resource sites

INVENTORY PROCESS

The basis for the inventory was the Statewide Goal 5 process adopted by Metro, as outlined in the procedures and requirements for complying with Goal 5. The development of the natural resources inventory is the result of the collation of existing data along with fresh analysis of the plan region. The focus is on creek and riparian condition, flow modifications and restrictions at road crossings, wetlands in ponds and riparian forests, wildlife use areas, scenic quality, and topography.

Existing information review

The inventory utilized information from previous studies conducted in the Johnson Creek drainage. Full citations for sources are listed in the bibliography at the end of this chapter.

The natural resource features inventory and needs analysis study began by collecting and reviewing existing data on Johnson Creek. These sources included:

1. Metro's baseline information for riparian and wildlife resources, specifically Metro's adopted regionally significant habitat inventory (Figure 5). The planning team found this inventory for Metro's Goal 5 resources needed refining to better understand the possibilities after future development. The areas that were misinterpreted or in a few cases overlooked in Metro's high-level air photo interpretation evaluation were corrected through ground-level observations (Figure 6). Consistent with Metro's inventory, the project team found most of the riparian areas and waterways are assumed to be regionally significant.

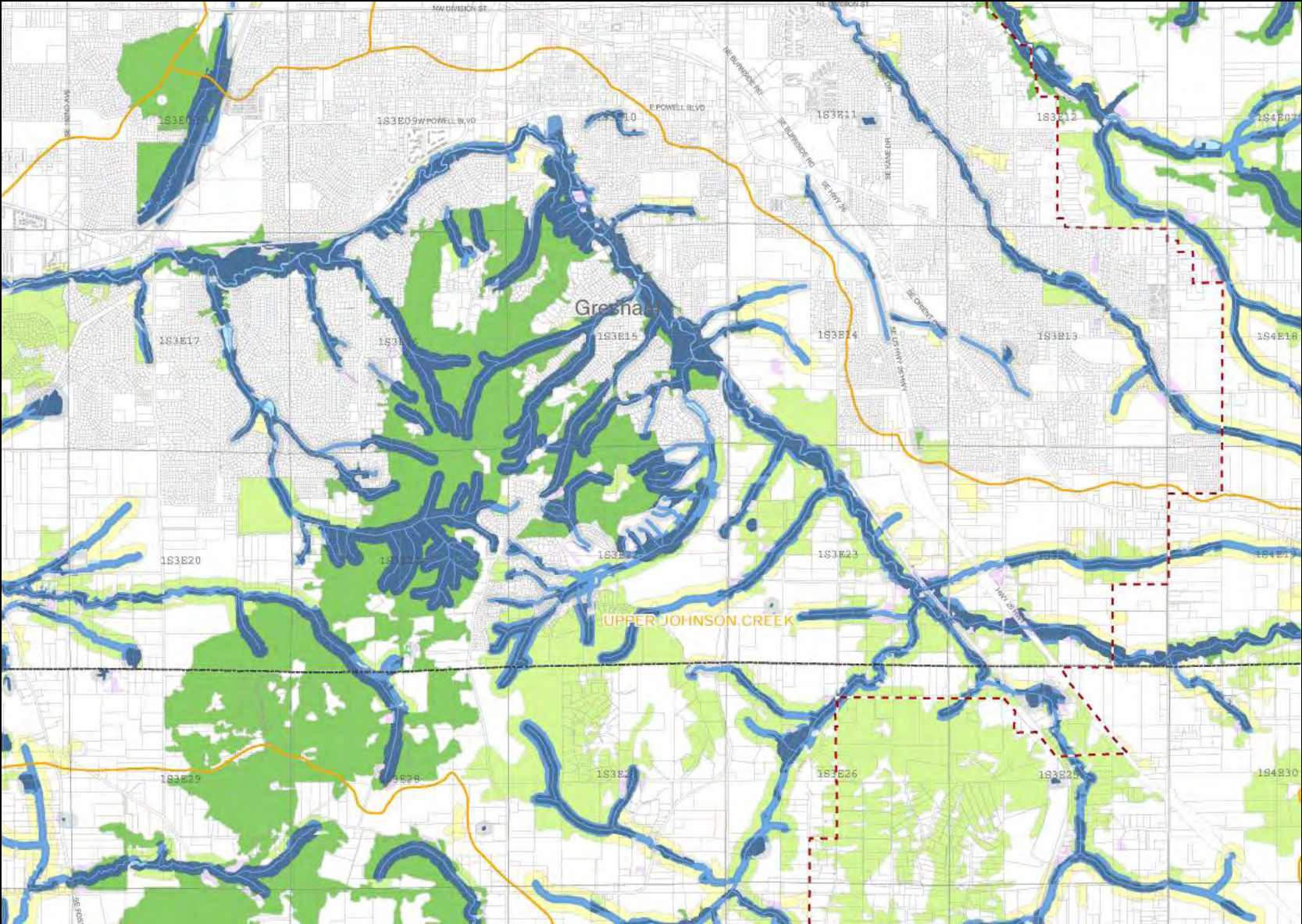


Figure 5. Metro's Resource Areas Map

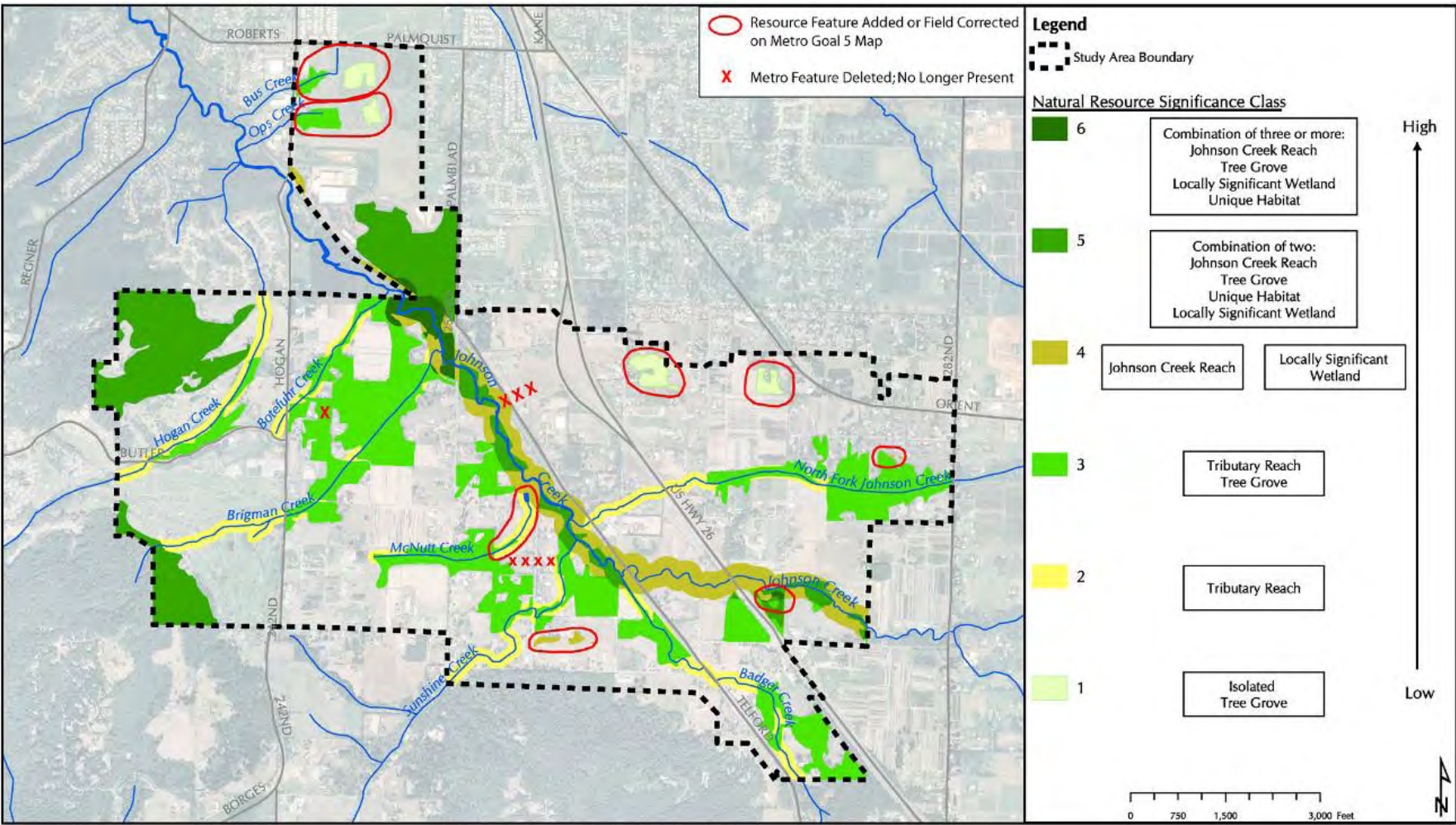


Figure 6. Field Corrections to Metro’s Resources Map

2. Multnomah County West of Sandy Rural Transportation Plan Natural Resource Inventory and wildlife habitat protection measures.
3. Oregon Department of Fish and Wildlife (ODFW) stream surveys. Detailed stream survey of the Johnson Creek mainstem conducted by ODFW between 1999 and 2000. Reach designations from this inventory including portions of Reach 16, all of Reach 17, 18 and a portion of Reach 19. The entire Johnson Creek contains 39 reaches according to the ODFW nomenclature.
4. Other regional studies coordinated by the Johnson Creek Watershed Council, the City of Portland or Metro Greenspaces Program. Products include the Johnson Creek Restoration Plan by the City of Portland, and the Johnson Creek Watershed Action Plan.

Data Adequacy Review

The availability of these resources meant that the City had enough data on Johnson Creek to aid decisions about protecting resources that it considers significant, which is acceptable under Goal 5 procedures (OAR 660-023-0000 through 660-023-0250). However the project team and community supported refinements of existing data sets through field analysis where site access could be gained in the planning area. The approach to the field component of the additional natural resource inventory was to create a consistent database to document and compare function and value of the eight tributaries, wetlands, riparian and upland vegetation, and the value of these lands to wildlife.

Field surveys

The data analysis reviewed for baseline information was augmented through field observations and resource mapping conducted by Natural Resource Planning Services, Inc. staff, MDRM LLC, and John Gordon, wetland consultant, in May 2003 and February to April of 2004. Several methodologies were used to document characteristic wetlands, riparian and upland vegetation, wildlife habitat, sensitive species, steep slopes, springs, seeps, viewpoints and other natural features or geologic hazard zones. The Urban Riparian Inventory and Assessment Method (City of Portland 2000), Oregon Freshwater Wetland Assessment Methodology (Oregon Department of State Lands 2001), and Wildlife Habitat Assessment (WHA) (Metro 2003) parts of the Oregon Watershed Assessment Methodology (Watershed Professionals Network, 1999) methods were used to collect and record data on natural features. The Oregon Department of Land Conservation and Development (DLCDC) has accepted use of the WHA method for compliance with Goal 5 guidelines. Results of the field surveys were tabulated and are included in the Reference Documents that accompany this report.

The initial study (Upper Springwater Corridor Study, NRPS, Spring 2003) involved outlining four Planning Units based upon the roads and geophysical constraints within the area in south Multnomah County between the Urban Growth Boundary (UGB) and the Clackamas County line. This initial study provided the following for the City:

- A database framework for incorporating detailed channel characteristics by reach sometime in the future
- Eight to ten key observation points with data at a high level of detail comparable to the UGB database (at least one location in each tributary)
- Riparian - Composition of riparian communities and species richness along at least one transect per each tributary of Johnson Creek

- Surface area extent of natural features that were measured using a Geographic Information System (GIS) and tabulated
- Transects of sampling sites located using the Global Positioning System (GPS) and imported into the GIS and mapped
- Wetlands and plants – general vegetative cover type map with open water wetlands and large wetland complexes identified
- Aerial photo mapping of general land uses and natural resources for the entire 1575 acres

Additional field study conducted (NRPS Fall 2003 and Spring 2004) during this inventory period included the Brickworks area, i.e., roughly 160 acres of additional study area north of Telford between Palmblad and Palmquist roads, and 81 acres south of the Clackamas County line between Telford Rd. and Mt. Hood Highway (US-26). It also included a detailed literature review and analysis, agency coordination, additional field observations, GPS data collection, and input to the GIS mapping system. This study provided:

- Identification of potential conflicts with the City's existing transportation network
- Field assessment of forested riparian wetlands, seeps and ponds and emergent marshes
- Analysis of scenic quality and viewsheds
- Identification of geologic hazards, faults, seismic zones
- Hydraulic data analysis and re-evaluation of flood-prone areas

Floodplain Function

The 100-year flood plain extent (Figure 7) shows the Johnson Creek floodplain. Aerial photographs of the 1996 flood extent were examined at the U.S. Army Corps of Engineers District office; however, this event was beyond the 500 year level and inappropriate for map comparison for adequate flood protection. The examination of the major flood occurrence in the project study area provides important so that the goals of the project to safeguard or restore wetland function, to minimize flooding in the planning area, and to ensure that Springwater development does not exacerbate flooding downstream after implementation. The riparian zone, wetlands and undeveloped floodplain serve as water infiltration areas that are important for support of base flows within the watershed. Careful management of undeveloped floodplains will help the city and the region to meet water quality standards and provide for water temperatures and flows that allow the resident and anadromous fish species to thrive.

Resource Quantity and Quality

To gain an understanding of the planning area's resource quality, one must comprehend some concepts of landscape ecology. The operation of an ecological system depends upon a number of factors at a number of different scales (USBLM 2002). Each level in this time-space hierarchy has its' own importance. Assessing the watershed and using this assessment in a predictive fashion needs both an understanding and analysis of the natural processes occurring at all relevant spatial and temporal scales.



Figure 7. Johnson Creek Floodplain FEMA 100-year extent

A watershed resembles a pyramid with three levels representing scales. The highest scale of assessment of ecosystem function and dynamics contains the control, which describe the ecosystem state variables. They represent ecosystem elements as geology, geography, and climate. All ecosystem control have (varying) degrees of resistance to change, of time it takes to return to steady state, of levels of disturbance from which they will not return to steady state, and of differences between initial and recovered steady states. Identifying the control provides the constraints for determining the resiliency of the system and the prediction of the trajectory of changes that may occur. They also put boundaries on the range of natural variability, and provide some insight into the time frame for these changes to occur (Carlsson and Nilsson 2001, Martin 2001, Martin and Benda 2001).

A watershed's land base controls its processes. Focusing all rehabilitative efforts within the stream channel ignores the effects of land use and riparian vegetation on the supply of water, sediment, shade, and wood to the streams. Past errors, based on doing things thought to be 'good' for the species, eg. placing large wood in any salmonid streams, would be less likely to occur if the restoration goal is to reestablish processes to which most species have adapted. In addition, by looking at watershed processes instead of individual species habitat requirements, actions can be identified that restore habitat for aquatic and terrestrial species. This approach requires analysis of habitat forming processes at the watershed scale in order to identify processes that have been disrupted, as well as the locations and timing of land use effects on those processes.

Field Study Results and Resource Mapping

The key natural resources within the planning area are depicted on Figure 8. The Natural Resource documentation in the Reference Documents contain detailed characteristics and functional values of Springwater's natural features by stream reach or plot of riparian and stream characteristics, tree groves and wetland types, sensitive species, wildlife habitat value, and unique habitat features. A summary of the characteristics by subwatershed is provided in Table 2, with a more detailed description of the stream reaches following the table.

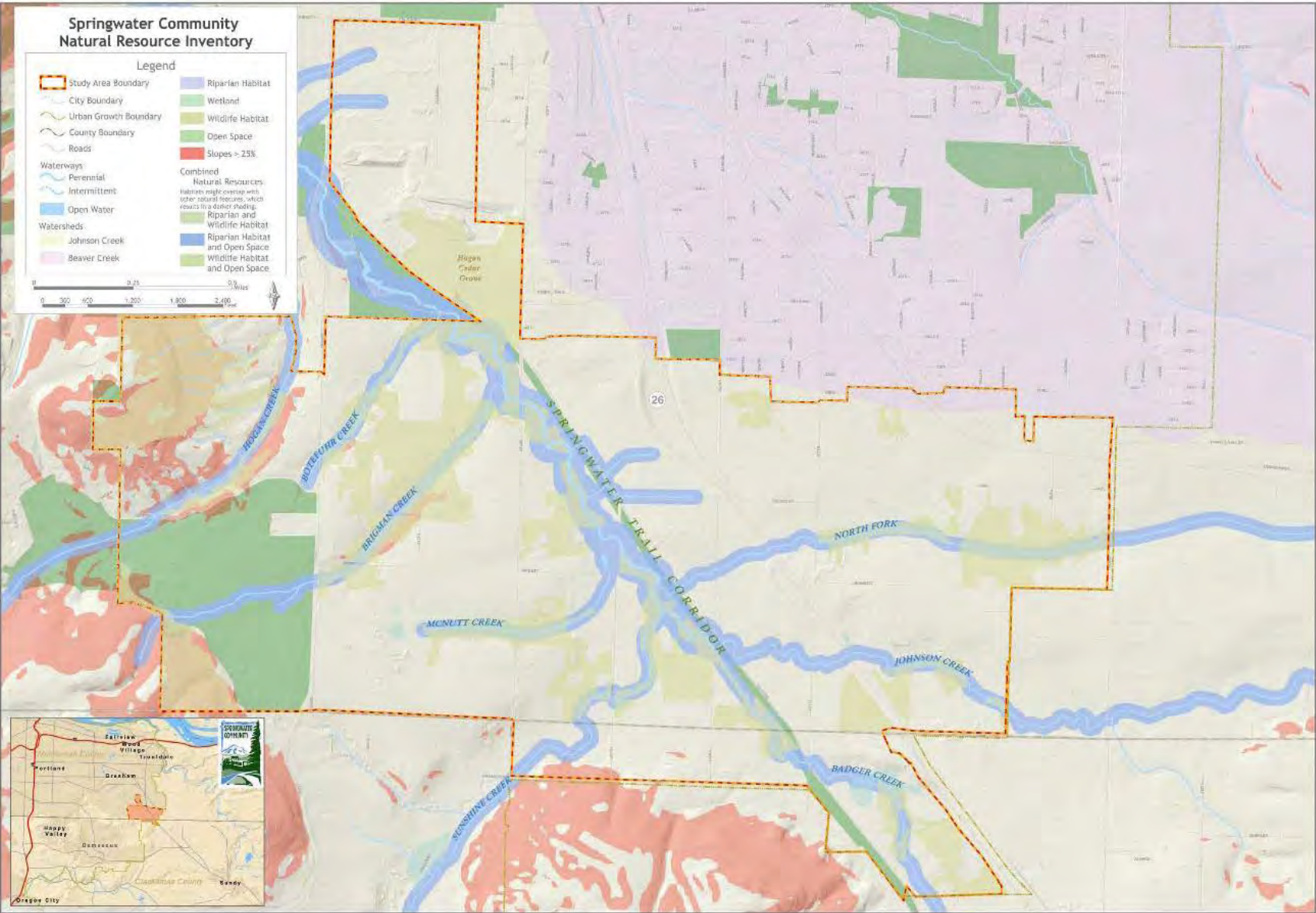


Figure 8. Natural Resource Inventory

Table 2 Natural Features Summary

Basin	Riparian	Wetlands	Wildlife Habitat	Slopes
Hogan Creek	Early to mid successional stage mixed deciduous and conifer (37.3 acres)	A few intermittent seeps and seasonal drainages flow from buttes to Hogan Creek	Good wildlife value on the buttes; good along the creek with mix of tree ages	Buttes > 25% along entire western side of the creek
Bus Creek	Conifer with extensive ivy and other non-native plants (6.9 acres)	None	Limited; development encroaches on all sides; creek is fed through a culvert and pipe	flat
Ops Creek	Conifer with extensive ivy and other non-native plants (8.2 acres)	None	Limited; development encroaches on all sides	flat
Botefuhr Creek	Very high quality reach in study area; Mature mixed deciduous and conifer (26.6 acres)	None	Near pristine condition; wildlife movement corridor	Rolling hills with channels in steep ravines
Brigman Creek	Mature mixed deciduous and conifer (54.2 acres)	Limited due to steep slopes	Good value; slightly disturbed understory; upper reaches poor vegetation is invasives only	Rolling hills with channels in steep ravines
McNutt Creek	Mature mixed deciduous and conifer (29.4 acres)	Small isolated manmade pond at headwaters	Marginal; impacts to understory shrubs reduces value for wildlife	flat
Johnson Creek Reach 16	Highest quality reach in study area; Mature high quality mixed deciduous and conifer. One fifth of reach is within the study area (981 sq. m; 0.2 acres)	Three possible palustrine wetlands	Highest quality conifer stands; near pristine condition and good wildlife movement corridor; Dense Hogan Cedar groves east of creek with lush undergrowth of shrubs, forest ferns and forbs	Variable throughout the reaches; 0.5% gradient

Table 2 Natural Features Summary (Continued)

Basin	Riparian	Wetlands	Wildlife Habitat	Slopes
Johnson Creek Reach 17	Second highest quality reach in study area: Mature mixed deciduous and conifer (4245 Sq. m; 1.0 acres)	Locally Significant Wetland near 252 nd and the Springwater Trail and ten possible wetlands mostly on the east side of the creek	Good wildlife movement along reach	Variable throughout the reaches; 0.8% gradient
Johnson Creek Reach 18	Mature mixed deciduous and conifer (3477 sq. m: 0.86 acres)	One Locally Significant Wetland and two possible wetlands west of US Hwy 26 crossing	Poor; land is devoid of wildlife habitat	Variable throughout the reaches; 0.8% gradient
Johnson Creek Reach 19	Mature mixed deciduous and conifer (3010.4 sq. m; 0.74 acres)	Three Locally Significant Wetlands east of US Hwy 26 crossing	Marginal to good, some thick understory provides for bird species and cover for mammals others are surrounded by nurseries	Variable throughout the reaches; 0.9% gradient
Sunshine Creek	Mature mixed deciduous and conifer (34.4 acres)	A two-part Locally Significant Wetland southeast of the creek	Good as patches are connected to mainstem; also wildlife habitat connection between McNutt and Sunshine creeks	Area within the Springwater study area is meandering and mostly flat, the creek is fed by higher gradient upper reaches
Badger Creek	Mature mixed deciduous and conifer (43 acres)	Manmade pond near confluence with Johnson Creek	Marginal due to relatively small patch size but better where it does connect with riparian	Mostly flat
North Fork Johnson	High riparian function except for flood management function; Mature mixed deciduous and conifer (56 acres)	A Locally Significant Wetland and a cluster of possible palustrine emergent wetlands ¼ mi west of 282 nd Avenue north of the creek	Good mixture of habitat for all wildlife species; thick understory provides food and cover for birds and mammals	Mostly flat

Johnson Creek and Tributaries

The study area’s creek system (Johnson Creek main stem and nine tributaries) create opportunities to achieve multiple benefits in preserving a healthy aquatic habitat combined with meeting stormwater treatment/conveyance needs, restoring riparian or wetland habitats in headwaters, and providing passive recreation areas and natural areas.

Central to the area is the Johnson Creek mainstem (specifically the upper portion of reach 16, all of reaches 17 and 18, and the lower portion of reach 19--see Figure 9 Stream Reach and

Riparian Index), which runs through the entire planning area diagonally. Again, ODFW field surveys called out reach 16 as one of the watershed's most valuable reaches and fieldwork by NRPS staff confirmed the portion of reach 16 within the planning area is in excellent condition. The Springwater section of Johnson Creek has the following qualities:

- Reaches 16 and 17 have shown to be fish-bearing, with high channel complexity and lack of human disturbance. This provides good fish habitat for resident and anadromous fish.
- At time of printing, NOAA Fisheries is considering the main stem of Johnson Creek (including the Springwater section) as critical habitat for Lower Columbia River steelhead and Chinook, and the Magnuson Stevens Act lists it as essential fish habitat (EFH) for Coho and Chinook.
- Johnson Creek is considered by Oregon Department of Environmental Quality as a water quality-limited stream, and is 303(d)-listed for toxins (PCBs, Polynuclear Aromatic Hydrocarbons, dieldrin, and DDT), temperature, and fecal coliform.
- Relatively good riparian condition exists along the main stem.

Within the Springwater planning area, nine creeks are primary tributaries to Johnson Creek. These creeks are:

- Hogan Creek
- Bus Creek
- Ops Creek
- Botefuhr Creek
- Brigman Creek
- McNutt Creek
- Sunshine Creek
- Badger (MacDonald) Creek
- North Fork Johnson Creek

Existing rural development and agricultural practices creates many environmental planning issues for water resources. For example, while North Fork Johnson Creek is surrounded by complexes of tree groves and is not "water quality limited" according to the Oregon State Department of Environmental Quality (DEQ), Badger Creek (otherwise known as MacDonald Creek) has been modified by Telford Road. Coordination and Green Streets design for road improvements are intended to increase functional value and aesthetics of this riparian area. Also, urban development at the headwaters of Botefuhr Creek at Butler Road has changed the flow regime of the creek channel. Opportunity exists to restore the area west of Hogan Road where a Himalayan blackberry monoculture currently exists, and an incised channel has minimized the channel's connectivity to its floodplain. Brigman Creek is currently constrained by the golf course. It is essential that the creek's riparian corridor and headwaters be preserved to maintain the water quality of Brigman Creek.

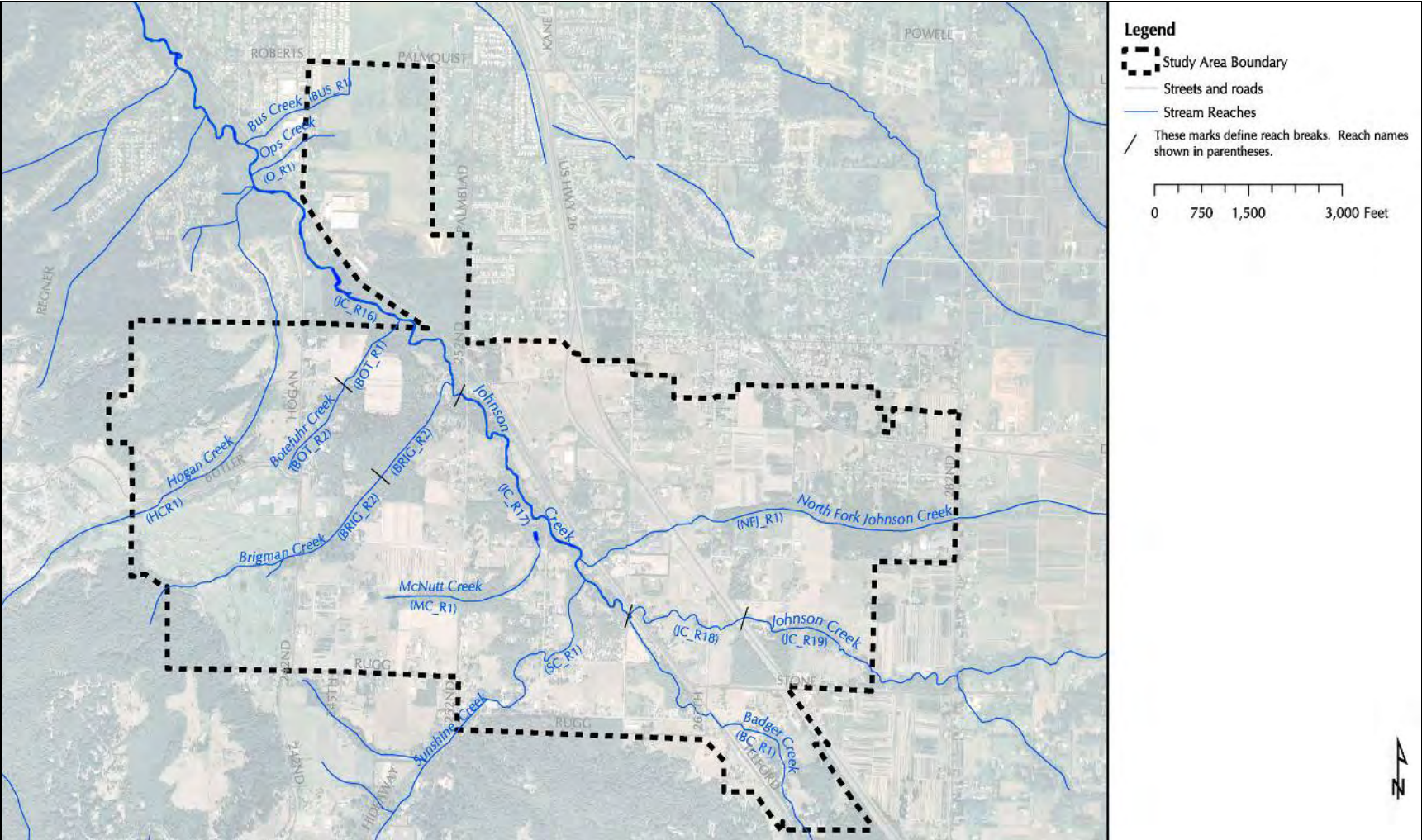


Figure 9. Stream Reach and Riparian Index

Stormwater management, or the lack thereof, has been a major influence on the landscape. Over ninety percent of the site has an open stormwater system, (predominantly ditched), which adds to sediment concerns in Johnson Creek due to erosion. For homes constructed decades ago, occasional septic system failures contribute to the degradation of water quality.

There is currently no treatment of stormwater in the Springwater plan area except at Highway 26 and at Butler Road. The increased direct input to the creek during high precipitation events increases seasonal flooding potential due to the high water table.

Wetlands

Through conducting a Local Wetland Inventory (Gordon, J. 2004), six of the planning areas emergent marsh type complexes were determined to be “locally significant” as defined by the functional and site characterization of the OFWAM (Figure 10). These wetlands totaled no more than six (6) acres across the study area and were recommended for protection usually as part of a larger wetland, floodplain, and forest complex. Restoration of original headwater wetlands should improve the following environmental conditions that were apparent during the resource inventory and needs analysis planning process.

Across the planning area, there are:

- Undulating landscapes that tends to pond water (Figure 11)
- Many roads and manmade linear features that increase surface water runoff to the low areas
- A high percentage of altered wetlands and
- A high water table



Figure 11 Badger Creek near Johnson Creek Confluence Ponded Wetlands

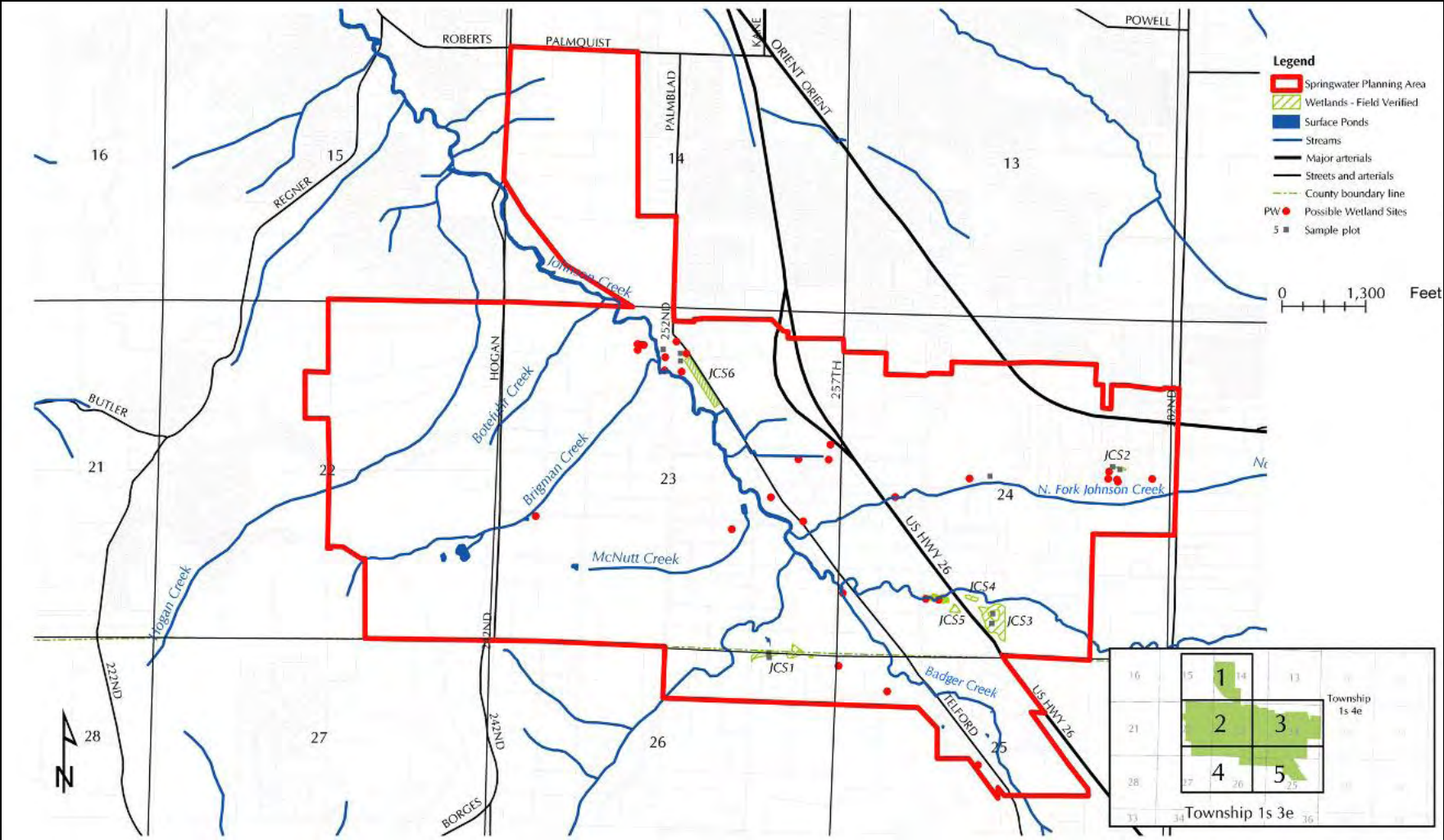


Figure 10 Wetlands Inventory

Riparian Areas

Riparian corridors are essential to wildlife passage, streambank protection and erosion control, and fish and aquatic habitat health, and they perform numerous necessary ecological functions. In Springwater, riparian vegetation has been removed, mowed or cleared throughout much of the planning area. The riparian area of Johnson Creek has been altered due to Telford Road and the Springwater Trail; in some places the riparian area is less than 20 feet wide. However, the intact portions of riparian areas are home to a dense mix of shrubs and mature conifer and deciduous trees. The trees provide shade to the waterway and protect aquatic habitat of this fish-bearing stream. Table 3 shows the riparian corridors that form the green corridors along each creek in the planning area and some results of the condition analysis. Out of 430 acres of riparian habitat approximately 14 percent or 60 acres have been entirely denuded and need to be restored to provide the expected functions of high quality riparian habitat (Figures 12 and 13). Approximately 40% of the riparian area is greatly intact and in comparatively healthy condition. These will be important areas to focus protection and some enhancement efforts. The majority of the riparian area (60%) has experienced varying degrees of alteration 14 percent has been physically mowed or cleared, and will need corresponding degrees of restoration and enhancement activity conducted in order to return the riparian area to a higher quality functional condition.

Table 3 Riparian Habitat with Highest Restoration Needs

Location	Total Riparian Area ¹	Percentage to be Replaced
Hogan Creek	37.3	13%
Bus Creek (Brickworks Ditch 1)	6.9	8%
Ops Creek (Brickworks Ditch)	8.2	0%
Botefuhr Creek	26.2	11%
Brigman Creek	54.2	17%
McNutt Creek	29.4	13%
Johnson Creek	109.6	11%
Badger (MacDonald)) Creek	43.0	16%
Sunshine Creek	34.4	14%
North Fork Johnson Creek	56.0	13%
Totals	429.9	14%

¹ Area within 100 feet of either side of top of bank. Note: There is some variability in calculations (approx. ±1 acre in 632)



Figure 12 Riparian Area North Fork Johnson Creek

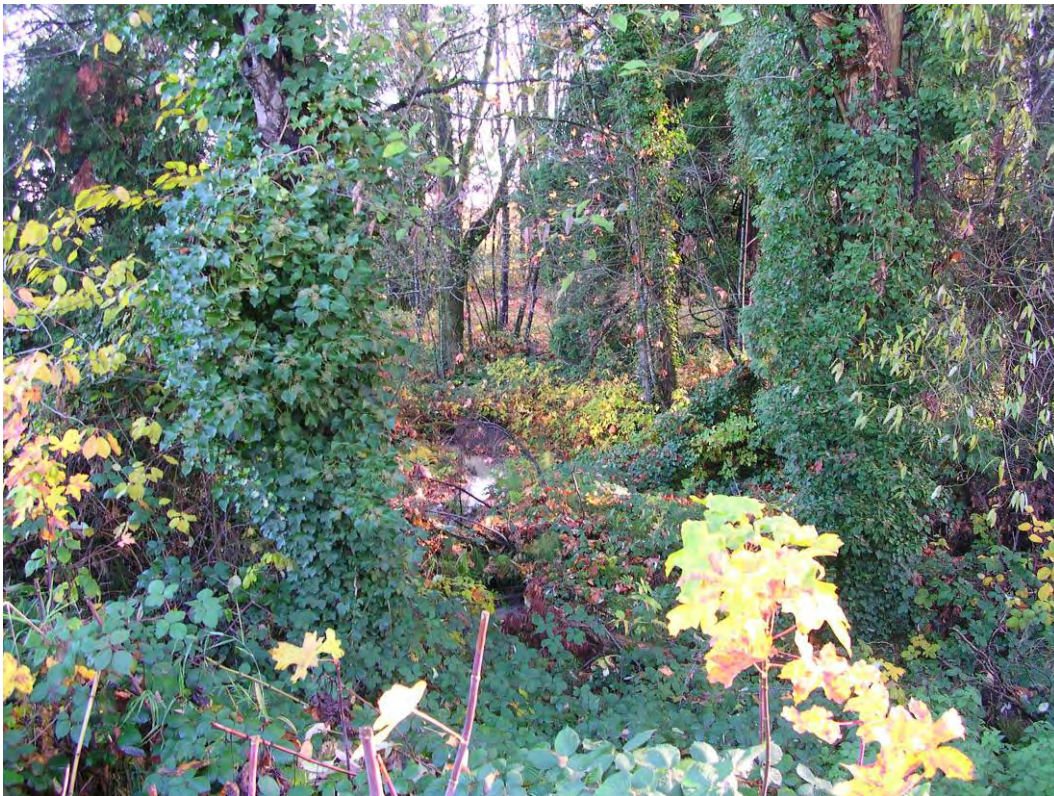


Figure 13 Riparian Zone Overgrown with Invasive Plants Bus Creek

Where native vegetation still exists, it varies from riparian shrubs and trees to mature tree groves. This portion of the landscape is characterized by:

- Predominantly mixed deciduous/conifer tree groves
- Large tree groves within Botefuhr, Brigman, and Johnson Creeks
- Landscape, which is predominantly nursery farms (wholesale and public) and rural residential with light grazing
- Predominant tree species of Douglas fir, Western red cedar (and Hogan Cedars), Red alder, Oregon ash, black cottonwood, and big-leaf maple
- Hogan Cedars Grove. This is one of the most valuable natural resource portions of the watershed landscape and certainly the Springwater Community Planning area, because of the relatively pristine and rare nature of vegetation, value to wildlife, and benefits to Johnson Creek riparian and aquatic zones.

Wildlife Habitat

Mid- to late-succession mixed conifer/deciduous tree groves within the study area provide a structurally diverse environment for numerous bird and terrestrial mammals. There are several ponded wetlands associated with these woodlands (Figure 14, Tree Groves and Wildlife Index). Individual plots are described in data sheets in the Reference Documents and depicted on Figure 14. A summary of the wildlife habitat inventory is also given in Table 4.

Wildlife habitats (e.g., woodland and tree groves and riparian wetland complexes) and non-riverine wetlands were examined in surveys conducted by the team in Spring 2004. Metro's fish and wildlife model used quantified data regarding vegetation structure, patch size, water quality/quantity, and other features to determine the value of an area to wildlife.

Incidental sightings of mammals, birds, and fish that use the study area throughout the two-year study revealed numerous deer present as well as migratory songbirds, diving ducks, and raptors. Amphibians and juvenile fish appear to be prevalent within the entire subbasin. The area is so highly disturbed there is very little habitat broad enough to support winter or breeding ranges for large ungulates or carnivores. The wildlife habitat assessment relied primarily on the vegetative structure, diversity, patch size and connections to waterways for determining the relative value of certain portions of the study area for wildlife.

Springwater's mature forests are valuable wildlife use areas within the watershed's landscape because of their relatively pristine nature, large patch size and proximity to the Johnson Creek riparian zone (Figure 15). Forested patches often provide continuous wildlife passages between the major western tributaries to Johnson Creek; i.e., McNutt and Brigman Creeks, Sunshine and MacDonald Creeks, Brigman and Botefuhr Creeks. Tree groves provide contiguous large patches of mature forest habitat that extend to the northeast as far as Johnson Creek and Telford Road. They connect with undeveloped forest habitat in south, northwest, and southeast directions and therefore are likely to be important to the regional wildlife migration or movement (D. Apostel, Personal Communication, June 2004).

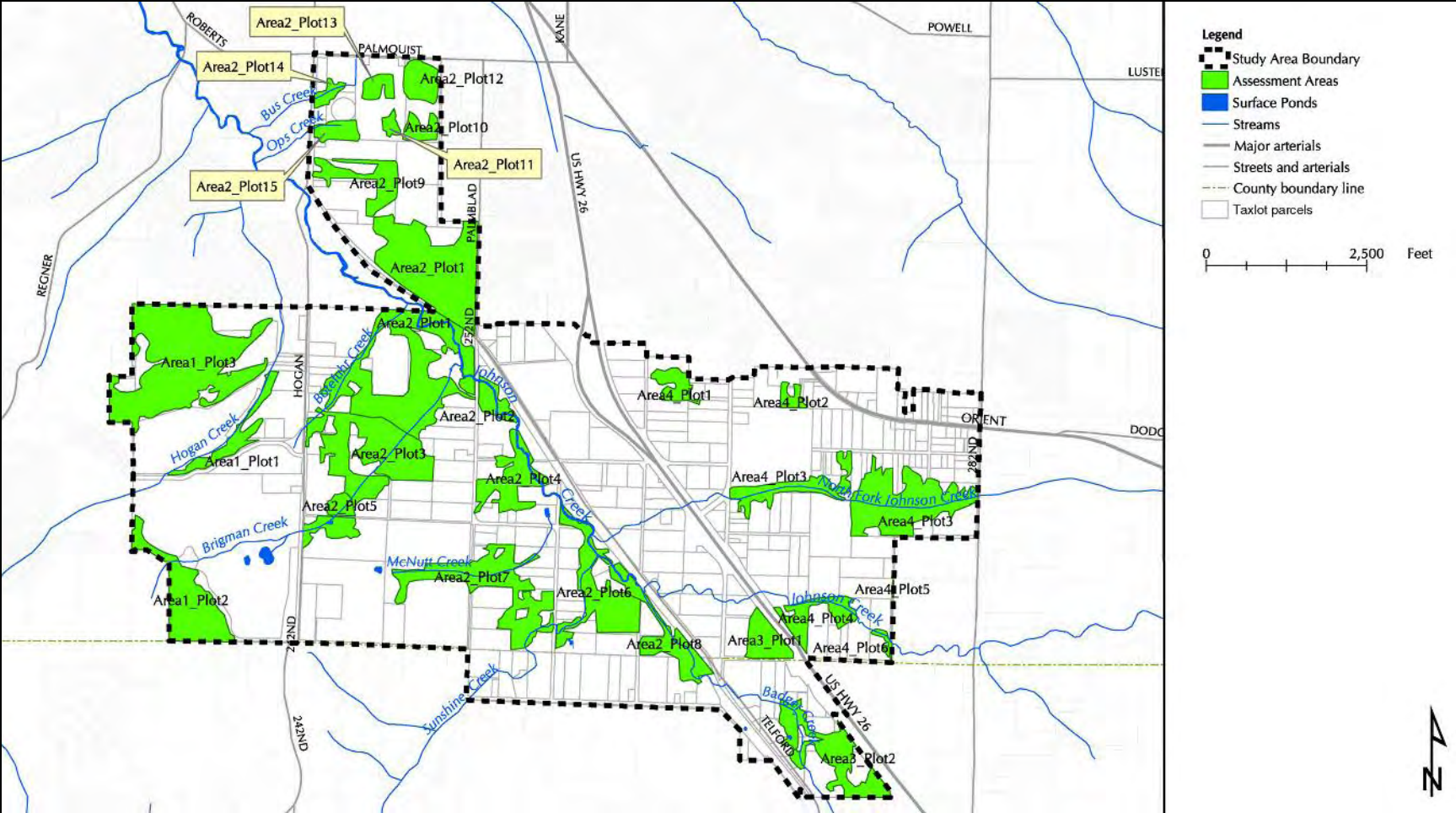


Figure 14 Tree Groves and Wildlife Index

Table 4. Wildlife Habitat Inventory

Planning Area	Plot (Tree Grove #)	Surveyed (Y)es or (N)o	Vegetation Type (Vegetation Community Composition)	Seral Stage (Age of the stand)	Wildlife Value	Recreation Value
Area 1	Plot 1	Y	Mixed Deciduous/Conifer	Early to Mid Deciduous/Mid to Late Conifers	Good, as wildlife movement corridor.	Poor, due to existing constraints and steep riparian area.
	Plot 2	N	Mixed Deciduous/Conifer	Mid to Late Deciduous/Coniferous	Good, mixture of young and old trees. Both deciduous and Evergreen.	Good, view of valley and good mixture of young and old trees.
Area 2	Plot 1	Y	Mixed Conifer/Deciduous	Late Deciduous/Coniferous	Good, wildlife movement corridor. Undisturbed area.	Marginal, untouched forest. Should be saved as wildlife
	Plot 2	N	Mixed Conifer/Deciduous	Mid to Late Deciduous/Coniferous	Good, small patch, but provides continued wildlife movement corridor for wildlife along Johnson.	Marginal, trail already exists.
	Plot 3	Y	Predominantly Deciduous	Early to Mid Deciduous	Good, slightly disturbed understory. Connected to plot 1 to form large continuous grove.	Marginal, due to lack of scenic value, but a quiet place to see wildlife.
	Plot 4	N	Predominantly Deciduous	Early to Mid	Good	Poor
	Plot 5	N	Mixed Conifer/Deciduous	Mid to Late Conifer/Early to Mid	Marginal, due to himalayan blackberry infestation.	Poor
	Plot 6	N	Predominantly Deciduous	Early to Mid Deciduous	Good, because of connection to the mainstem of johnson.	Poor
	Plot 7	N	Mixed Conifer/Deciduous	Mid to Late Conifer/Early to Mid Deciduous	Marginal, connection to maintstem Johnson provides movement corridor but impacts to understory and shrub reduce value.	Poor, narrow and steep.
	Plot 8	N	Predominantly Deciduous	Early to Mid Deciduous/Mid to Late Conifers	Marginal, due to relative small size but is of value due to connection to riparian area of creek.	Poor
Area 3	Plot 1	N	Mixed Conifer/Deciduous	Early to Mid Deciduous/Mid to Late Conifers	Good, thick understory provides for bird species and cover for mammals.	Poor, very thick understory.
Area 4	Plot 1	N	Predominantly Deciduous	Early to Mid Deciduous	Marginal, due to surrounding constraints.	Marginal, up on a plateau with possible view of the
	Plot 2	N	Mixed Deciduous/Conifer	Early to Mid Deciduous/Mid to Late Conifers	Marginal, due to surrounding constraints and relative size.	Poor
	Plot 3	N	Mixed Deciduous/Conifer	Early to Mid Deciduous/Mid to Late Conifers	Good, large continuous tree grove surrounding creek channel. Provides a good mixture of habitat for all species.	Marginal, due to thick understory and relatively little scenic value but could provide an area for a nice
	Plot 4	N	Mixed Deciduous/Conifer	Early to Mid Deciduous/Early to Mid Conifers	Good, thick understory provides for bird species and cover for mammals. Also connected to Johnson Creek riparian area.	Poor, very thick understory.
	Plot 5	N	Predominantly Conifer	Mid to Late Conifer	Marginal, small grove surrounded completely by nursery land.	Marginal, up on a plateau with possible view of the
	Plot 6	N	Predominantly Deciduous	Early to Mid Deciduous	Marginal, provides movement corridor. Rehabilitation to north side could increase value.	Poor, high density of streamside wetlands. Possible flooding concerns.



Figure 15 Wildlife Use Areas Near Springwater Trail

Wildlife certainly uses Johnson Creek and its tributaries' riparian/upland habitats as travel corridors, and for feeding, resting and potentially for denning or nesting, depending on the species and their respective behavior. Mature tree groves give wildlife the protection they need to travel to and from, as well as along, the Johnson Creek riparian area.

SIGNIFICANCE DETERMINATION

Natural resource significance determination used a combination of inventories from NRPS fieldwork and data analysis, as well as Goal 5 resources identified by Multnomah County and Metro for the same planning area. These studies used a set of criteria to evaluate the resources' significance for the regional planning goal for land use. Our study used the same significance criteria as Metro which relies heavily on well-researched, scientifically established, regionally recognize studies that evaluate the function and value of natural and biological resources (see Table 5). We then considered the tolerance or thresholds that each resource has for long term viability within the physical environment and the resources location within the context of the other resources and the landscape. For example, not only was function considered but also position in a spatial hierarchy and size of the area. This enabled us to rate them on the basis of the multiple factors within certain types of landscape forms. The significant natural features of Springwater Community compared favorably with those identified within the West of Sandy River Rural Area Transportation and Land Use Plan, Goal 5 process and with Metro's Goal 5 resource inventory.

The following section details the approach used to evaluate the data and create an accurate description of the baseline conditions. The basis of the analysis recognizes that the dynamic nature of systems in both space and time must be used to inform any determinations of significance for the purposes of planning. Critical to the process is the realization that while each

area deserves and requires protection of some sort, planning must take into account that not all functions exist in all areas, so the “cookie-cutter” approach typically used will fail to recognize the key ecological elements of each area, and the scale at which these elements should be recognized.

This first step occurs at a very broad scale and requires recognition of ecoregion characteristics. These include the geology and terrain as well as any human infrastructure (it tends to constrain processes in a manner similar to geology). For instance, Springwater is positioned between the buttes in the south and west and Mt. Hood foothills toward the east; the Johnson Creek bisects it diagonally draining toward the northwest.

The next step involves a determination of ecosystem processes and habitat effects, or “functions”. Identifying the conditions provides the constraints for determining the resiliency of the system and the prediction of the trajectory of changes that may occur. They also put boundaries on the range of natural variability, and provide some insight into the time frame for these changes to occur. Each individual natural feature within Springwater was examined for the number of functions that were available to it at the observation year and the question was asked, given the area is not manipulated, what would it look like how would it function over time. Many of Springwater’s habitat effects within many of its riparian zones are frequent flooding; streambank erosion due to clearing, poor water quality degraded by fertilizers. Should these stream reaches be left alone with no human influence, the system is resilient and the trajectory of change would be to re-establish the channel migration zone, aggrade the streambed, self seed the riparian vegetation and improve water quality by reducing turbidity and inputs from surrounding land uses.

The third step identifies those elements of the system that demonstrate the least resilience to change, over time; those characteristics modified most. In Springwater several stormwater ditches that drain the existing highways, highways, bridges and culverts, the Springwater Trail and Persimmon Golf Course are fixed and least resilient to the natural process of ecosystem variability and resources in or near these areas would require the most human effort and cost to return them to their natural state. The third step also allows the siting of development features to allow system function to continue along a desired trajectory. On the other hand, those areas where several natural features or ecosystem elements occur in combination at a single location, i.e. backwater wetlands along a low gradient stream with well developed riparian vegetation structure along a gradient to scrub shrub and then mature mixed conifer/deciduous forest are examples of highly functioning natural areas that are relatively unmodified, pristine. All of these elements provide a rating of the “significance” or value to overall function of each of the major ecosystem elements represented in Springwater community.

Using a watershed approach for planning and rehabilitation, therefore, involves understanding the arena in which change occurs (controls), the vehicle for change (processes), and the outcomes, as well as responses to change (disturbance and resilience). Ultimately preserving watershed function, and in the case of the City of Gresham, preserving desired riparian conditions, means allowing these elements, or understanding how they respond to the various changes required to produce the desired result. Natural systems have a dynamic nature that consists of all the above, and that an attempt to draw a circle around the result of control and processes, the effects, will eventually result in the cessation of the more dynamic nature of the environment. This, in turn, will cause the system to assume a stable state not resembling the desired condition, as some its more important elements no longer process inputs as they originally did, or the system overwhelms the attempt at preservation and retains its original dynamism.

By preserving specific areas, and paying attention to processes and inputs, the City of Gresham will achieve its desired result of combining development with maintaining a watershed functioning in a manner they desire. The distances around each natural feature recommended for environmental protection are defined by fitting each to the current control constraining the area, identifying the important processes, understanding the inputs to the systems, and preserving the important features.

The basic resource characteristics inherent in certain natural systems (incorporating the spatial and temporal elements described above) provided the foundation for significance rating criteria (Table 5). These have been evaluated through numerous research studies and used to represent areas of importance to the continued functioning of the natural environment. Table 5 shows the relationship of each resource function to a particular resource or land form. Functions such as: water flow, storage and sources, water quality, channel dynamics and morphology, microclimate, fish and aquatic habitat, riparian habitat, upland vegetated habitat, and provision for sensitive plant or animal species are part of the equation for significance. If none of these functions exist, the site was not identified as significant. If any of these factors exist, the site was identified as significant to ecological system.

Table 5 Significance Criteria

Resource functions	Land features with functional value	Land features	Primary factor	Contributing factor
Water Quality (including sediment filtering, nutrient/pollutant filtering, erosion control, thermal regulation, and stream bank stability)	Vegetation and streambank areas. Vegetation growing from the streambank can help prevent erosion. Roots and fallen tree trunks may also stabilize stream channel banks. Artificial channelization of stream reaches can lead to additional erosion in other downstream reaches.	Vegetation	- Vegetation within 100' of stream or wetland - Vegetation within 200' of stream or wetland if slope \geq 25%	- Vegetation within 100-200' of stream or wetland ¹
	Vegetation growing in the riparian area filters sediment, excess nutrients, and chemical pollutants from stormwater runoff. This functional value occurs where stormwater is allowed to flow through riparian vegetation before entering the stream channel.	Water Bodies	- All land within 50' of a stream - All inventoried wetlands	
	Riparian vegetation preserves un-compacted topsoil that is rich in organic materials and allows stormwater to infiltrate into the ground rather than flow over the surface (reduced surface erosion). Wetlands and floodplains. Wetlands and vegetated floodplains help to purify water by removing sediments, excess nutrients, and chemical pollutants.	Floodplain	- "Undeveloped" floodplain	- "Developed" floodplain

¹ Intact forests contiguous to riparian areas are included out to a maximum of 860 feet.

Table 5 Significance Criteria (Continued)

Resource functions	Land features with functional value	Land features	Primary factor	Contributing factor
<p>Channel Dynamics</p>	<p>Large trees. Stream channels that have complex “structure” support a larger diversity of wildlife (for example, a variety of features, such as pools, areas of white water, meanders). Large wood that falls into the stream channel can create pools and other complex channel habitat features.</p> <p>Side-channels, oxbows, and off-channel wetlands. These areas provide refuge for fish during flooding, when the current in the main channel may be too fast.</p> <p>The Meander Zone. Low gradient streams tend to “snake” across their floodplain in a series of “S”-curves. This is a natural hydrologic process. Altering this natural flow pattern in one location can cause significant change in another location as the stream seeks a new equilibrium. Human structures built in the meander zone can interfere with natural stream hydrology, and lead to decreased in-stream habitat complexity.</p> <p>Streambank Areas. The landscape in close proximity to a stream is a dynamic place. Pools, small backwaters, meanders, and other important stream channel features will not form if the channel is confined to a narrow space.</p>	<p>Vegetation</p>	<ul style="list-style-type: none"> - Vegetation within 100' of a stream, stream meander zone, or wetland connected to a stream - Vegetation within 150' of fish-accessible stream - Vegetation within the floodplain 	<ul style="list-style-type: none"> - Vegetation within 150-200' of fish-accessible stream
		<p>Water Bodies</p>	<ul style="list-style-type: none"> - Within 50' of a stream - Within wetlands connected to a stream 	
		<p>Floodplain</p>	<ul style="list-style-type: none"> - “Undeveloped” floodplain 	<ul style="list-style-type: none"> - “Developed” floodplain

Table 5 Significance Criteria (Continued)

Resource functions	Land features with functional value	Land features	Primary factor	Contributing factor
Water Quantity: Stream Flow, Sources, and Storage	<p>Springs, seeps, and wetlands. These land features supply water to streams (cold water sources are particularly important in an urban area).</p> <p>Floodplains and wetlands. These areas store floodwaters and reduce “flashy” stream hydrology.</p> <p>Forests. Headwaters and riparian forests act as a sponge to hold water, slow stormwater runoff, and maintain stable flow in streams (baseflow). Un-compacted topsoil rich in organic materials can hold water and slow stormwater runoff.</p>	Vegetation		– Vegetation within 98' of stream
		Water bodies	<ul style="list-style-type: none"> – Within 50' of streams and isolated wetlands. – Within 100' of stream associated wetlands 	
		Floodplain	– Within flood prone areas	
Microclimate	<p>Stands of trees and shrubs. Stands of trees and other vegetated areas can impact air temperature and humidity within both upland and riparian areas. The local humidity and air temperature can impact water temperature in small streams and impact localized habitat conditions.</p> <p>Topographic features. Localized topography can also impact air temperature and humidity (for example, habitats on a north slope or within a deep gorge may be cooler).</p>	Vegetation	– Woody vegetation within 50' of water body	– Woody vegetation contiguous extent to maximum 525'

Table 5 Significance Criteria (Continued)

Resource functions	Land features with functional value	Land features	Primary factor	Contributing factor
Fish and Aquatic Habitat	In-water habitat structure. Certain configurations of pool and riffle sequences in the stream channel, off-channel wetlands, side channels, oxbows, meanders, backwaters, frequently flooded areas (10-year flood or higher frequency), known spawning gravel.	Aquatic Habitat	– Within 100' of high or medium rated stream segment	– Within 100' of low rated stream segment
		Sensitive Species	Within 200' of channel meander zone of a stream containing aquatic sensitive species or potential (high or medium rated) habitat for sensitive species	
		Wetlands	– Within wetlands connected to a stream	
		Floodplain	– Within channel meander zone of accessible reach	– Within channel meander zone of upstream reach – Within flood prone areas
Organic Materials	Vegetation. Trees and other overhanging vegetation are a source of leaf-litter, fallen branches, logs, and other organic matter. This material is an important food source for the organisms that fish eat (aquatic and terrestrial invertebrates). Floodplains. Organic material can enter the aquatic environment by falling into the stream, or when the stream floods and carries away organic material from a vegetated area.	Vegetation	– Vegetation within 100' of stream – Vegetation within 50' of a wetland connected to a stream	– Vegetation within 100-200' of stream – Vegetation within 50 - 200' of a wetland

Table 5 Significance Criteria (Continued)

Resource functions	Land features with functional value	Land features	Primary factor	Contributing factor
Terrestrial Wildlife Habitat Quality	Vegetation or land features that provide food and cover for wildlife. Water and food sources, and structure for nesting, dening, rearing, and cover are important indicators of habitat quality. Corridors and connected patches of native vegetation. Wildlife populations that are connected to each other are more likely to survive over the long term than isolated ones. Many species must migrate seasonally to meet basic needs for food, shelter and breeding, and connections between habitat patches allow this migration to occur. Corridors play an important role in urban areas to provide opportunity for migration and movement, including between upland and riparian habitats.	Vegetation	– Vegetation within 100' of a stream or wetland	– Vegetation within 100-300' of a stream ⁴
		Structure	– Within 50' of wildlife habitat (woody vegetation) with WHA score of 45 or more – Wildlife habitat areas within identified habitat corridors	– Within 50' of wildlife habitat (woody vegetation) with WHA >34 and < 45 ⁴
		Water bodies	– Within 50' of water body	
		Floodplain		– Within flood prone area
Terrestrial Sensitive Species	Sensitive species habitats. Areas that provide life-history requirements for sensitive animal and plant species are important for maintaining sensitive species populations.	Vegetation	– Wildlife habitat areas within 100' of terrestrial sensitive species point	– Wildlife habitat areas within 100'-300' of terrestrial sensitive species point ⁴
Upland Interior Habitat	Large intact habitat patches. Long-term trends in wildlife populations are directly related to the area of habitat available—the larger the patch, the longer a population can sustain itself.	Vegetation Patches	– Wildlife habitat areas with an acre or more of interior habitat	

The Johnson Creek watershed and its resources are very important to the region and the integrity of the areas outside the urban growth boundary. Approximately 450 acres of significant natural resource areas exist across the 1700-acre planning area. To determine where the most function could be regained, the inventory evaluated the types of land forms or natural features that occur and the total quantity of resources in any particular area within the planning area. For example, if the stream riparian corridor adjoined a mature grove of trees, i.e. upland wildlife habitat or a wetland, it was rated a higher class than if there was only a single resource at that point in the planning area. In this way, the detail of the field observations and GIS mapping were employed to help the planners make informed decisions about the recommendations for protection and enhancement of the green framework of the planned community.

Classification of Protection and Enhancement Sites

More refined significance classes provided the planners with a simple tool to better inform decisions concerning proper levels of site development, or priorities for site protection or restoration. Once the resource inventory was complete, and natural features mapped individually, and discretely, the resource GIS layers were combined (Figure 16). Certain patterns arose that provided a mechanism to discern the difference in condition and resource value, as well as the level of potential for improving natural resource function and value. While the LWI process, the wildlife habitat assessment, and stream survey methodologies all contain this capability, none of them can evaluate the increases in functionality (and therefore, significance) provided when resources combine at a location. The Significance Class map shows the proximity of resources and their relative value and current function (Figure 16). Those functioning well, and/or combining three or more resource features, gained a rating of 6 whereas those isolated and lacking proximity to water were rated low (1). The various classes of significance (shown in Table 6) provide the basis for planning and prioritizing resource protection and restoration activities. Resource data sheets and summary tables for individual factors, evaluated for each resource that combined to create the significance classes, are provided in the Reference Documents.

Table 6. Natural Resource Significance Classification

High Resource Function	
6	Combination of three or more of the following: Johnson Creek Reach Tree Grove Locally Significant Wetland Unique Habitat
5	Combination of two of the following: Johnson Creek Reach Tree Grove Locally Significant Wetland Unique Habitat
4	Johnson Creek Reach or Locally Significant Wetland
3	Tributary Reach with a Tree Grove
2	Tributary Reach
1	Isolated Tree Grove
Low Resource Function	

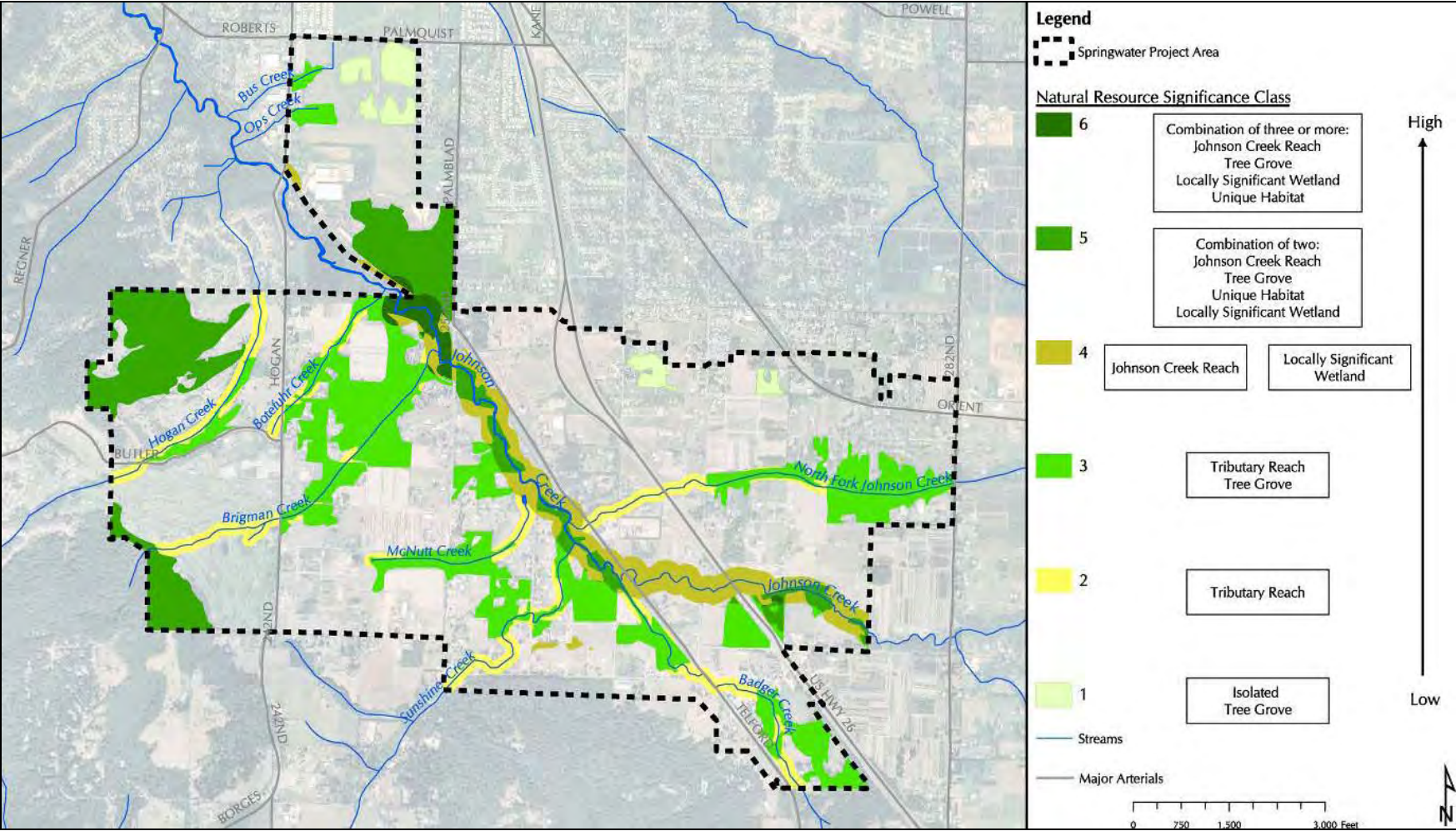


Figure 16. Significant Resource Classifications

The various grouping of resource features and landforms were then evaluated to identify the potential for enhancement and to identify the few areas where the current function and value is so high that it is particularly important to preserve and protect these lands.

Summary of Recommendations

MANAGEMENT PLAN OBJECTIVES

Following the community working group meetings and field observations made by the planning team, priorities emerged for the planning area's natural resources. These priorities are key objective elements in managing the environmentally sensitive resource areas and include:

- Restoring the headwater wetlands of McNutt Creek and riparian habitat along the tributaries of Johnson Creek.
- Retaining undeveloped land as “green” wildlife corridors between the buttes and major tributaries of Johnson Creek.
- Protecting the mature forests and riparian habitat within the five-creek confluence area in the southeastern part of the study area.
- Preserving the integrity of large stands of mature forests such as the Hogan Cedars grove.

Preliminary results suggest that the study area presents many opportunities for increasing watershed health, resource value, and improving water quality. The gentle westerly slopes and rolling terrain is the water source of several creeks and is the location of many disturbed wetland complexes. The headwaters of Botefuhr and Brigman Creeks and the channel of Hogan Creek have all been altered by construction; which results in sedimentation of the waterways. Butler Road is the only treated roadway within the area, leaving many of the roads without stormwater flow detention or treatment before discharging to the creeks.

Protecting the wetlands and forested area complexes at the southeastern boundary of the study area preserves the value of the natural resource and provides a “gateway” to Springwater that reflects the desired character of the community. High-quality, riparian wetlands and wildlife habitats of concern within the study area, if protected, will allow the entire planning area to be more ecologically sustainable. This will include improving the aquatic habitat through cool, clear, healthy streams, promoting Green Streets, and providing and aesthetically pleasing stormwater treatment areas.

REGULATED LANDS

All lands within the Environmentally Sensitive Resource Areas (ESRA) will be protected from urban development. Limited development will be allowed and managed in a way that is compatible with the goals of the natural resource protection. Properly constructed, this development could lend itself to habitat enhancement. The requirements for limited development will be stipulated through the development code.

OPPORTUNITIES FOR RESOURCE PROTECTION AND ENHANCEMENT

The habitat quantity and quality classification created by the Springwater Planning Team serve as the basis for appropriate decisions to protect or enhance natural resource areas, and

determining protection or enhancement priorities. Areas where multiple resources overlapped or existed adjacent to each other, rated highest. Where a solitary resource was isolated from other aspects of the environment that could assist it in functioning viably, these areas rated lowest. Recommendations for areas to protect and preserve as well as enhancement opportunities are shown on Table 7 and located on Figure 17.

FUNDING STRATEGY

As the area develops, environmentally sensitive habitats and natural features will be protected through a combination of public acquisition and regulation.

Several mechanisms have been evaluated for funding the proposed preservation and restoration goals for the project. For those lands that are not fully protected by federal, state or local regulation, but have high resource value, the City would be well advised to attempt to acquire the sites. The Parks and Open Space Plan estimates land acquisition costs to be approximately \$48,000 per acre; however, including typical costs for enhancement and maintenance of the site, the cost for the City to acquire and manage a natural resource area is likely to be near \$100,000/acre. Table 7 shows the lands that are recommended for incorporation into a land acquisition program. Also, for those projects that would not be required, options are explored for funding mechanisms for enhancement of the natural resources.

Other means to preserve the resource value without direct acquisition would include tax incentives to the property owner. For tax incentives, City Council would create an ordinance, then apply to the County with a certified management plan and in turn the City reduces their tax assessment on the parcel that contains the natural resources. When individual property owners are asked to give something up for the greater good, they often respond well to a long-term reduction of taxes on the land.

Additional programs exist at the city, state, and federal level to assist with natural resource planning efforts. These provide financial and technical assistance and incentives, but require a commitment from the property owners and the communities. Potential funding opportunities are listed below.

1. Reduce stormwater fees in exchange for protection of resources in the form of conservation easements.
2. Encourage and further investigate density and development transfer rights and other transfer mechanisms from properties inside the ESRA to properties outside.
3. Consider a new System Development Charge (SDC) on all development in the study area to purchase conservation easements. This effectively distributes the burden of resource protection to all who benefit.
4. Consider a bond measure to acquire property along streams and wetlands, either region wide or specific to Springwater. The measure could be patterned after Metro's bond measure that successfully acquired upland habitat in and around the study area.
5. Grants and donations should continue to be used whenever possible. Numerous programs exist at the state and federal level to assist with natural resource related planning efforts, especially if those planning efforts are related to natural hazard mitigation strategies. In addition to opportunities to obtain funding for the protection and

restoration of habitats, opportunities are available to obtain public open space as part of a hazard mitigation/prevention strategy.

6. Landscape Assessment Districts (LADs) could be established as an overlay zone to provide a higher level of design and maintenance standards.
7. Restoration projects could be combined with other public utilities construction projects to minimize total project costs.

Table 7 Natural Resource Management Plan

Project Name	Location	Existing Functions and Values	Expected Outcomes	Natural Resource Plan Objectives Met	Cost, \$Million ¹	Potential Funding Source
PROTECTION						
Hogan Cedar Grove	Area 2 Plot 1	scored 28 highest for tree grove; scored 103 for wildlife highest value; enhanced score increased by 5	preservation recommended as enhanced score increased only by 5; future successional stages will be very valuable	opportunity for a natural park; protects a significant patch of forested wildlife habitat	\$8.6	consider acquisition as the parcel is within City limits and has tremendous development pressure
Springwater Gateway Wetlands (Stone Rd/Hwy 26)	Area 3 Plot 1 Area 4 Plot 4	Area 3 Plot 1 has poor recreation value and scores 17 average for tree grove and 71 for wildlife; Area 4 Plot 4 contains a significant wetland; scores 18 for tree groves; 79 for wildlife	Area 3 Plot 1 enhanced score increased only 9 whereas Area 4 Plot 4 enhanced score increased 17 for wildlife value if the wetland is protected	protects the areas most significant wetland and provides a natural beauty for the southern gateway to the community	\$1.6	may be partially within the highway right-of-way and riparian corridor of Johnson Creek; consider acquiring the remainder of parcel
Buttes with Slopes > 25%	Area 1 Plot 3	unique habitat with tree groves; landslide and uncertain geologic hazard	high development pressure for single family residential to capture views	protects forested areas and open space amenities with views	\$6.0	density requirements and developers fees for mitigation on slopes greater than 20%

1. Based on \$100,000/acre for acquisition and enhancement projects. Cost for acquisition only is \$48,000/acre.

Table 7 Natural Resource Management Plan (Continued)

Project Name	Location	Existing Functions and Values	Expected Outcomes	Natural Resource Plan Objectives Met	Cost, \$Million ¹	Potential Funding Source
WILDLIFE PASSAGE						
Reserve a corridor between Hogan and Botefuhr creeks for wildlife passage	connects BOT R2 with HC R1	Botefuhr Creek is a deep channel with dense high value riparian; steep area containing springs are excellent wildlife habitat with poor recreation potential	Locating this corridor somewhere between the two creek channels would provide east-west route for wildlife to pass from Johnson Creek through to the buttes	increases opportunities for wildlife movement east and west through the community to buttes in the west	\$0.6	most of this corridor should be included as either setbacks from creeks or "green street" redesign of Butler Road
Sunshine and McNutt Wildlife Corridor	Area 2_ Plot 7	this channel has been degraded score is 69 for wildlife habitat and the understory has been modified by residents' activities and there are three existing houses	protection of this corridor will allow understory to grow back and the wildlife a choice to use this as an alternate route to the Sunshine Valley	increases passageways for wildlife movement south to the buttes	\$2.8	preservation through including these lands in the green infrastructure
RESTORATION – WETLAND RIPARIAN COMPLEX						
Brigman Pond Removal and Restoration	BRIG_R2	the creek riparian has been removed; golf course filled in the headwaters and caused down cutting and poor water quality	restore the flood control function and water quality of Brigman Creek; will improve riparian condition	long term water quality improvement and sustainable development	\$0.9	encourage private property owner; otherwise not likely to be completed
McNutt Headwater Wetland Complex	MC_R1	Wetlands filled; riparian degraded as the channel has been ditched	improved water quality; aesthetically pleasing area for local residents	long term water quality improvement and sustainable development	\$0.4	reserve as environmentally sensitive and engage volunteer efforts
Johnson Creek Hwy 26 Wetland Complex and Floodplain Reconnection	Area 4 Plot 5 Area 4 Plot 4 JC R19	poor quality habitat due to surrounding nursery activities and poorly functioning culvert	reconnect floodplain and flood storage function; enhance wetlands and riparian	improves aesthetic quality, water quality, riparian and wildlife habitats	\$0.9	some of this site is within right-of-way for Hwy 26; consider acquiring the wetland site

1. Based on \$100,000/acre for acquisition and enhancement projects. Cost for acquisition only is \$48,000/acre.

Table 7 Natural Resource Management Plan (Continued)

Project Name	Location	Existing Functions and Values	Expected Outcomes	Natural Resource Plan Objectives Met	Cost, \$Million ¹	Potential Funding Source
RIPARIAN REHABILITATION						
North Fork Johnson Creek Riparian Restoration	NF_R1	riparian quality is low as vegetation is cleared or mowed on one or both banks of the creek	improved aquatic habitat, water quality, culvert should be upgraded	provides natural corridor for wildlife movement east to west	\$0.75	consider volunteer riparian planting
Johnson Creek (Telford - Hwy 26) Riparian Floodplain Reconnection	JC_R18	riparian quality is low as vegetation has been altered by logging and land practices	culvert should be replaced with a bridge; channel should be allowed to meander and riparian vegetation replaced	confluence of the five creeks is of high aesthetic value for public and recreationists	\$0.1	consider acquiring the corridor and designing a bridge that reconnects floodplain or integrate with stormwater facilities
Badger Creek Culvert Removal and Channel Rehabilitation	BC_R1 at Telford Rd.	riparian quality is low as vegetation is invasive species; stream channel has been moved and displaced riparian and altered flow	culvert should be replaced with a bridge	provides natural corridor for wildlife movement to southeast and buttes	\$0.67	culvert may be included in the highway improvements program; consider volunteer riparian planting

1. Based on \$100,000/acre for acquisition and enhancement projects. Cost for acquisition only is \$48,000/acre.

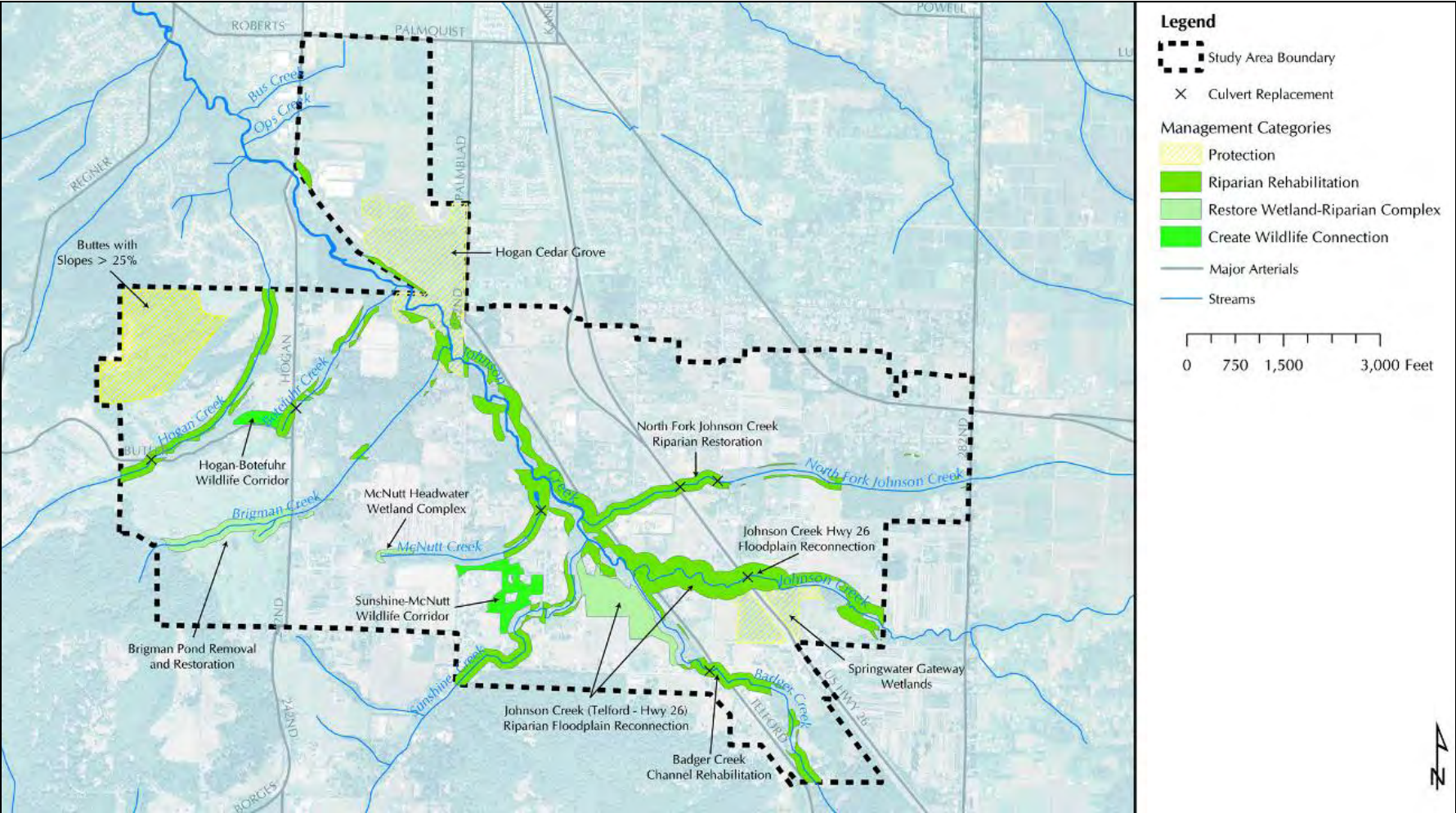


Figure 17 Natural Resource Protection and Restoration Plan

ABBREVIATIONS AND ACRONYMS

CWA – Clean Water Act
ESRA – Environmentally Sensitive Resource Areas
ESRA-SW – Environmentally Sensitive Resource Areas - Springwater
ESA – Endangered Species Act
ESU – Evolutionary Significant Unit
FEMA – Federal Emergency Management Agency
GIS – Geographic Information Systems
GPS – Global Positioning System
LWD – large woody debris
NMFS – National Marine Fisheries Service
NRCS – Natural Resources Conservation Service
NWI – National Wetland Inventory
ODFW – Oregon Department of Fish and Wildlife
SEC – Significant Environmental Concern
WDFW – Washington Department of Fish and Wildlife

GLOSSARY

Allow - Decision to permit land-use activities regardless of the impacts on *fish and wildlife habitat*. Under an allow decision, habitat areas would be protected only by existing regulations and *non-regulatory tools*. This option offers the lowest level of protection for regionally significant habitat.

Anadromous - Moving from sea to freshwater for reproduction.

Anthropogenic - Relating to, or resulting from the influence of human beings on nature.

Assessment - A thorough documentation of existing conditions within a watershed. Identifies the actions needed to get from baseline conditions to the conditions implied in the vision and goals for a watershed. Refines objectives by identifying where and to what extent existing conditions diverge from the vision, and identifying appropriate targets for an objective given existing conditions.

Bankfull width – Channel width between the tops of the most pronounced banks on either side of a stream reach.

Baseline – Reference point for comparison of subsequent measurements or observations

Basin – A topographical area of a watershed or geological land area that slopes toward a common center or depression where all surface and subsurface water drains

Bedrock type – The parent rock (e.g., granite or sandstone) in a channel

Biodiversity - The variety of plants and animals in a particular area.

Conflicting uses - As defined by the Goal 5 planning guidelines, a land-use practice or development activity that is harmful to *fish and wildlife habitat*. Two major conflicting uses are removing plants and increasing *impervious* surfaces such as roads.

Edge effects - The negative impacts on wildlife that occur along the border of a *fish and wildlife habitat* area such as greater vulnerability to predators, *nonnative* plants, traffic and noise.

ESEE analysis - The second step of Metro's fish and wildlife habitat protection program which entails assessing the potential economic, social, environmental and energy (ESEE) impacts of protecting and not protecting regionally significant fish and wildlife habitat.

Fish and wildlife habitat - An area upon which fish and wildlife depend in order to meet their requirements for food, water, shelter and reproduction.

Goal 5 - One of 19 statewide planning objectives (adopted in 1973) that establishes standards for protecting natural resources, open spaces, and scenic and historic areas. Metro is currently working to address Goal 5 by developing a program to protect the region's significant natural resources, specifically *fish and wildlife habitat*.

Habitat fragmentation - The breaking up of a single large habitat area such that the remaining *habitat* patches are smaller and farther apart from each other. This results in a lack of

connections among different habitat areas, which makes movement between areas difficult for wildlife and reduces habitat quality (for example, by increasing *edge effects* and decreasing important *interior habitat*).

Habitat inventory - The first step of Metro's fish and wildlife habitat protection program that involved identifying the significant *fish and wildlife habitat* in the region. The result of the inventory is a map of regionally significant habitat classified from low to high value based on each area's importance for fish and wildlife.

Impervious/impermeable surface - A surface that does not allow water to seep into the ground and, therefore, increases *stormwater runoff*. Roads, parking lots and standard building roofs are all impervious surfaces.

Interior habitat - The area in the center of a *fish and wildlife habitat* patch that is higher quality habitat than areas along the edge of patches, since areas along the border are more prone to *edge effects*. Some species need interior habitat to survive.

Impact area - Land next to regionally significant habitat that may significantly affect the condition and value of the habitat area. Certain land-use and development activities within impact areas may have a substantial adverse effect on nearby habitats, and thus are worthy of special consideration.

Limit - Decision to apply some restrictions to land use activities that harm *fish and wildlife habitat*, but not *allow* or *prohibit* development entirely. This is the "middle-of-the-road" option for protecting regionally significant habitat.

Metro - A regional government that serves the 1.3 million people who live in 24 cities and three counties in the Portland metropolitan area. Metro works on land-use, transportation, natural resources, parks and greenspaces planning and waste management issues that cross local boundaries.

Non-native species - A type of plant or animal that is not local to an area, but rather originates from a another place. Also called "exotic" or "alien" species.

Non-regulatory tool - A way of achieving *fish and wildlife habitat* protection that does not rely on legal standards and restrictions, but instead relies on other methods such as education and outreach, financial and other incentives, and land acquisition from willing sellers.

Program development - The third step of Metro's fish and wildlife habitat protection program which entails determining how to protect various habitat lands identified in the inventory (step 1) while balancing the economic, social, environmental and energy (ESEE) impacts of protecting and not protecting *fish and wildlife habitat* (identified in step 2). Program development will entail deciding which policy tools – incentives, education, regulation or land acquisition – to apply to various lands throughout the region.

Prohibit - Decision to not *allow* a conflicting use because of the negative impacts on *fish and wildlife habitat*. This option offers the highest level of regulatory protection for *regionally significant habitat*.

Regionally significant habitat - Habitat areas Metro has identified as important at the regional

level based on a resource inventory undertaken in the first step of Metro's *fish and wildlife habitat* protection program. Regionally significant habitat includes habitat in riparian areas near water and drier upland areas away from water.

Regulatory tool - A way of achieving *fish and wildlife habitat* protection that relies on legal standards and restrictions on such things as vegetation removal and development activities.

Riparian area - The vegetated land near water bodies such as streams, rivers, wetlands and lakes that provides important benefits to wildlife and humans including clean water, reduced flooding and healthy habitat.

Soil erosion - The action of soil being worn away by water or wind.

Stormwater runoff - Water that flows off *impervious surfaces* such as roads, parking lots and roofs of buildings because it cannot enter and soak into the ground.

Title 3 - An ordinance adopted by Metro Council in 1998 to meet standards for statewide planning goals that deal with water quality (Goal 6) and flood management (Goal 7). Title 3 also establishes a plan to address the *fish and wildlife habitat* protection aspects of *Goal 5* within the metro region.

Upland area - Land located at a higher elevation than *riparian areas* that stays relatively dry.

Urban growth boundary (UGB) - The line that marks the separation between rural and urban land. The UGB is updated every five years so that the land within the boundary can accommodate 20 years of expected growth in the region. *Metro's* jurisdiction covers the land within the UGB plus some additional lands outside the UGB.

Watershed - All the land and streams that drain to a particular water body or point in a stream. Since water flows downhill, points of high elevation generally determine watershed boundaries.

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Springwater Community Plan



Springwater ESEE Analysis Decision Report

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

Springwater Community Plan Report Economic, Social, Environmental and Energy (ESEE) Decision

1.0 Springwater Natural Resource Inventory and ESEE Report

1.1 PURPOSE

In order for the City of Gresham to comply with Oregon Statewide Goal 5 requirements (Oregon Administrative Rules [OAR] 660-023 et. al.) to conserve significant natural resources, an Economic, Social, Environmental and Energy (ESEE) analysis has been performed to identify the consequences for allowing, limiting, or prohibiting conflicting uses in the Springwater Community Planning area. The ESEE analysis follows the procedures outlined in OAR 660-023-0040, which states that “local governments shall develop a program to achieve Goal 5 for all significant resource sites based on an analysis of the economic, social environmental, and energy (ESEE) consequences.”

1.2 STUDY AREA

The study area for the ESEE decision report includes the entire Springwater Community Planning area. It is divided into three distinct areas that encompass three jurisdictions (City of Gresham, unincorporated Multnomah County (Springwater), and the incorporated portion of Clackamas County that is now the City of Damascus) for a total of 1,589 acres (See Figure 1.1).

The Springwater area has approximately 1,272 acres of unincorporated Multnomah County. It is part of the study because it is included in Gresham’s recent (December 2002) Gresham Urban Growth Boundary (UGB) expansion. This area includes approximately 120 acres of unincorporated Multnomah County that is located at the foot of the buttes west of Hogan Road. It has been included in the study because the area has never been planned, yet it is within Gresham’s UGB and its Urban Services Boundary.

A second area is the “Brickworks” site, which includes approximately 183 acres of land north of the Springwater area. It is currently zoned as Heavy Industrial (HI) and is within the City of Gresham. It is included in the Springwater Community Planning area in order to access the relationship of the site and its current HI designation to the proposed industrial lands in the Springwater Community. The current Springwater Plan District adoption process will not apply to the “brickyards” site, though it may be included at a future date through a separate legislative action.

A third area includes approximately 139 acres that are located in Clackamas County. That area is included in the Study because it was originally included as part of Gresham’s UGB expansion (December 2002) and is located in the same Johnson Creek watershed basin as the Multnomah County portion of Springwater. During the Springwater Community Planning process, however, the City of Damascus incorporated the Clackamas portion of Springwater. While the City of Gresham does not consider the City of Damascus as part of the Springwater Community Plan, the area has been kept in the study to help broaden the understanding of the environmental processes operating in the area and to contribute to the decision making process.

1.3 GOAL 5 PLANNING REQUIREMENTS

Prior to performing an ESEE analysis, Goal 5 requirements outline specific procedures for identifying and inventorying Goal 5 resources. Inventoried resources are subject to a significance determination based on the resources quality, location and quantity.

Only Goal 5 resources considered significant can be subject to protections through either a Safe Harbor process (OAR 660-023-0090) or a more complex ESEE analysis, which allows a jurisdiction greater flexibility in determining and implementing Goal 5 protections. The ESEE analysis is used to determine whether a jurisdiction will allow, limit or prohibit a use that may conflict with preservation of the significant natural resource.

To perform an ESEE analysis OAR 660-023-0040 requires the following steps to be addressed:

- Identify conflicting uses,
- Determine the impact area,
- Analyze the ESEE consequences, and
- Develop a program to achieve Goal 5.

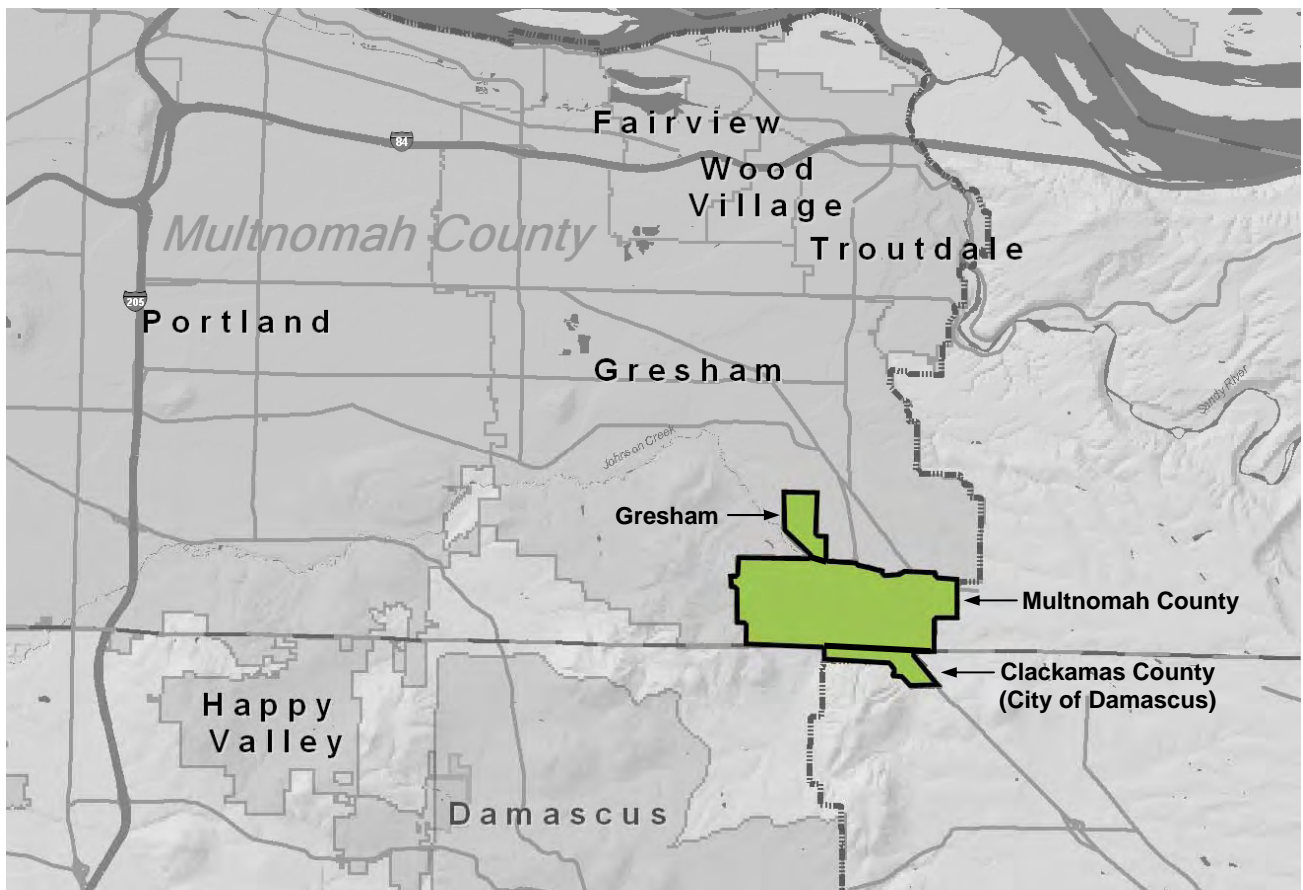


Figure 1.1 Springwater Community Plan Area Existing Jurisdictions

1.4 ESEE REPORT SECTIONS

Before performing an ESEE analysis, however, a local jurisdiction must conduct a thorough inventory and identification of all Goal 5 significant natural resource sites. Section 2.0 below briefly addresses what the City of Gresham has done to comply with the Goal 5 inventory and resource identification process. Section 3.0 discusses the elements that must be addressed in the ESEE report. The body of the report follows with discussions regarding Conflicting Uses (Section 4.0), Impact Area Identification (Section 5.0), ESEE Consequences (Section 6.0), and Goal 5 Program Development (Section 7.0).

2.0 Natural Resource Inventory and Significance Determination

2.1 INTRODUCTION

This section briefly reviews the natural resource information that was collected for the study and assessment process to determine significant Goal 5 resources. For a comprehensive discussion of the Goal 5 inventory and significant resource determination process see the *Springwater Community Plan Natural Resource Protection and Restoration Plan* (April 2005).

2.2 RESOURCE INVENTORY

Prior to the ESEE analysis, a comprehensive inventory and examination of all Goal 5 natural resources was performed in 2003-04.

2.2.1 Data Collected

The following natural resource data were reviewed and collected in the Springwater Community Plan area.

- Existing fish distribution studies (ODFW, Portland BES, Multnomah County)
- Local Wetlands Inventory
- Streambank characterization
- Riparian characterization
- Tree grove characterization
- Wildlife and aquatic species habitat identification

2.3 SIGNIFICANCE DETERMINATION

2.3.1 Significance Criteria Guidelines

Goal 5 provides guidelines for determining the significance of the resource sites that are identified (OAR 660-023-0030). The determination of significance shall be based on the quality, quantity and location information; supplemental or superseding significance criteria outlined in other sections of OAR 660-023-0090 to 0230; and additional criteria that is adopted by the local government (as long as the criteria do not conflict with Goal 5). A list of resource sites that are determined to be significant based on these criteria are to be adopted by the jurisdiction's comprehensive plan or as a land use regulation. Those sites not considered significant shall not be regulated under Goal 5.

2.3.2 Sites Identified as Significant

The Springwater Community Plan adopted the Natural Resource Significance Class rating system. The system outlined the minimum criteria a natural resource area must meet to be considered significant. In addition, the rating system also ranked each significant resource area as to its relative value or contribution toward sustaining Goal 5 natural resources within the Springwater area. That is, some Goal 5 resources were considered to make a greater contribution toward protecting the natural resources than other Goal 5 resources.

Briefly, the Natural Resource Significance Class rating system incorporates criteria to determine significance as well as relative value for each Goal 5 resource area. The criteria are based on the quantity and quality of the Springwater natural resources, their spatial distribution, and their relative contribution toward sustaining and preserving the natural resources (see the *Springwater Community Plan Natural Resource and Hazards Inventory* (April 2005)).

The rating system uses a 1 (low) to 6 (high) ranking. Goal 5 resource sites that are isolated and only have a single natural resource, such as an isolated tree grove, are rated low or 1. Goal 5 resource sites that are located along the mainstem of Johnson Creek and have multiple natural resources, such as significant local wetlands, unique habitat (aquatic and terrestrial), and tree groves, are rated as highly significant or a 6. In between the 1 to 6 rating are resource sites that have natural resources that are considered of greater value than the isolated tree groves but less valuable than the Johnson Creek mainstem with tree groves, wetlands and unique habitat.

Figure 2.1 displays all the significant Goal 5 natural resource sites. All sites have been classified according to their contribution toward sustaining and preserving the natural resources in the Springwater Area.

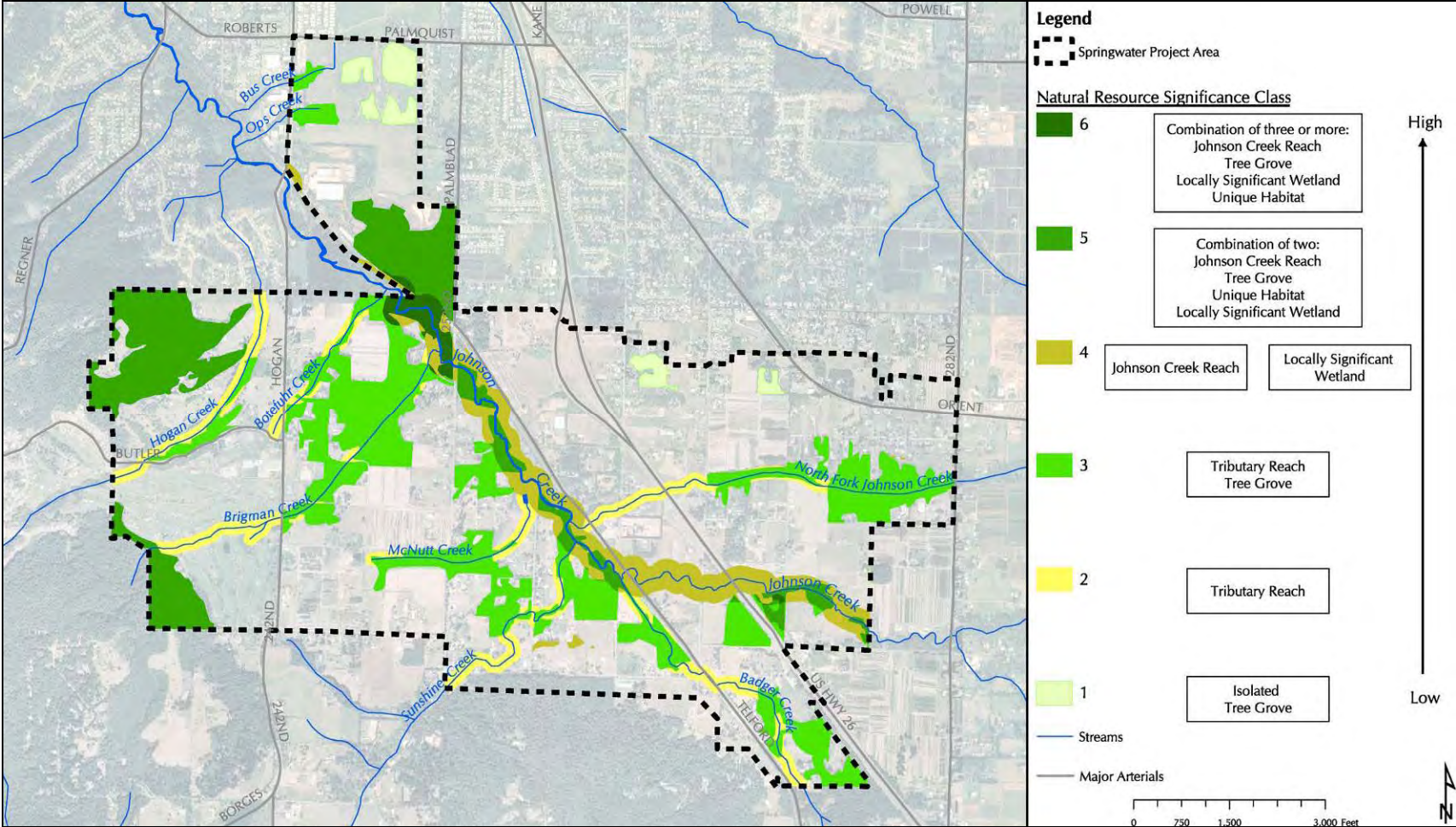


Figure 2.1 Springwater Community Natural Resource Inventory

3.0 ESEE Elements

This section provides an outline of the ESEE analysis. It addresses the components of the analysis and the specific information that must be provided in order for the City of Gresham to make an informed decision as to the level of Goal 5 protection that will be adopted in the Springwater Community Plan: The following are the range of protections to be considered for each resource site.

- Protect the resource (do not allow conflicting uses within the impact area)
- Partially protect the resource (limit conflicting uses within the impact area)
- Allow conflicting uses in the impact area.

The advantage of using the ESEE approach is its flexibility. The ESEE process makes it possible to adopt different Goal 5 protections for different Goal 5 resource sites. For example, Goal 5 protections could vary between the resource sites based on the Goal 5 Significance ratings. That is, those Goal 5 resources with a higher significance rating could have greater resource protections than those with a lower significance rating.

3.1 COMPONENTS OF THE ESEE ANALYSIS

There are a set of procedures that need to be performed to complete the ESEE analysis. Goal 5 (OAR 660-023-0040) outlines the three steps.

- Identify conflicting uses
- Determine the impact area
- Analyze the ESEE consequences

The results of these procedures are then used to determine the Goal 5 program to protect the resource sites. The Goal 5 resource program is adopted into the Springwater Community Plan and implemented through ordinance.

3.2 CONFLICTING USES

OAR 660-023-0040 (2) specifies that local governments must identify conflicting uses that “exist or could occur” with respect to the identified Goal 5 resources. The conflicting uses to be examined are those that the zone allows either outright or conditionally within the impact area and natural resource site.

The Springwater area has two sets of zones for which conflicting uses must be analyzed – existing zoning and proposed or future zoning districts. With respect to the existing zones, there are currently seven zoning districts located in the Springwater area. The zoning districts are administered by three jurisdictions – City of Gresham and Multnomah and Clackamas Counties.

With respect to future zones, there will be seven new zoning districts. Only one jurisdiction, the City of Gresham, will administer these new zones once the City annexes the entire Springwater Area within Multnomah County.

The purpose of the conflicting use analysis is to determine whether a particular zone may restrict or upset the environmental health of the resource site. The analysis can range from the identification of conflicting uses that lead to permanent natural resource loss to zones where there are no conflicting uses. In the later instance where no conflicting use is identified, the zoning regulations are considered adequate to fully protect the resource site.

3.3 IMPACT AREA

The jurisdiction is required to identify the impact area for each resource site. The impact area according to OAR 660-023-0010 is that “geographic area within which conflicting uses could adversely affect a significant Goal 5 resource.”

The impact area defines the geographic limit of the ESEE analysis. Since ESEE analysis will not be performed outside of the impact area, the boundary must be wide enough to cover all conflicting uses that could affect the resource.

For the purposes of the Springwater ESEE analysis, the impact area will be the boundary surrounding the entire Springwater Community Planning Area. Figure 3.1 displays the impact area boundary for the ESEE analysis.

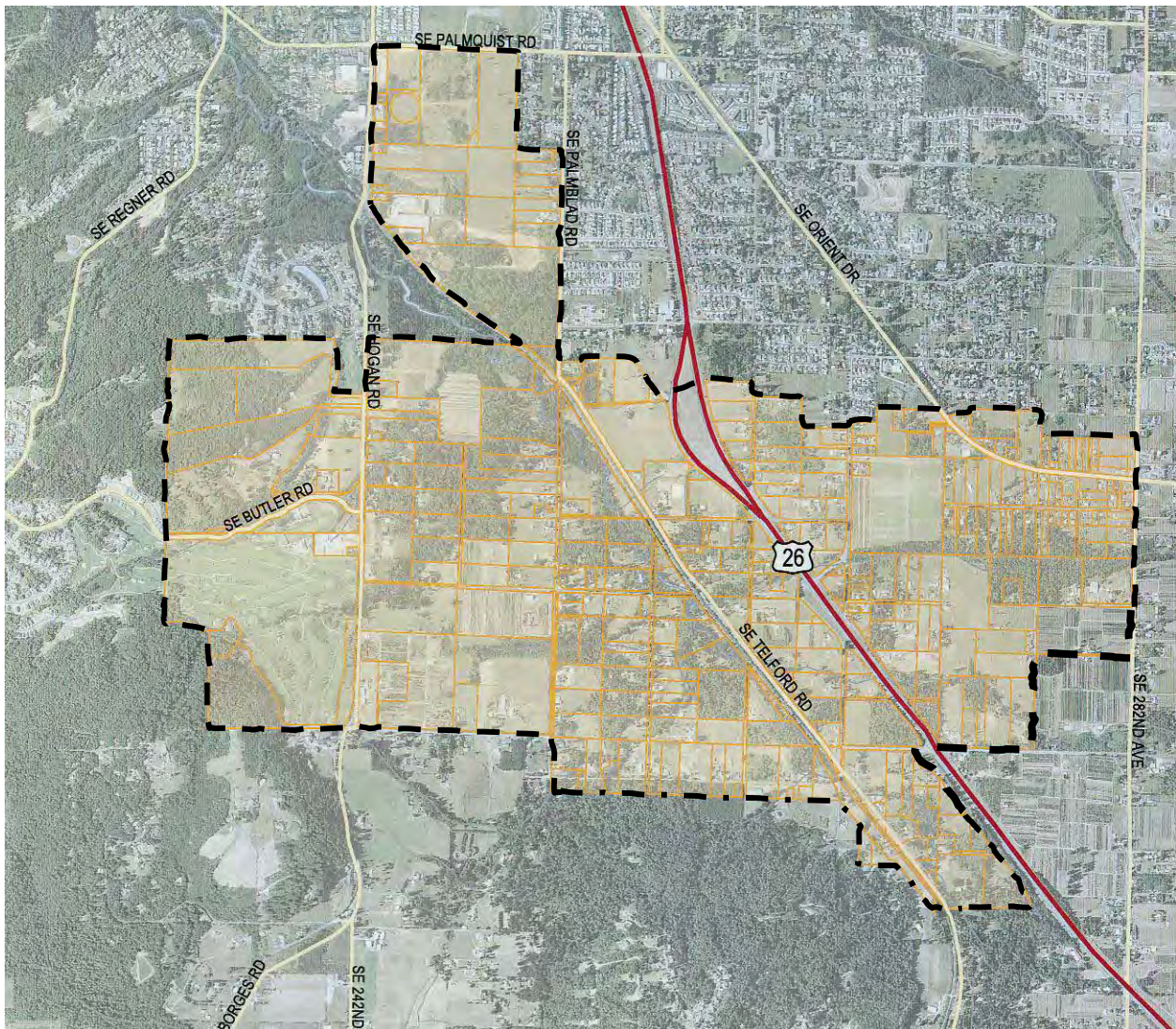


Figure 3.1 Springwater Community Impact Area Boundary

3.4 ESEE RANGE OF ALTERNATIVES AND CONSEQUENCES

Goal 5 requires that the ESEE analysis address three alternatives. For each of the alternatives the analysis must examine the potential ESEE consequences of allowing, limiting or prohibiting a conflicting use to the natural resource site and to the permitted use (OAR 660-023-0040 (4)).

- Alternative One – Conflicting Use is Allowed
 - Examine the impact to the resource site if conflicting use is allowed.
 - Examine the impact to the permitted use if the conflicting use is allowed.
- Alternative Two – Conflicting Use is Limited.
 - Examine the impact to the resource site if conflicting use is limited.
 - Examine the impact to the permitted use if the conflicting use is limited.
- Alternative Three – Conflicting use Prohibited.
 - Examine the impact to the resource site if conflicting use is prohibited.
 - Examine the impact to the permitted use if the conflicting use is prohibited.

For each alternative the analysis will examine the economic, social, environmental and energy consequences of the conflicting use. Where possible, the ESEE analysis will incorporate allowances outlined in OAR 660-023-0040(4). The allowances described in the OAR include performing a single analysis for similar resource sites subject to the same zoning and applying a matrix of commonly occurring conflicting uses to resource sites.

The ESEE consequences section will only address conflicting uses identified for future zoning in those areas that are currently under the jurisdiction of Multnomah and Clackamas Counties. This is due to the following reasons:

- Gresham does not now and will not in the future have jurisdiction over the Springwater area until it is annexed.
- Current zoning remains under the jurisdiction of Multnomah and Clackamas Counties (City of Damascus) and therefore it is their responsibility for implementing all land use and zoning activities.
- Proposed Springwater Plan District for the Springwater Community Plan will not be implemented until the territory is annexed into the City of Gresham.

3.5 PROGRAM DEVELOPMENT

The ESEE analysis will become the basis for the City of Gresham to develop the program to achieve Goal 5 requirements. The City is required to determine whether to allow, limit or prohibit conflicting uses on the resource sites. Different resource sites may have different determinations. Some sites may allow some or all conflicting uses, while others may prohibit or restrict the number of conflicting uses. All combinations are acceptable as long as it is supported by the ESEE analysis.

The City will need to make a determination once the ESEE analysis is complete as to the program it will implement. Program decisions must be based on the ESEE analysis. Regardless of whether conflicting uses should be prohibited or, conversely, conflicting uses be allowed, the ESEE analysis must demonstrate with sufficient evidence either decision.

4.0 Conflicting Uses

4.1 INTRODUCTION

The following section identifies the conflicting land uses. The focus of the section is on types of changes to land that are allowed to occur within a zoning district and how those changes may conflict with Springwater's Goal 5 Resource sites.

Since OAR 660-023-0040(2) requires identification of conflicting uses "that exist, or could occur, with respect to significant Goal 5 resources", this section addresses zoning that currently exists and future zoning that has been proposed by the City after annexation of the Springwater Community Planning Area.

4.2 ZONING DESIGNATIONS, RESOURCE SITES AND ACREAGE CALCULATIONS

Within each of the zoning designations are activities and uses that are permitted outright and uses and activities that may be permitted should certain conditions be met. Permitted uses and conditional uses can potentially conflict with the environmental health of the resource sites. This section identifies the zoning districts and area of each zone that is located inside and outside of the significant resource sites.

4.2.1 Existing Zoning and Goal 5 Resource Sites

The following lists the three jurisdictions that are located in the Springwater Community Planning Area and the seven zoning districts for which they are responsible (See Figure 4.1).

- City of Gresham
 - Heavy Industrial District (HI)

- Multnomah County
 - Exclusive Farm Use District (EFU)
 - Multiple Use Agriculture District (MUA-20)
 - Rural Center (RC)
 - Urban Future (UF-20)

- Clackamas County
 - Rural Residential Farm/Forest 5 Acres District (RRFF-5)
 - Timber District (TBR)

Table 4.1 displays the area that each existing zone has within the Goal 5 resource sites that have been identified in the Springwater Community Planning Area.

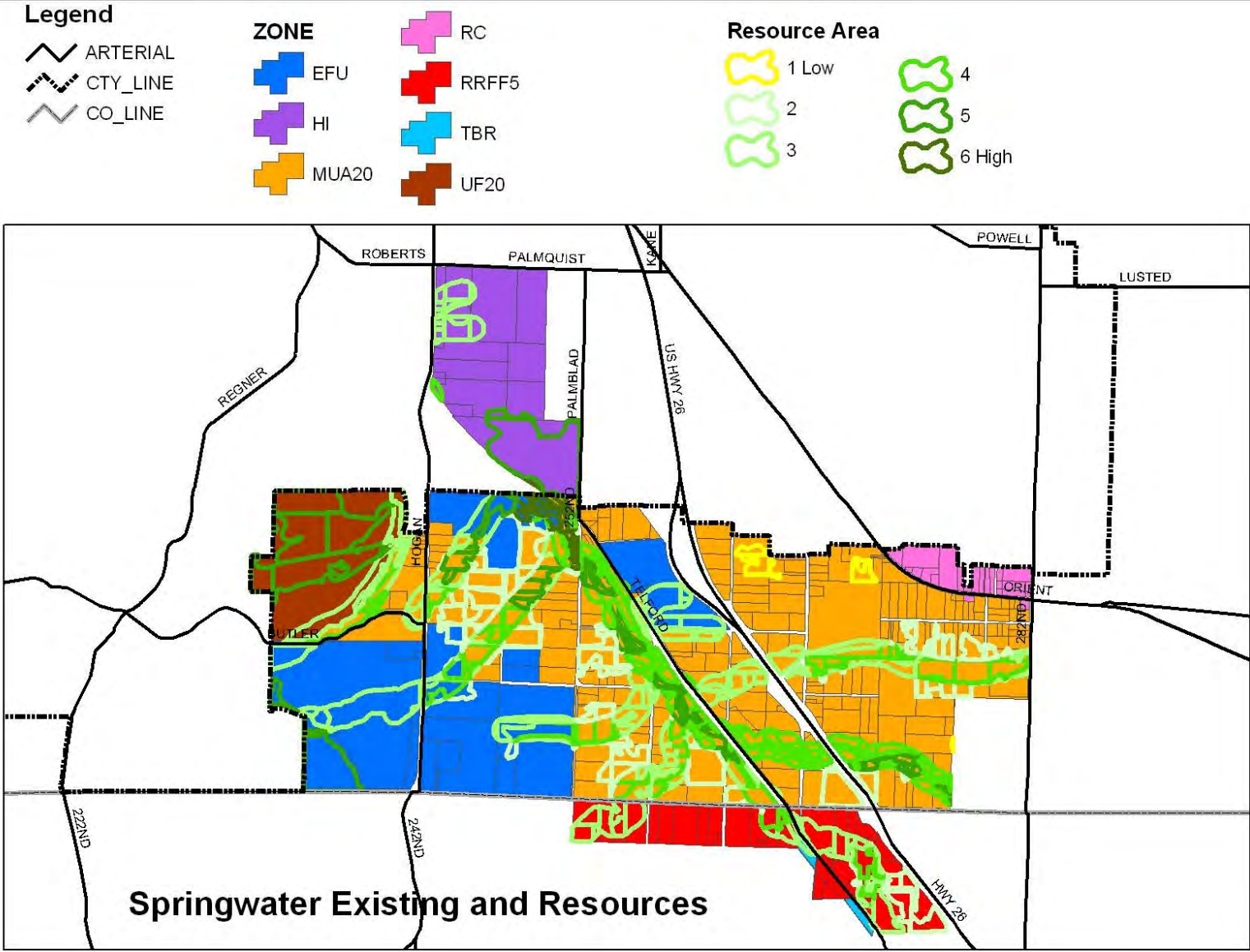


Figure 4.1 Current Zoning with Significant Resource Area Overlay

Table 4.1 Existing Zoning Districts and Goal 5 Resource Sites

Jurisdiction	Zone District	Total Acreage	Acreage Within Resource Sites	Acreage Outside Resource Sites
City of Gresham	HI	158.3	51.8	106.6
Subtotal		158.3	51.8	106.6
Multnomah County	EFU	352.6	102.7	249.9
	MUA-20	783.7	339.0	444.8
	RC	28.4	0.0	28.4
	UF-20	115.6	72.8	42.8
Subtotal		1,280.3	514.5	765.9
Clackamas County	RRFF-5	130.4	56.2	74.3
	TBR	4.0	0.8	3.9
Subtotal		134.4	57.0	78.2
Total Acreage		1,573.0	623.3	950.7

4.2.2 Proposed Zoning District and Goal 5 Resource Sites

The following lists the eight sub-districts (zones) that the City of Gresham is proposing to implement in the Springwater Community Planning Area once annexation is completed. Gresham will be responsible for implementing and enforcing all of these sub-districts (See Figure 4.2 for a display of proposed zoning sub-districts).

- City of Gresham
 - Very Low-Density Residential - Springwater (VLDR-SW)
 - Low Density Residential - Springwater (LDR-SW)
 - Townhouse Residential – Springwater (THR-SW)
 - Village Center – Springwater (VC-SW)
 - Neighborhood Commercial – (NC-SW)
 - Industrial – Springwater (IND-SW)
 - Research/Technology Industrial – Springwater (RTI-SW)¹
 - Environmentally Sensitive Resource Areas –Springwater (ESRA-SW)

¹ The district RTI-SW was formerly called OFF-SW, and is shown as such on Figure 4.1 and 4.2

Legend

- ARTERIAL
- CTY_LINE
- CO_LINE

NEW ZONE

VLDR-SW	THR-SW	OFF-SW
LDR-SW	NC-SW	IND-SW
	VC-SW	HI

Resource Area

1 Low	4
2	5
3	6 High

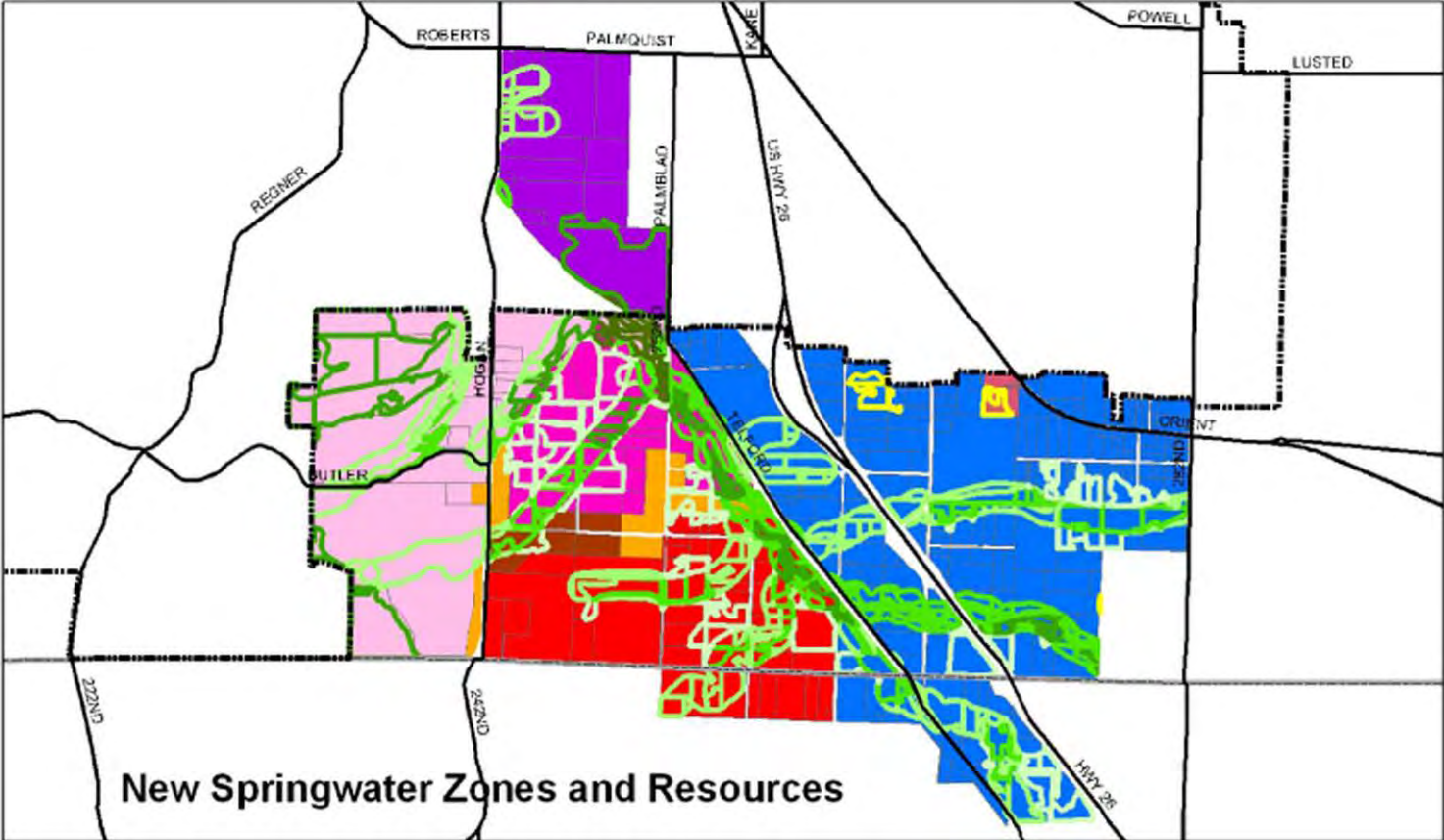


Figure 4.2 Proposed Zone Districts with Significant Natural Resource Area Overlay

Table 4.2 displays the area that each proposed zone has within the Goal 5 resource sites that have been identified in the Springwater Community Planning Area.

Table 4.2 Proposed Zoning and Environmentally Sensitive Resource Areas

Jurisdiction	Zone	Total Acreage	Acreage Within ESRA Boundary	Acreage Outside ESRA Boundary
City of Gresham (Springwater)*	VLDR-SW	202.2	0.0	202.2
	LDR-SW	99.4	0.0	99.4
	THR-SW	43.5	0.0	43.5
	VC-SW	23.3	0.0	23.3
	NC-SW	7.4	0.0	7.4
	RTI-SW	155.5	0.0	155.5
	IND-SW	462.2	0.0	462.2
	ESRA-SW (Springwater)	404.6	404.6	0.0
	SubTotal Acreage:	1,398.1	404.6	993.5
City of Gresham (Brickworks Area)	HI	106.5	0.0	106.5
	ESRA-SW	51.8	51.8	0.0
	SubTotal Acreage	158.3	51.8	106.5
Springwater & Brickworks Areas	Total Acreage:	1,556.4	456.4	1,100.0
City of Damascus (Clackamas Co.)	ESRA-SW	57.0	57.0	0.0
Total Acreage (Springwater, Brickworks, Damascus)		1,613.4	513.4	1,100.0

*Includes 115.6 acres of unincorporated Multnomah County that is located at the foot of the buttes west of Hogan Road.

4.3 USES PERMITTED BY ZONING DISTRICTS

Both existing and proposed district codes outline land use activities that are allowed within the particular zoning district. This section describes the allowable uses beginning with a narrative of each district's purpose and a brief list of potential conflicting uses that may negatively impact the environmental health of the Goal 5 resource sites, followed by a table displaying uses that are allowed outright and those allowed conditionally for each district.

4.3.1 Uses Permitted by Existing Zoning Districts

4.3.1.1 Existing Gresham Zoning Districts

Heavy Industrial

The Heavy Industrial District is primarily intended for industrial uses which are generally not compatible with residential development because of their operational characteristics, which can include noise and air pollution. The district is also intended for uses that may require extensive outdoor areas to conduct business activities, or for product storage or display. These regulations are designed to permit the development of land within the district in a manner consistent with efficient industrial operations.

Existing conflicting uses within the zone: manufacturing, storage, assembly, warehousing and industrial uses.

4.3.1.2 Existing Multnomah County Zoning Districts

Exclusive Farm Use

The purposes of the Exclusive Farm Use District are to preserve and maintain agricultural lands for farm use consistent with existing and future needs for agricultural products, forests and open spaces. In addition, it is designed to conserve and protect scenic and wildlife resources, as well as maintain and improve the County's air quality, water and land resources, and to establish criteria and standards for farm uses and related and compatible uses, which are deemed appropriate. Land within this district shall be used exclusively for farm uses as provided in the Oregon Revised Statutes (ORS) Chapter 215 and OAR Chapter 660, Division 33 as interpreted by this Exclusive Farm Use code section.

Existing conflicting uses within the zone: agricultural, mining/extraction uses, as well as residential, business and utility uses.

Multiple Use Agriculture - 20

The purposes of the Multiple Use Agriculture District are to conserve those agricultural lands not suited to full-time commercial farming for diversified or part-time agriculture uses. In addition, the district is designed to encourage the use of non-agricultural lands for other non-agricultural purposes, such as forestry, outdoor recreation, open space, low density residential development as well as appropriate conditional uses when these uses are shown to be compatible with the natural resource base, the character of the area and the applicable County policies.

Existing conflicting uses within the zone: agricultural, mining/extraction uses, as well as residential and business uses.

Rural Center

The purposes of the Rural Center District are to provide standards and review procedures that will encourage concentrations of rural residential development, together with limited local and tourist commercial uses which satisfy area and regional needs. In addition, the district is designed to provide for local employment through light industrial uses consistent with rural character and to manage the location and extent of public service centers and limit the extension of public services.

Existing conflicting uses within the zone: residential uses, public services, commercial uses, manufacturing uses.

Urban Future - 20

The purposes of the Urban Future Districts are to implement the growth management policy of the community plans and to provide for appropriate interim uses, which are consistent with the resource base, community identity and unique natural features pending the reclassification of specific areas for urban uses. To accomplish this purpose the district encourages retaining land suitable for future urbanization in large parcels in consideration of the levels of public services available, the characteristics of current uses, the needs for larger sites for planned future uses and for maximum flexibility in the preparation of future development plans. The district also is designed to provide for public review of other use proposals in order to assure compatibility with applicable Multnomah County policies.

Existing conflicting uses within the zone: agricultural, farm, and forest uses; mining and extraction uses; kennels; residential uses; community services.

4.3.1.3 Existing Clackamas County Zoning Districts

Rural Residential Farm/Forest - 5

The purposes of this district are to provide areas for rural living that is compatible with the continuation of farm and forest uses. The zone is intended to conserve the natural scenic beauty of Clackamas County, and to protect the watersheds of existing or potential major sources of municipal or domestic water supply from encroachment by uses that would affect the quantity or quality of water produced, protect wildlife habitats, and other such uses associated with the forest. Finally, the zone is designed to avoid the potential hazards of damage from fire, pollution, and conflict caused by urbanization.

Existing conflicting uses within the zone: rural residential and agriculture uses.

Timber District

The purposes of this zone are to conserve forest lands and protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of timber as the leading use on forest land. It is also designed to conserve, protect and enhance watersheds, wildlife and fisheries resources, agriculture, and recreational opportunities that are compatible with the primary intent of the zone. By doing so the district will help to minimize wildfire hazards and risks.

Existing conflicting uses within the zone: mining/extraction uses, agriculture and forest practice uses, parks and campground uses.

Table 4.3 Summary of Uses Permitted by Existing Zone Districts/Jurisdictions

Zone	Uses Permitted Outright or Prescribed Conditions	Uses Permitted Conditionally	Minimum Lot Size / Allowed Density
Gresham			
HI	<ul style="list-style-type: none"> • Manufacturing, assembly and distribution activities • Storage and warehousing uses • Research and Development activities • Repair, finishing, testing activities • Commercial services • Retail sales activities • Wholesale activities • Industrial services • Laboratory activities 	<ul style="list-style-type: none"> • Community services 	20,000 sq. ft., building coverage may cover up to 75% of the lot.
Multnomah County			
EFU	<ul style="list-style-type: none"> • Farm and forest product harvesting uses • Farm use buildings, accessory structures • New dwellings, mobile/modular dwellings (not on high value farmland) • Geothermal and mineral Exploration/ production • Roads (detours, passing lanes, reconstruction) • Community service uses (schools, churches, cemeteries) • Emergency disaster response • Utility poles, towers 	<ul style="list-style-type: none"> • Commercial activities related to farm use • Mining and Geothermal processing operations • Parks (private and public) • Home occupations • Forest products processing (temporary) • Dog kennels • Aquatic species cultivation and harvesting • Dwellings (allowed on high value farmland) • Public road improvements related to rest stops, maintenance yards, etc. 	80 acres (exceptions can allow smaller lot sizes to a minimum of 19 acres); allowed density for dwelling unit dependent on factors such as soil class, but must be on a lot less than 21 acres.
MUA-20	<ul style="list-style-type: none"> • Farm and forest product uses including sale of farm and forest products • Residential dwelling construction • Conservation/ protection of water, soil, open space, forest and wildlife resources • Placement/ replacement of public safety structures 	<ul style="list-style-type: none"> • Mining and geothermal operations • Agricultural and forest products processing • Livestock and fowl raising • Dog kennel operations • Planned residential developments • Rural commercial uses (e.g., repair/maintenance shops, retail, etc.) • Tourist commercial uses 	1 dwelling unit/20 acres

Table 4.3 Summary of Uses Permitted by Existing Zone Districts/Jurisdictions

Zone	Uses Permitted Outright or Prescribed Conditions	Uses Permitted Conditionally	Minimum Lot Size / Allowed Density
RC	<ul style="list-style-type: none"> • Residential dwellings • Farm related commercial uses • Placement/ replacement of public safety structures 	<ul style="list-style-type: none"> • Community service uses • Rural commercial services • Tourist commercial services • Light manufacturing uses • Commercial agricultural processing uses • Home occupations • Large fills • Family day care uses 	1 acre (some exceptions that can reduce the lot size); dwelling unit/acre
UF-20	<ul style="list-style-type: none"> • Residential dwellings • Agricultural and animal husbandry activities • Forest product activities • Home occupation activities • Conservation activities (e.g., water, soil, open space, forest and wildlife resources) • Emergency response and public safety activities 	<ul style="list-style-type: none"> • Community services • Agricultural product processing activities • Animal husbandry activities • Mining and processing of geothermal resource activities • Dog kennel activities • Log storage and sorting activities 	1 dwelling unit/ 20 acres
Clackamas County			
RRFF-5	<ul style="list-style-type: none"> • Rural residential • Farming and forest operations • Resource conservation uses • Non-profit recreation uses • Utilities and wireless telecommunication facilities • Accessory structures and signs • Home occupations and family daycare • Produce stand 	<ul style="list-style-type: none"> • Public facilities • Community service uses (churches, schools, day care center) • Aircraft land uses • Sanitary landfills • Commercial recreational uses • Mining and geothermal • Commercial activities associated with timber and farm uses 	1 dwelling unit/5 acres

Table 4.3 Summary of Uses Permitted by Existing Zone Districts/Jurisdictions

Zone	Uses Permitted Outright or Prescribed Conditions	Uses Permitted Conditionally	Minimum Lot Size / Allowed Density
TBR	<ul style="list-style-type: none"> • Farm and forest operations/ practices • Conservation activities (e.g., wildlife, fisheries, water quality, soil, air) • Mining and gravel extraction uses • Residential development • Road maintenance • Utility installation/ service (electrical, wireless communication, gas, water supply) activities • Irrigation activities • Home occupation uses 	<ul style="list-style-type: none"> • Forest products uses • Park and campground uses • Mining, exploration, processing subsurface resource activities • Solid waste disposal site • Fire station and protection activities • Utility activities (e.g., wireless communication, electric transmission, power generation, etc.) activities. • Water supply impoundment activities • Cemeteries • Asphalt production activities • Aircraft and navigation aid activities • Public road improvement activities • Composting activities 	Varies subject to parcel size and conditions: 1 dwelling unit/200 acres; 1 dwelling unit/160 acres, and up to 5 dwelling units/160 acres

4.3.2 Uses Permitted by Proposed Zoning Districts

4.3.2.1 Proposed Springwater Zoning Districts

Very Low Density Residential - SW

The district purpose is primarily intended for single-family detached dwelling development. Lot sizes are larger than the other proposed residential districts to create more open space and lower density residential areas. The district covers the largest land area of the three residential districts and is located on the western portion of the Springwater Community area. The district is designed for the most constrained lands where low-density development will result in less disruption of the landscape. In addition, the areas on the small volcanic butte with views of Mt. Hood are included, offering the opportunities for larger lots with scenic views.

Potential conflicting uses within the zone: residential uses and community services.

Low Density Residential - SW

The purpose of this district is intended primarily for residential development. The district provides a range of residential options with greater urban density than the Very Low Density Residential - SW District. It consists primarily of detached and attached dwellings, but attached housing must be on its own lot. The district covers the next largest land area of the three residential districts and is located west of Telford Road, generally north of McNutt and east of Hogan Roads.

Potential conflicting uses within the zone: residential uses, community services.

Townhouse Residential - SW

Like all the residential districts proposed for the Springwater Community this district is primarily intended for residential development. This district is designed to allow for the greatest residential density of the three districts purposed in the Springwater Community area and is located in three smaller areas all located west of Telford Road and adjacent to the Village Center and Industrial districts and the Very Low Density Residential and Low Density Residential districts. It consists of detached and attached dwellings like Low Density Residential district but double the dwelling unit density. In addition to attached single-family homes, it is intended to allow for detached single-family homes on small lots, also called patio, cottage or green court homes. Like the Low Density Residential zone, each home must be on its own taxlot, and duplexes are not allowed

Potential conflicting uses within the zone: residential uses, live-work uses, community services.

Village Center - SW

The Village Center - SW sub-district (VC-SW) is intended to provide retail and services to the Springwater Community employees and residents. The district will be located in a rectangular band of land west of 242nd Street and east of Hogan Avenue. It will contain a mix of retail, office, and civic uses, and housing opportunities in a pedestrian oriented area. The Village Center shall be the focus of retail, civic, and office related uses, and services that serve the daily needs of the local neighborhood and the adjacent employment areas. It shall be served by a multi-modal transportation system with good access by vehicular, pedestrian, bicycle, and when appropriate, transit traffic.

Potential conflicting uses within the zone: business, professional and retail trade/services, residential uses, utility services, education and public services (community services).

Research/Technology Industrial - SW

The Research/Technology Industrial sub-district (RTI-SW) is primarily intended to provide industrial uses in a business/office park setting. Primary uses shall include knowledge-based industries (graphic communications, creative services, etc.), research and development facilities and corporate headquarters. Emphasis is placed on business suited to a high environmental quality setting. The design will create pedestrian-friendly areas and utilize cost effective green development practices.

The proposed location of this district is along the southern portion of Springwater west of Telford Road, extending into Clackamas County (note that the RTI-SW shown in the Clackamas County area is only for analysis purposes as the land is in the City of Damascus). This area is one of more varied topography, and buildings with smaller footprints are expected to locate here. Also, the research/technology uses do not require that the entire site be at the same level, as is frequently the case with other industrial uses. No residential uses are permitted. This sub-district is expected to interact with the Village Center sub-district to provide retail and entertainment needs for persons employed in the area.

Potential conflicting uses within the zone: business, professional and retail trade/services, utilities, education and public services (community services).

Industrial - SW

The Industrial (I-SW) sub-district is intended to provide industrial land for the City and the east metro area. It is the largest district and is located generally east of Telford Road, except for a small area west of Telford Road in Clackamas County and a triangular shaped portion extending into Multnomah County bounded on the west by 267th Street and on the east by Telford Road. Note that the I-SW shown in the Clackamas County area is for analysis purposes only as the land is within the City of Damascus.

It will be predominantly a mix of manufacturing and information industries, with a high degree of use diversity. It is intended to have an aesthetic appearance of a business park with a high degree of sustainable design practices, reflecting the water quality and quantity concerns of the area as well as the sensitive streams that cross the district.

Potential conflicting uses within the zone: business, medical; and professional services; manufacturing, construction and warehousing activities; public, educational and community services.

Neighborhood Commercial –SW Sub-district

The purpose of the Neighborhood Commercial (NC-SW) sub-district is to provide for small- to medium-sized shopping and service facilities and limited office uses adjacent to residential neighborhoods. The district is intended to meet the shopping and service needs of the immediate neighborhood and to have minimal negative impacts on surrounding residential uses. It is located adjacent to the I-SW sub-district at the north edge of the Springwater Planning area with frontage on the southwest side of Orient Drive.

Potential conflicting uses within the zone: commercial and business uses, community services uses.

Heavy Industrial

The Heavy Industrial District is primarily intended for industrial uses which are generally not compatible with residential development because of their operational characteristics, which can include noise and air pollution. This sub-district will continue to be located in the same area as currently located. The district is also intended for uses, which may require extensive outdoor areas to conduct business activities or for product storage or display. These regulations are designed to permit the development of land within the district in a manner consistent with efficient industrial operations.

Existing conflicting uses within the zone: manufacturing, storage, assembly, warehousing and industrial uses.

Environmentally Sensitive Resource Areas (ESRA-SW)

The Environmentally Sensitive Resource Areas (ESRA-SW) sub-district provides a framework for protection of Metro Title 13 (Nature in the Neighborhoods) lands and Statewide Planning Goal 5 resources within the Springwater Plan District. The ESRA-SW is located on Goal 5 significant resource sites. It implements the Springwater Natural Resource Goals and Policies and is intended to resolve conflicts between development and conservation of streams corridors, wetlands, floodplains, and forests. The sub-district contributes to the following community objectives:

- Protect and restore streams and riparian areas for their ecologic functions and as an open space amenity for the community.

- Protect floodplains and wetlands, and restore them for improved hydrology, flood protection, aquifer recharge, and habitat functions.
- Protect upland habitats, and enhance connections between upland and riparian habitats and between Springwater habitats and nearby habitats.
- Maintain and enhance water quality and control erosion and sedimentation through the revegetation of disturbed sites and by placing limits on construction, impervious surfaces, and pollutant discharges.
- Conserve scenic, recreational, and educational values of significant natural resources.

Potential conflicting uses within the zone: unlike all other sub-district designations, the ESRA-SW does not have conflicting uses.

Table 4.4 Summary of Uses Permitted by Proposed Zone/Jurisdiction

Zone	Uses Permitted Outright or Prescribed Conditions	Uses Permitted Conditionally	Minimum Lot Size/ Allowed Density
City Gresham			
VLDR-SW	<ul style="list-style-type: none"> • Residential dwelling units • Accessory structures and dwellings • Home occupations • Temporary uses • Residential facility and home 	<ul style="list-style-type: none"> • Community services 	10,000 sq. ft.; 2.9-3.6 dwelling units/net acre
LDR-SW	<ul style="list-style-type: none"> • Residential dwelling units • Accessory structures and dwellings • Home occupations • Temporary uses • Residential facility and home 	<ul style="list-style-type: none"> • Community services 	5,000 sq. ft.; 5.8-7.3 dwelling units/net acre
THR-SW	<ul style="list-style-type: none"> • Residential dwelling units • Accessory structures • Home occupations • Temporary uses • Residential facility • Live-Work units 	<ul style="list-style-type: none"> • Community services 	Attached dwelling = 2,200 sq. ft.; Detached = 3,000 sq. ft.; 12.5-16 dwelling units/net acre
VC-SW	<ul style="list-style-type: none"> • Mixed use residential (office/residential with residential on upper floors) activities • Temporary uses • Home occupations • Offices • Clinic • Retail trade/services • Business services • Live-work residential uses (i.e., limited office, retail services, and/or business services with residential living space) 	<ul style="list-style-type: none"> • Community services 	None

Table 4.4 Summary of Uses Permitted by Proposed Zone/Jurisdiction

Zone	Uses Permitted Outright or Prescribed Conditions	Uses Permitted Conditionally	Minimum Lot Size/ Allowed Density
RTI-SW	<ul style="list-style-type: none"> • Finance and insurance services • Real estate and rental and leasing • Professional, Scientific, and technical services • Management of companies and enterprises • Health care and social assistance • Arts, entertainment, and recreation • Accommodation and food services • Public Administration • Retail trade • Transportation and warehousing • Information uses • Educational Services 	<ul style="list-style-type: none"> • Community service (electric power and natural gas distribution, and water, sewage and other systems) 	5,000 square feet
IND-SW	<ul style="list-style-type: none"> • Construction • Management of companies and enterprises • Health care and social assistance • Arts, entertainment, and recreation • Accommodation and food services • Public Administration • Manufacturing • Wholesale trade • Retail trade • Transportation and warehousing • Information uses • Finance and insurance • Real estate and rental and leasing • Professional, Scientific, and technical services • Educational Services 	<ul style="list-style-type: none"> • Community services (electric power and natural gas distribution, and water, sewage and other systems) 	10,000 square feet

Table 4.4 Summary of Uses Permitted by Proposed Zone/Jurisdiction

Zone	Uses Permitted Outright or Prescribed Conditions	Uses Permitted Conditionally	Minimum Lot Size/ Allowed Density
ESRA-SW	<ul style="list-style-type: none"> • Stream, wetland, riparian, upland restoration and enhancement • Farming Practices as defined under ORS 215.203 (Exclusive Farm Use), excluding buildings and structures • Utility service poles that meet site installation requirements • Boundary and topographic surveys that meet survey requirements • Soil testing that meet testing requirements • Trails that meet siting, design, and construction specifications • Land divisions with tentative plans and approved building permit/construction plans that meet siting, design, and construction specifications (i.e., parcel's building sites, utilities, streets/driveways/parking outside ESRA), ESRA-SW portions of lot protected by conservation easement or entire lot or tract created and dedicated for unimproved open space • Routine repair and maintenance of existing structures, roadways, driveways and utilities • Replacement, additions, alterations and rehabilitation of existing structures, roadways, utilities, etc. where there is no increase in impervious surface • Measures mandated by city of Gresham to remove or abate nuisances or hazardous conditions • Planting native vegetation, removal non-native vegetation that meets City of Gresham requirements 	<ul style="list-style-type: none"> • Existing structure alteration that does not violate uses exempted by uses allowed outright • Vacant lot development with less than 3,500 sq. ft. buildable area outside the ESRA-SW portion of the property. • Land division creating a new lot for an existing residence currently within the ESRA-SW • Trails/pedestrian paths that are not exempted under the uses permitted outright • New roadways, bridges/creek crossings, utilities or alterations to such facilities that are not already exempted by uses permitted outright 	Varies based on significant resource location and classification

Table 4.4 Summary of Uses Permitted by Proposed Zone/Jurisdiction

Zone	Uses Permitted Outright or Prescribed Conditions	Uses Permitted Conditionally	Minimum Lot Size/ Allowed Density
NC-SW	<ul style="list-style-type: none"> • Eating and drinking establishments • Insurance agencies, real estate and other offices • Grocery stores • Personal service establishments • Retail businesses • Community services • Temporary uses • Home occupations (only within pre-existing homes) • Temporary health hardship dwellings (only in conjunction with pre-existing single-family homes) 		10,000 square feet
HI	<ul style="list-style-type: none"> • Manufacturing, assembly and distribution activities • Storage and warehousing uses • Research and Development activities • Repair, finishing, testing activities • Commercial services • Retail sales activities • Wholesale activities • Industrial services 	<ul style="list-style-type: none"> • Laboratory activities • Community services • Home occupations • Temporary health hardship dwellings 	20,000 sq. ft., building coverage may cover up to 75% of the lot.

4.4 CONFLICTING USE ENVIRONMENTAL IMPACTS

This section describes potential adverse environmental consequences of allowing development adjacent to and within the significant resource sites. The section is divided between the existing zone districts and the proposed zone districts. Conflicting uses have also been grouped into general use categories in order to minimize repetition for each zone district.

4.4.1 Existing Zone District Conflicting Use Environmental Impacts

4.4.1.1 Agricultural, Farm Uses

Agricultural and farm uses are allowed in four of the seven existing zoning districts. These activities include crop growing, animal husbandry, agricultural product processing and associated commercial activities to support the farming uses.

While agricultural activities can have a positive impact on significant resources (e.g., wildlife food source, run-off filtering, habitat cover and connectivity), there are activities associated with agricultural and farming practices that can have detrimental impacts related not only to activities concentrated in the area of the farm buildings where conflicting impacts may be similar to residential development (see below for further discussion) but, more importantly, on the larger land areas where the farming practices occur.

Agricultural uses often require plowing fields and exposing bare soil causing erosion that degrades water quality, which can adversely impact aquatic habitat. The conversion of forests

to farmland replaces diverse, complex forest plant communities with a few, cultivated, non-native species. Vegetation acts as a filter, cleansing runoff before it reaches streams or wetlands. Tilling of the soil and removal of vegetation for agricultural uses reduces these water quality benefits. Further, conversion of forests to farmland can reduce tree cover canopy leaving fragmented forest patches instead of corridors on which wildlife rely for travel, foraging and protection (see forest uses below).

Agriculture typically (but not always) involves the use of pesticides, herbicides, and fertilizers. These chemicals can contaminate surface and groundwater areas and harm fish and wildlife.

Animal husbandry (livestock) activities can degrade stream water quality as well as accelerate erosion in riparian areas. Concentrated animal waste and unimpeded access to streams and water bodies can result in contaminated run-off to streams, additional channel down-cutting along stream banks, loss or degradation of riparian vegetation and wetland areas and detrimental impacts to aquatic habitat. Presence of livestock can also degrade wildlife habitats that depend on riparian cover and the natural function and value of the riparian, stream, wetland interface for survival.

Agriculture may draw irrigation water from wells or directly from streams. Extensive use of groundwater can result in draw down of the water table, which in turn can reduce groundwater discharge to streams and degrade fish and wildlife habitats. Use of water from streams directly reduces flow. These surface water reductions are most common during the summer growing season when natural stream flows are low and the potential adverse impacts to fish are the greatest.

Commercial and other activities associated with agriculture uses generally have detrimental effects similar to residential uses. That is, these activities share with residential uses such as buildings, structures, and parking lots, which may increase the detrimental impacts of impervious surfaces (e.g., reduced infiltration and higher runoff, lower groundwater levels, interference with the transfer of air and gases from the soil). Commercial uses may also involve increased risk of pollution from oil, gasoline, and other vehicle-related contamination.

4.4.1.2 Forestry Facilities

Forestry and associated activities, like agricultural and farming practices is one of the most commonly allowed activities in all the existing zone districts. Forest activities are allowed in four of the seven zone districts, although the one district that is dedicated exclusively to promoting forest growing and harvesting practices, Clackamas County's Timber District, occupies only a tiny four acre portion of the Springwater area (less than 1% of the entire area). While there are still significant tree groves located in the Springwater Community, the area has a history of timber harvests that has resulted in the clearing of most of the Springwater area for agricultural activities. Even existing tree groves are third and even fourth generation stands.

Forestry uses can have major impacts on watershed health. Timber harvest and particularly clear-cutting increases the rate and volume of runoff to streams as well as stream velocity. Such runoff to streams can promote sediment transport, soil loss and erosion, channel down-cutting, bank undercutting and failure, and increased risk of landslides and floods, which can also lead to riparian vegetation and wetland loss.

Removal of vegetation eliminates habitat for native wildlife. Clearing also removes important structural features of the forest and creates fragmented patches. Forest fragmentation increases the isolation of one habitat area from another. As the range of habitat for indigenous

wildlife becomes restricted and isolated, opportunities for recruitment from other areas are limited and wildlife populations become vulnerable to disease, predation, and local extinction.

The forestry impacts on watershed hydrology are not generally permanent since harvested areas are replanted with trees or allowed to naturally recover, although recovery is slow. Impacts to wildlife habitat can be permanent when diverse native forest is replaced with intensively managed single-species tree farming. Herbicides and fertilizers may be used and the tree stands grow to be more dense and even-aged than natural forest conditions with little or no understory structure. Such commercial forests have limited value for wildlife.

Forest operations and commercial operations can have similar impacts as the previously described farm operations. Staging areas, log sorting and storage areas, and accessory building/structures as well as parking areas can increase run-off and erosion that is associated with impervious surfaces. Traffic and motorized equipment may increase risk of pollution from oil, gasoline, and other vehicle-related contamination.

4.4.1.3 Mining and Extraction Facilities

Mining is a conditional use in five of the seven zoning districts. Mining generally has the most severe environmental impacts of all uses allowed. All resources are normally eliminated. Once a mining operation is closed, some restoration of soil, vegetation and other resources may be possible but resources will remain permanently degraded.

Springwater has no active gravel extraction or mining activities. From a practical standpoint there will not likely be such activities that would meet the conditional requirements for such activities.

4.4.1.4 Residential Dwelling Facilities

Residential dwellings are permitted in four of the seven existing zone districts. Lot sizes are generally low density, ranging from the greatest density of one dwelling unit per acre to the lowest density of one dwelling unit per 200 acres. Most zoning districts, however, do have some exceptions that could allow slightly greater dwelling densities.

Residential Dwelling Facilities typically allow the construction of accessory structures and features such as garages, storage sheds and other buildings, and driveways, parking areas, lawns and managed landscaped areas. In addition, septic systems and drain fields, and related development necessary to support a residential structure are allowed.

There are both short-term, construction-related impacts, and long-run or permanent environmental conflicts. Short-run conflicts occur when preparing land for and constructing the dwelling or accessory structures. This short-term period may also happen with dwelling restoration, remodeling or rehabilitation of an existing structure.

Short-run conflicts may not have long lasting impacts, but can temporarily create environmental problems that may take time to restore natural functions. These temporary conflicts include any land clearing or vegetation removal related to staging areas, storage of materials, parking of equipment, etc. Equipment clean-up (concrete wash-down, paint clean-up, etc.) in construction areas can also contribute to contamination. These activities can cause erosion, increased run-off, and soil contamination. Impacts to streams may include water quality degradation and increased sedimentation, which can affect aquatic resources. In addition, construction noise can have a detrimental impact on wildlife, especially during nesting periods.

Building a dwelling and accessory structure commonly includes excavation and removal of vegetation, or “ground disturbing activities.” Excavation and removal of vegetative cover eliminates habitat for native wildlife and increases the likelihood of erosion. Lost habitat includes feeding, nesting, perching and roosting places for birds, and loss of feeding, nesting and refuge areas for mammals, reptiles, amphibians, fish, and insects. Clearing also removes important structural habitat elements of the forest such as multiple layered canopies, snags and downed logs, and large trees. These habitat components may be removed and replaced with lawns and ornamental, non-native vegetation. Impervious surfaces such as buildings, long driveways, and large vehicle parking and maneuvering areas also may permanently replace native habitats.

Landscape trees, shrubs, and groundcover plants often include invasive, non-native species that escape into natural areas and compete aggressively with natives. For example, English ivy and holly are commonly used in residential landscapes and have escaped into nearby natural habitats in some parts of the valley.

Forest fragmentation caused by the clearing of vegetation for residential uses increases the isolation of one habitat area from another, and can result in similar environmental conflicts identified in the previous forest section. The lack of habitat connectivity (except along stream corridors) limits wildlife migration opportunities. Roads (and roadway traffic) and fences can form barriers to wildlife migration. As the range of habitat for indigenous wildlife becomes restricted and isolated, opportunities for recruitment from other areas are limited and wildlife populations become vulnerable to disease, predation and local extinction.

The construction of homes, outbuildings, roads and other impervious surface facilities, and the replacement of native vegetation with lawns and landscaped areas has adverse consequences on watershed function. Increased impervious surface and vegetation loss leads to increased storm runoff and peak flows in streams, resulting in erosion, bank failure, flooding, and significant loss of fish and aquatic habitat function.

The increase in impervious surface and storm runoff also leads to reduced groundwater recharge and altered volumes of water in wetlands and streams contributed by groundwater. This can alter an area's hydrology by lowering surface water levels or groundwater tables and removing a local source of water essential to the survival of fish, amphibians and aquatic organisms as well as terrestrial animals. Clearing and grading activities can reduce the capacity of soil to support vegetation and absorb groundwater by reducing soil fertility, microorganisms, and damaging soil structure.

Pollution associated with residential development such as oil, gasoline, tar, antifreeze, and other contaminants from vehicles, heating and cooling systems, and roofs degrade habitat and water quality. Heated runoff from roads and vehicle maneuvering areas impacts water quality in streams by raising temperatures and stressing local fish runs. Pesticides, herbicides, and fertilizers used on rural residential landscaping and fields can pollute ground and surface waters and degrade habitat.

4.4.1.5 Heavy Industrial Facilities

Large scale and intensive industrial uses are allowed in one of the seven zone districts (City of Gresham Heavy Industrial Zone). The scale of activities and the facilities necessary to support industrial uses can significantly conflict with resource sites. Activities such as manufacturing, assembly, storage and warehousing require large structures and impervious surfaces, as well as transportation networks needed to move materials and goods into and out of the area. The

City recognizes that these activities are intensive and extensive, and consequently allow building coverage to cover up to 75% of a 20,000 square foot lot.

To provide these facilities large land areas must be cleared, soil excavated to level grade variation, and vegetation removed to build structures and pave outdoor areas. Roads must be constructed to handle heavy vehicle traffic. The result is increased stormwater run-off volumes that can cause erosion and transport sediment as well as contaminants (e.g., petroleum, manufacturing chemical spills, etc.) to streams and wetlands.

This can have long-term consequences on riparian areas, wetlands and streams and the terrestrial and aquatic habitat that it supports. Unchecked, the long-term impacts can be increased flood events, increased stream water temperature and sediment that can cover spawning gravels. Overall, water quality would be degraded and the functions and value that the resource site provides would be reduced.

4.4.1.6 Park and Recreation Facilities

Two zone districts allow development of park and recreation activities. Park and recreation uses typically focus on public and private parks, recreational grounds, hiking and horse trails, and other similar uses. While most such lands tend to have few structures and facilities and therefore minimal conflict with the environmental resources, the Timber District allows campgrounds as a conditional use. Such uses can conflict with resource sites because of the facilities and features necessary to support camping activities.

Parks and recreation construction and maintenance practices can cause erosion and damage vegetation and habitat. Removal of vegetation, creation of impervious surfaces such as roads, parking lots, and construction of buildings are activities associated with development of parks. These activities normally require less impervious surface coverage than residential uses yet, though they may have fewer environmental impacts, they can still increase run-off and erosion.

Recreational trails can have very few impacts on natural resources depending on their location, design, and materials used for construction. Trails that are close to or within riparian areas, designed wide enough to accommodate bikes or other wheeled equipment require cut and fill to minimize grade differential, and use impervious materials. This can result in increased run-off and native vegetation removal. Such impacts could disrupt the natural filtering processes of vegetation.

4.4.1.7 Community Service Facilities

Community service facilities are allowed in four of the seven zoning districts. These uses generally provide a local service to people of the community, such as community centers, schools, daycare centers, religious institutions and cemeteries. These uses have similar impacts as those described for residential uses, but usually with greater impervious surface impacts related to larger buildings and parking areas (e.g., reduced infiltration and higher runoff, lower groundwater levels, interference with the transfer of air and gases from the soil). Schools may have significant impacts for this reason. By contrast, daycare uses are normally small in size and often contained within other buildings (e.g., religious institutions or community centers). Grounds maintenance for community service uses has the same effects as those described for parks and recreation.

4.4.1.8 Public Facilities, Utilities, and Communication Facilities

Public facilities, utilities, and communication facilities are allowed in five of the seven zone districts. Public facilities includes a broad set of activities such as roads, water, sewer, power transmission, wireless communication, and other public utilities infrastructure services such as water and sewer pump stations, water towers, and utility and communication poles.

Although operation of existing facilities may have limited adverse environmental effects, construction and maintenance practices for the facilities typically are greater. These activities may create cleared corridors that increase wind and light penetration into adjacent habitats, providing opportunities for the establishment of invasive, non-native plant species. Construction may fragment wildlife habitat areas, degrade wetlands and streams, increase stormwater runoff and erosion, and reduce forest cover.

Specific public infrastructure features can have detrimental impacts. Underground pipelines can upset local groundwater hydrology and groundwater flow to streams. Transportation facilities such as roads and bridges can result in water run-off and transport of petroleum contaminants, which can be detrimental to aquatic species, wetlands, and riparian areas. If designed correctly, bridges can span streams and riparian areas, but often they do not and therefore can result in modifying stream flow as well as increasing sedimentation, which fill gravels that fish rely on for spawning. In addition, bridges can increase channel down-cutting and increase the risk of bank failure.

Communication towers can also conflict with the resource sites. Their effects can be similar to residential uses, but with less impervious surface and greater adverse visual impacts. Communication towers can be tall, which can be deadly to birds, which are attracted by the tower lights. Some facilities require cables to be laid in the ground, with potential impacts to wetlands, streams, and vegetation, and associated fauna.

Public facility construction that includes structures generally have the same effects as those described for residential uses. That is, staging areas, equipment storage and cleaning can have a negative impact on the resource sites through erosion, contamination transport, and vegetation removal.

4.4.1.9 Aircraft Land Uses

Aircraft land uses are allowed as conditional land uses in two of the seven zone districts (RRFF-5, TBR). These uses involve only light airplane operations serving local or agricultural needs and have impacts comparable to those for commercial uses described above.

4.4.2 Proposed Zone District Conflicting Use Environmental Impacts

4.4.2.1 Introduction

Unlike existing zoning districts and their conflicting uses that are addressed in the previous section, the proposed zone districts in the Springwater Community Plan have considered the potential conflicting uses that could impact significant environmental resource sites and have integrated design and development features that avoid, minimize, or mitigate the potential impacts. That is, the code incorporates features that “mimic” the natural functions of the surrounding environmental processes (e.g., management of run-off, landscaping, tree replacement, etc). These features are a critical component of the zoning code and cover design requirements as well as operations and maintenance activities to ensure that the zone districts continue to operate in an environmentally friendly and sustainable fashion as much as possible.

While there are inevitable conflicting uses, they are expected to be minor compared to existing zone districts.

4.4.2.1 Urbanized Residential Facilities

The Springwater Community Plan proposes three exclusively residential zone districts (VLDR-SW, LDR-SW, and THR-SW) and a mixed use zone district (VC-SW) that allows residential living, which are designed to provide a diverse range of housing. It will encourage transition from its current rural residential character to a more densely urban oriented character (approximately 3 to 16 dwelling units per acre) to support employment growth in the Springwater Community and eastern Multnomah and Clackamas Counties. Such higher density residential uses, though, could conflict with environmental resource sites.

The construction of homes whether single-family detached or attached will result in greater land coverage with impervious surfaces such as dwellings, garages and accessory structures, driveways, and parking areas. In addition, supporting infrastructure such as roads and utilities would also contribute to the total impervious surface area.

Land clearing for residential development will remove native vegetation as well as trees. Even with landscaping requirements to encourage replacement with native vegetation and requirements for tree replacement, there will be less area for these natural functions and processes to take place. There will also be non-native landscaping such as lawns and managed landscape areas (roads and utilities).

The resulting conflicting uses would likely be habitat loss, including feeding, nesting, perching and roosting places for birds, and loss of feeding, nesting and refuge areas for mammals, reptiles, amphibians, fish, and insects. There would also be a potential for increasing stormwater run-off volumes that could include contaminants washed from driveways and streets. Greater water run-off volumes would increase erosion as well as sediment transport that could enter streams. Flooding and stream bank down-cutting and failure from increased volumes and velocity would impact riparian vegetation, wetlands, and aquatic habitat. Lack of water filtration could impact groundwater hydrology and impact water temperature in streams and wetlands. Contaminants can degrade water quality. Sediments can cover gravels, preventing fish from spawning.

There is also the potential for short-term uses that conflict with resource sites. Staging areas for storing construction materials, parking equipment, cleaning equipment (e.g., cement trucks, paint and solvent cleaners, etc.), and even construction noise could have negative consequences. These supporting activities for residential development could reduce food sources, contaminant soil, and, depending on the season, disrupt bird nesting and foraging patterns.

The environmental impacts of this type of development are somewhat similar to those that have been described in the previous section on residential development in existing zone districts, however the impacts could be on a much greater scale due to the increased density.

4.4.2.3 Commercial and Employment Facilities

Commercial and Employment uses, including retail, service, and office/office parks, are in four of the nine proposed zone districts (VC-SW, RTI-SW, I-SW, NC-SW). The environmental impacts of these uses are generally similar to the impacts related to residential uses described in the previous section. The scale of the impacts, however, would be expected to be greater

primarily because of the greater amount of impervious surface and larger size of buildings and accessory structures.

In particular, the VC-SW, NC-SW and commercial areas, which will allow dense urban development (primarily commercial retail) to support the residential and business communities, will have significant conflicting uses. There will be greater impervious surface due to shorter blocks, higher street development densities, and more parking lots. The area will be designed as a walkable center where commercial and businesses are compact and close by therefore there would not be large landscaped yards or wide stream buffers.

RTI-SW zone district would have some of the same conflicting uses, although, the scale of development will not be as dense. Development would be more “campus” oriented with landscaped areas. Multi-story buildings will result in smaller footprints, which will allow some flexibility in design to avoid or minimize environmental impacts. Nevertheless, there will be large areas of impervious surfaces from parking lots, roadways, and buildings.

The conflicting uses would result from land clearing, ground excavation and disturbance, vegetation removal, replacement with impervious surfaces, and reduction of open space for the operation of natural processes (e.g., groundwater percolation, contaminant filtering, etc.). From this would be a higher risk of soil erosion, increased stormwater run-off, stream water quality degradation, and potential habitat loss (aquatic as well as terrestrial).

4.4.2.4 Heavy Industrial Facilities

Large scale and intensive industrial uses will continue to be allowed in one of the nine proposed zone districts (Heavy Industrial Zone). While this existing zone district will require the adoption of the “Green Development Practices” that are proposed for the new zone districts, the scale of activities and the facilities necessary to support industrial uses could still significantly conflict with resource sites.

Activities such as manufacturing, assembly, storage and warehousing require large structures and impervious surfaces, as well as transportation networks needed to move materials and goods into and out of the area. These activities are intensive and extensive, and the zone allows buildings to cover up to 75% of a 20,000 square foot lot. The remaining portion of the lot can be paved as necessary to support the industrial activity.

To provide these facilities large land areas must be cleared, soil excavated to level grade variation, and vegetation removed to build structures and pave outdoor areas. Roads must be constructed to handle heavy vehicle traffic. The result will be increased stormwater run-off volumes that can cause erosion, and transport sediment as well as contaminants (e.g., petroleum, manufacturing chemical spills, etc.) to streams and wetlands.

This can have long-term consequences on riparian areas, wetlands and streams and the terrestrial and aquatic habitat that it supports. Unchecked, the long-term impacts can be increased flood events, increased stream water temperature and sediment that can cover spawning gravels. Overall, water quality would be degraded and the functions and value that the resource site provides would be reduced.

4.4.2.5 Industrial Facilities

One zone district is designed to provide land for industrial activities (IND-SW). The types of facilities to be developed in this zone district will support research, development and information activities; and some light manufacturing and warehousing. In the proposed Springwater Plan District the emphasis is on a mix of facilities and sustainable design practices that are integrated into structures and surrounding land.

Conflicting uses will likely occur. Land clearing, excavation, vegetation removal, building and accessory structure construction, parking lots, maneuvering areas, infrastructure support, streets and roads, and open paved areas could conflict with resource sites. These types of impacts are similar to those described in the previous urban residential section. However, they will have a greater degree of conflicting uses because the I-SW zone district covers more land than any of the other eight zone districts and allows greater overall development density.

4.4.2.6 Community Service Facilities

Community service facilities covers a wide set of facilities. Some community service facilities are allowed in eight of the nine zoning districts (VLDR-SW, LDR-SW, THR-SW, VC-SW, RTI-SW, IND-SW, NC-SW,). Not all zone districts, however, allow the same set of community services. Restrictions on the types of community services permitted are detailed in Springwater Community Plan Report, which identifies the allowed community services for each zone district (detailed definitions are in the City of Gresham Development Code: Article VIII Special Uses, Section 8.0100, Community Services).

Community services generally provide a local service to people of the community, such as community centers, public buildings, schools, daycare centers, religious institutions, cemeteries, community parks, campgrounds and public plazas. Utilities (e.g., water, sewer, cellular communication, telephone, power transmission) are also listed as a community service, though, due to their conflicting use impacts, they are discussed in the next section.

Community service facilities have similar impacts as those described for residential uses, but usually with greater impervious surface impacts related to larger buildings and parking areas (e.g., reduced infiltration and higher runoff, lower groundwater levels, interference with the transfer of air and gases from the soil, etc.). Schools may have significant impacts for this reason. By contrast, daycare uses are normally small in size and often contained within other buildings (e.g., religious institutions or community centers).

4.4.2.7 Public Facilities, Utilities, Communication Facilities

Public facilities and utilities are allowed in all proposed zone districts, although the ESRA-SW zone district has very restrictive standards for utilities. Public facilities and utilities includes a broad set of facilities such as roads, water, sewer, and other public utilities infrastructure services such as water and sewer pump stations, water towers, and utility, power, and communication poles.

Although operation of existing facilities may have limited adverse environmental effects, construction and maintenance practices for the facilities typically are greater. These activities may create cleared corridors that increase wind and light penetration into adjacent habitats, providing opportunities for the establishment of invasive, non-native plant species. Construction may fragment wildlife habitat areas, degrade wetlands and streams, increase stormwater runoff and erosion, and reduce forest cover.

Specific public infrastructure features can have detrimental impacts. Underground pipelines may upset local groundwater hydrology and groundwater flow to streams. Transportation facilities such as roads and bridges can result in water run-off and transport of petroleum contaminants, which can be detrimental to aquatic species, wetlands, and riparian areas. If designed correctly, bridges can span streams and riparian areas, but often they do not and therefore can result in modifying stream flow as well as increasing sedimentation, which fill gravels that fish rely on for spawning. In addition, bridges can increase channel down-cutting, scour, and increase the risk of bank failure.

Communication towers can also conflict with the resource sites. Their effects can be similar to residential uses, but with less impervious surface and greater adverse visual impacts. Communication towers can be tall, which can be deadly to birds, which are attracted by the tower lights. Some facilities require cables to be laid in the ground, with potential impacts to wetlands, streams, and vegetation, and associated fauna.

Public facility construction that includes structures generally have the same effects as those described for residential uses. That is, staging areas, equipment storage and cleaning can have a negative impact on the resource sites through erosion, contamination transport, and vegetation removal.

4.4.2.8 Parks and Trail Facilities

Seven zone districts of the nine allow development of park and trail facilities (VLDR-SW, LDR-SW, THR-SW, VC-SW, RTI-SW, IND-SW, ESRA-SW). These activities typically focus on public and private parks, hiking and horse trails, and other similar uses. Most such lands tend to have few structures and facilities and therefore minimal conflict with the environmental resources. Such uses, though, can conflict with resource sites because of the necessary facilities and features to support the activities.

Parks construction and maintenance practices can cause erosion and damage vegetation and habitat. Removal of vegetation, creation of impervious surfaces such as roads, parking lots, and construction of buildings are activities associated with park development. These activities normally require less impervious surface coverage than residential uses yet they can still increase run-off and erosion, although they may have fewer environmental impacts.

Recreational trails can have few impacts on natural resources depending on their location, design, and materials used for construction. Trails that are close to or within riparian areas, designed wide enough to accommodate bikes or other wheeled equipment require cut and fill to minimize grade differential, and use impervious materials that can result in increased run-off and native vegetation removal. Such impacts could disrupt the natural filtering processes of vegetation.

The ESRA-SW sub-district only allows the development of trail facilities, no parks. The trail standards, though, are extremely restrictive in their design, location and construction materials. These restrictions minimize conflicting uses.

4.4.2.9 Agricultural, Farm Uses

Only the ESRA-SW sub-district allows farming uses that are related to Exclusive Farm Use as defined in ORS 215.203. The ESRA-SW further restricts development by prohibiting buildings and structures within the district. As defined in the ORS, activities that are allowed include crop growing, animal husbandry activities, propagation, cultivation, maintenance and harvesting of aquatic species, and all supporting activities necessary to manage these activities.

While prohibition of farm structures reduces some of the conflicting uses other farming activities can conflict with the resource sites. The conflicting uses include plowing fields and exposing bare soil causing erosion that degrades water quality, which can adversely impact aquatic habitat. Conversion of forests to farmland replaces diverse, complex forest plant communities with a few, cultivated, non-native species. Vegetation acts as a filter, cleansing runoff before it reaches streams or wetlands. Tilling of the soil and removal of vegetation for agricultural uses reduces these water quality benefits. Conversion of forests to farmland can reduce tree cover canopy leaving fragmented forest patches instead of corridors on which wildlife rely for travel, foraging and protection.

Agriculture typically (but not always) involves the use of pesticides, herbicides, and fertilizers. These chemicals can contaminate surface and groundwater areas and harm fish and wildlife.

Animal husbandry (livestock) activities can degrade stream water quality as well as accelerate erosion in riparian areas. Concentrated animal waste and unimpeded access to streams and water bodies can result in contaminated run-off to streams, additional channel down-cutting along stream banks, loss or degradation of riparian vegetation and wetland areas and detrimental impacts to aquatic habitat. Presence of livestock can also degrade wildlife habitats that depend on riparian cover and the natural function and value of the riparian, stream, wetland interface for survival.

Agriculture may draw irrigation water from wells or directly from streams. Extensive use of groundwater can result in draw down of the water table, which in turn can reduce groundwater discharge to streams and degrade fish and wildlife habitats. Use of water from streams directly reduces flow. These surface water reductions are most common during the summer growing season when natural stream flows are low and the potential adverse impacts to fish are the greatest.

Commercial and other activities associated with agriculture uses generally have detrimental effects similar to residential uses. That is, these activities share with residential uses such as buildings, structures, and parking lots, which may increase the detrimental impacts of impervious surfaces (e.g., reduced infiltration and higher runoff, lower groundwater levels, interference with the transfer of air and gases from the soil). Commercial uses may also involve increased risk of pollution from oil, gasoline, and other vehicle-related contamination.

5.0 Impact Area Identification

The impact area has been defined as the boundary surrounding the Springwater Community Area. See Figure 3.1 for a map of the Springwater Community Impact Area.

6.0 ESEE Analysis

6.1 INTRODUCTION

The following ESEE analysis examines the impacts to significant resource sites based on the three options – allow the conflicting use, limit the conflicting use, or prohibit the conflicting use (ALP). As discussed in an earlier section of this report, only economic, social, environmental, and energy (ESEE) consequences for proposed zoning districts are analyzed.

For efficiency purposes resource sites have been grouped into areas that have similar zoning districts. This allows the analysis to be consistently applied.

The Springwater Community Area has conflicting uses for proposed zone districts, as outlined above. To weigh the consequences of alternative methods of managing these conflicts the next step in the Goal 5 process is to conduct an ESEE consequences analysis. The following section presents this analysis, which is based on the Goal 5 inventory, significance determination, and conflicting use impacts described in this document.

The significant Goal 5 resource sites correspond to the Environmental Sensitive/Restoration Areas (ESRA) outlined in the concept plan (See Volume I of the Springwater Community Plan). The impact area for the significant resource sites is the remainder of the Springwater Community Planning area.

The Goal 5 rule requires that the ESEE consequences of “full protection,” “limited protection,” and “no protection” of the resource site and its impact area be considered. The Springwater Community Plan envisions much greater residential development and employment densities, while offering a much more comprehensive and effective level of natural resource protection through the ESRA-SW zone district. What is important in the ESEE analysis is to determine what level of protection should be provided for the Springwater environmental resource sites to meet the Goal 5 requirements while at the same time achieving the development goals that are outlined in the Springwater Community Plan. Table 6.1 summarizes key elements of the decision options used in this analysis.

Table 6.1 Summary of Goal 5 Decision Options

	Within Resource Site	Within Impact Area
<p>Full Protection</p> <p>This option would nullify the Springwater Community Plan by prohibiting all conflicting uses within the significant resource site and the impact area</p>	<p>No conflicting uses allowed (e.g., no ground-disturbing activity, no expansion of existing uses, no new impervious surface area, no new public facilities or trails).</p>	<p>No conflicting uses allowed (e.g., no ground-disturbing activity, no expansion of existing uses, no new impervious surface area, no new public facilities, no “green development practices”).</p>
<p>Limited Protection</p> <p>This option carries out most of the policies outlined in the Springwater Community Plan, and achieves a balance between intensive urbanization and resource conservation.</p>	<p>Allows for limited ground-disturbing activities for planned public facilities (roads and utilities) and trails. Allows for prohibiting activities in certain resource areas (based on the Natural Resource Significance Classifications). Requires mitigation for all development. Allows density transfer from resource site to impact area. Existing agricultural operations may continue.</p>	<p>Provides for intensive urban development outside the significant resource site, subject to green development practices and tree planting requirements as required in the Springwater Development Code and Gresham water quality manual. Existing agricultural operations may continue.</p>

Table 6.1 Summary of Goal 5 Decision Options

	Within Resource Site	Within Impact Area
<p>No Protection</p> <p>Would allow unrestricted development in planned housing and employment, but would violate two central organizing principals of the Springwater Community Plan by allowing unrestricted development within and outside the significant resource site.</p>	<p>All conflicting uses allowed (e.g., ground-disturbing activity, unrestricted expansion of existing uses, unrestricted impervious surface area, unmitigated public facilities).</p>	<p>All conflicting uses allowed without “green development practices.”</p>

The ESEE analysis supports a range of limited protections based on the ESEE consequences and the impact these consequences have on the resource sites as measured by the natural resource significance classes in accordance with the Springwater Community Plan. The range of these limited protections are based on the fact that the economic, social, environmental and energy consequences of the limited protection option are positive (i.e., meet Goal 5 requirements and Springwater Community Plan goals), while the consequences of “no protection” and “full protection” will be overwhelmingly negative.

The ESRA-SW concept and the associated green development practices required in the proposed zone districts serve as central organizing features of the Concept Plan. Intensive urban residential and employment development using green development practices is encouraged on buildable land outside the significant resource sites while the significant resource site is protected from most conflicting uses. A limited amount of development (e.g. roads and utilities) will be allowed on land within the significant resource site, except for those specific resource sites that are determined to require full protection. In addition, as allowed by the ESEE Decision Process (ORS 660-023-0040(5)(c)), there are some sites where the conflicting uses should be allowed fully notwithstanding the possible impacts on the resource site.

Green development practices refer to a toolbox of stormwater management and design techniques that are required as part of development in each zone district. The techniques involve landscape features that are designed to “mimic and incorporate the predevelopment hydrology of a site into future development” through site design that minimizes ground disturbance (to soils, tree canopy, and other sensitive natural features), and minimal impervious surfaces. Run-off that does occur is managed through “techniques that use natural areas and landscaping to treat, retain, attenuate, and infiltrate stormwater on the development site” (Development Code, Springwater Community Plan Report).

The benefits of green development practices include the following:

- Reduced stormwater runoff. Traditional development practices clear entire areas for development, add large amounts of impervious surfaces, and compromise the ability of soils to absorb stormwater. Through better site design, soil disturbance can be minimized, unnecessary impervious surfaces can be eliminated, and tree canopy protected, resulting in reduced generation of stormwater runoff.

- Reduced damage from unregulated stormwater flow. Traditional stormwater management techniques convey runoff quickly to management facilities. Without any prior management, these facilities are quickly overwhelmed and release water into streams at rates, volumes, and durations that compromise stream habitat. Green development practices infiltrate stormwater close to the source, give it an opportunity to evaporate, and attenuate its progress towards streams so that the release of runoff into streams more closely mimics the natural hydrology of the area.
- Increased tree canopy. Green development practices when combined with tree planting requirements promote the conservation of existing trees and forests, and providing tree-planting opportunities in order to create an urban forest. In a forested environment, rainfall is intercepted by vegetation reducing its impact by slowly allowing it to infiltrate and saturate the soil thus promoting infiltration, minimizing erosion and enhancing water quality. Trees also consume many different types of stormwater-linked pollutants through uptake from the root zone. Forested areas along stream banks provide stability by holding soil in place and slow runoff velocities.

There are tree planting requirements (Development Code) and sustainability goals that are incorporated into the Springwater Community Plan. These elements, when combined with the green development practices, provide a comprehensive approach to ensure that the Springwater Community will preserve significant resources while allowing growth and development to occur in the area.

6.2 ECONOMIC CONSEQUENCES

6.2.1 Introduction

To provide a consistent economic analysis covering the most critical factors, all parcels have been analyzed according to both existing and potential conflicting uses. The economic analysis for each parcel – the comparison of impacts on development and on resource values – has been repeated for three development level scenarios: allowing conflicting uses fully; limiting conflicting uses; and prohibiting all conflicting uses.

Through the economic analysis, a determination is made on the type and quantity of functions that are at risk with the loss of these resources, as well as the type and quantity of conflicting uses that may be affected.

This process is aided by including a natural resource significance classification system that ranks significance resource sites according to their overall functional and value and contribution toward maintenance and preservation of the watershed (see detailed explanation of the classification system elsewhere in this report). What this allows is the ability to make more informed decisions on resource sites and their impact from allowing, limiting or prohibiting development activities.

It is important to carefully separate the economic consequences on conflicting uses that exist due to physical constraints and those associated with protecting significant resources. There are increased costs incurred in the design and construction of structures and roads where slopes, certain soil types, streams, wetlands, or floodplains exist.

In determining the economic consequences of protecting significant resources, it is first necessary to define value with respect to a significant resource (i.e., natural resource significance classes). Many of the benefits of environmental policies are difficult measure. The

benefits are found more in an increase in the quality of life than in an incremental contribution to a region's economic output, although, value of environmental quality has been shown as a desirable factor that affects real estate purchases. Further, environmental features have been shown to increase property values as they provide aesthetic and recreational pleasure and a more livable environment. As a result, properties next to these features generally have higher property values and produce greater tax revenues.

6.2.2 Methods and Analysis

A parcel-by-parcel database (developed using GIS) provides the basis for this analysis. The planning consultant team created the database for analyzing the land in the Springwater community. The database includes information on tax lots, including ownership, size and characteristics, proposed zoning, Metro Title 13 designation, public facilities, significant resource area designation and classification, units allowed under density transfer, and units allowed by sub-district (outside ESRA-SW, by sub-district).

The economic analysis considers the impact of allowing, prohibiting, or limiting conflicting uses within the significant resource site and the impact area. The analysis addresses lots with no significant resource area, lots with partial significant resource area, and lots with substantial significant resource area. In this context, "substantial" is defined as when the non-resource portion of a lot is insufficient in size to accommodate the total number of units transferred out of the resource area of the lot. "Partial" coverage means that the lot has some resource area but not enough to qualify as "substantial".

Lots with no significant resource area may have conflicting uses that produce off-site impacts on the significant resource area. These uses include residential, commercial, industrial, manufacturing and community service uses, which have significant potential off-site impacts due to the removal of vegetation, creation of impervious surfaces, and construction of stormwater facilities that discharge into streams and wetlands, and similar activities.

Conflicting uses within significant resource areas have direct impacts on resources and resource functions as described in the previous section. Conflicting uses with the greatest potential impacts are the higher density residential areas, commercial, business, manufacturing, industrial and community service areas. Public facilities also can have significant impacts, but may also have important siting constraints (such as the need for roads and utilities to cross streams and other natural resources). As noted above, some public facilities, including certain stormwater facilities and road and utility crossings (e.g., via bridges) can have fewer localized resource impacts. Park and recreation uses also range in impact, with natural open space and recreational trails generally having the fewest impacts.

For the following analysis, conflicting uses are organized in three classes or groups, based broadly on degree of impact. One class includes residential, community service facilities (CSF), and broadcast facilities. The second class is public facilities. The third class is park and recreation uses.

6.2.3 Economic Consequences of Allowing Conflicting Uses

Allowing conflicting uses within the impact area of Springwater could provide major economic benefits as the area urbanizes up to a point. As the area urbanizes and there are increased development densities beyond what is proposed by sub-districts, there will likely be a diminishing marginal economic return. That is, a break point where the additional increment of development may not increase overall value because the costs of development would increase

as more marginal land converted and the amenities that would attract developers, buyers or employers become less attractive. This will likely occur as the resource sites are degraded.

New buildings and roads, for example, will bring a dramatic increase in impervious surfaces within the impact area. This can lead to reduced infiltration and higher runoff, increased flooding; degradation of aquatic habitat; and negative impacts to salmon, wetlands and riparian areas in the Johnson Creek watershed (including tributaries).

While the application of green development practices and other requirements (e.g., tree planting requirements, and sustainable designs) will help to off-set adverse impacts to resource sites, the point where development density exceeds the ability of these design elements to prevent environmental impacts will likely have a progressive adverse economic impact in the Springwater Community.

Table 6.2 summarizes the economic consequences of allowing conflicting uses.

Table 6.2 Economic Consequences of Allowing Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All	<ul style="list-style-type: none"> ▪ Increase in housing and jobs beyond the planned increase (an estimated 10,000 households and 17,000 new jobs) on parcels within the resource sites as there will be no protections ▪ Will increase traffic and pollution, but will provide no open space benefit or protections to resource sites. ▪ No restrictions placed on building coverage, impervious surface area or construction methods ▪ Loss of economic values associated with accessible scenic and recreational areas ▪ Specific problem areas: lots adjacent to resources areas, especially with resource class designations of 3, 4, 5, 6 with 5 and 6 under the greatest risk of negative environmental consequence. ▪ However, lower adverse economic impact where lots are distant from resource sites, especially in the I-SW area along northern boundary, and lots near resource sites rated #1 (isolated tree groves). 	<ul style="list-style-type: none"> • Negative: <ul style="list-style-type: none"> ▪ Increase in neighboring densities and traffic, accompanied by loss of economic (amenity) values associated with community open space, clean water, groundwater recharge, recreation, wildlife habitat and scenic views.

Table 6.2 Economic Consequences of Allowing Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with partial significant resource sites.	All	<ul style="list-style-type: none"> • Lots with partial resource site coverage would have unrestricted development potential under this option, although development costs are greater because some lands are highly constrained • Loss of economic value associated with loss of adjacent community open space, scenic, recreational amenities • Economic impacts resulting from risk of destabilization of slopes and stream banks, flooding and landslide hazards through vegetation removal, increased impervious surfaces and lack of appropriate stormwater management. • Adverse economic impact resulting from decreased amenity values for homes and businesses adjacent to water features and upland forests • Specific problem areas: Most impact to sites along Johnson Creek and tributaries, Boring Hills (ratings #2-6). Least impact lots w/ isolated tree groves (rated #1) – Brickworks, proposed NC-SW area and lots between 267th and 262nd. 	<ul style="list-style-type: none"> • Negative to mixed. • The land area can be devoted to development is increased, but densities will be greater than proposed. The economic value of adjacent open space, water features and forested areas would be lost. • Employment, commercial, industrial zone districts will develop beyond densities proposed and economic value of planned development that offers amenities to attract specific types of businesses, industries, and commerce would be lost.
Lots with substantial significant resource sites	All	<ul style="list-style-type: none"> • Parcels substantially covered by the resource sites would now be able to develop without restriction, although development costs may be greater because some of the lands are more constrained land area • Loss of economic value associated with on-site community open space, scenic, recreational amenities • Economic impacts resulting from potential destabilization of slopes and stream banks • Increase in flood and landslide hazards through vegetation removal, impervious surfaces • Adverse economic impact resulting from decreased amenity values for homes, and commercial, industrial, business, and employment areas within resource sites. 	<ul style="list-style-type: none"> • Negative • Land area can be devoted to development is increased substantially. However, economic value of adjacent to resource areas is reduced, especially for residential areas that rely on these amenities to attract buyers. • For some development, such as the HI zone district, there will likely be little economic change. • Other land that depends on the economic values imputed to resource sites will have adverse economic impacts even if development densities can be increased.

There are significant economic costs associated with allowing conflicting uses within the resource areas (allowing significant stream, wetland, and forest resources to be eliminated). These resources collectively provide the community's natural and open space system, a unique and highly valued feature along Johnson Creek, its tributaries and along the forested corridors between creeks (e.g., Sunshine Creek to McNutt and Johnson Creeks, Brigman Creek to Botefuhr Creek). The amenity values of the resource site, including its natural, open space, recreational (local parks and trails), and scenic values, are expected to grow as the valley urbanizes. These amenity values will be capitalized into local property values.

These resources also provide community services with economic benefits, such as flood reduction, clean water, and slope stabilization. Johnson Creek and its tributaries provide pollution assimilation/water purification, flood attenuation and storage functions. The damage costs associated with flooding and landslide hazards increase with development activities and increased soil disturbance in resource areas. Vegetation loss can have additional economic costs in the form of lost air conditioning, erosion control, stormwater management, and air pollution control services.

The increment of additional housing, business, industry/manufacturing, office and village center, if "allowed fully" without controls, must be weighed against the unique and highly valued attributes of the community. Other considerations, such as physical (e.g., steep ravines, broad floodplains and wetlands, shallow water tables) and regulatory constraints (e.g., wetlands, water quality, listed species) may further limit the developable land within the resource sites.

This analysis strongly favors allowing conflicting uses fully only within the impact area, outside of significant resource areas where the off-site impacts will be relatively low. At some point, however, the scale of development could risk off-site adverse impacts to surrounding resource. Since preservation of these resource areas have been identified as critical to the development success of the Springwater Community, there is a risk that development beyond the proposed densities will reduce the attractiveness of the area and therefore the economic values expected to be generated by development.

6.2.4 Economic Consequences of Limiting Conflicting Uses

To determine the consequences of "limiting" conflicting uses, it is helpful to define what limiting means, at least in broad terms. The basis for these limits comes in large part from the Springwater Community Plan (see Volume I of the Springwater Community Plan Report). Through an active public involvement and participation element and a special Community Working Group, appointed to create guiding goals and policies to help "codify" the major themes for the Springwater Community, a number of policy statements and goals were identified. An overarching theme was creation of an environmentally sustainable community. Resource site preservation and the incorporation of sustainable design and green development practices were seen as key to Springwater Community's success. Economic development, housing, jobs and all supporting or accessory activities were considered important, but in the context of how they would fit into the environmental sustainability theme.

From these goal statements and policies it was apparent that streams, wetlands, and forests were highly valued community assets. Residential development, employment and supporting activities and needs were generally to be met with land outside the resource sites. These unique assets were to be preserved and restored as best as possible. Certain conflicting uses were envisioned within resource areas, including limited road and utility crossings, parks and trail uses, and continuation of agricultural practices.

It was recognized that resource areas would not be able to develop to the surrounding proposed zone densities. To provide additional economic value for these properties, a density transfer provision was developed that would permit the transfer of development out of the resource area onto the same or adjoining properties. These provisions were incorporated into the “limit” program for the Springwater Community Plan.

Table 6.3 summarizes the economic impacts resulting from limiting conflicting uses in accordance with the Springwater Community Plan, consistent with the program outlined above.

Table 6.3 Economic Consequences of Limiting Conflicting Uses Consistent with the Springwater Community Plan

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts on resource sites)	<ul style="list-style-type: none"> • Provide for significant increase in housing and jobs beyond what is currently allowed under the proposed zoning districts (an estimated 10,000 households and 17,000 new jobs). • Some increased long-term costs associated with green development practices (i.e., increased maintenance versus reduced initial construction costs). • Restrictions placed on building coverage, impervious surface area or construction methods. • Maintain economic values associated with community open space, accessible scenic, recreational benefits. • Avoid adverse economic impact resulting from decreased amenity values for homes and businesses near resource sites. 	<p>Positive:</p> <ul style="list-style-type: none"> • Manyfold increase in development potential over existing zoning districts, while maintaining economic values of community open space, clean water, wildlife habitat, scenic views and groundwater recharge. • Some long-term maintenance costs increase for green development practices, although short-term costs are usually less. • Economic values of incorporating the goals of environmental and economic sustainability will, in the long run exceed development costs as Springwater will attract the type of employment and residential development that values such preservation.
Lots with partial significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> • Significant increase in allowed density through up-zoning and density transfer from resource sites • Since the remaining portions of parcels outside resource sites are from building constraints, development costs are reduced • Maintain economic value associated with adjacent community open space, scenic, recreational amenities • Avoids adverse economic impacts resulting from potential destabilization of slopes and stream banks due to green development practices • Avoids adverse economic impact resulting from decreased amenity values for homes and businesses adjacent to resource sites and adjacent open space and recreational sites. 	<p>Positive:</p> <ul style="list-style-type: none"> • Significant increase in development potential over existing zoning, while maintaining economic values of community open space, clean water, wildlife habitat, scenic views and groundwater recharge. • Some long-term increase in costs for green development practices.

Table 6.3 Economic Consequences of Limiting Conflicting Uses Consistent with the Springwater Community Plan

Lot Type	Conflicting Uses	Consequences	Assessment
	Public facilities	<ul style="list-style-type: none"> • Some increase in long-term construction costs resulting from green development practices • Limited new and redeveloped roads provide connections through resource sites • Limited utilities and green stormwater facilities link and serve local neighborhoods within community, located within planned road crossings, or along the outer edge of resource areas. 	<p>Positive:</p> <ul style="list-style-type: none"> • Allows roads and other public facilities that are essential to an integrated urban community; resource impacts controlled and mitigated through development standards and green development practices.
	Parks and recreation uses	<ul style="list-style-type: none"> • Parks and trail system located in and along resource areas (as designated in the Plan District) bring residents close to area’s unique features • An integrated network of trails, parks and open space is an essential part of a successful urban community. • Trails and paths will also be part of the transportation network linking residential areas to commercial, business, and employment areas, which minimizes pollution impacts 	<p>Positive:</p> <ul style="list-style-type: none"> • An integrated (natural resource-oriented) parks and trail system provides a major community asset.
Lots with substantial resource site coverage (and limited transferability)	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> • Comparable density to that which is allowed under existing zoning • May not be sufficient area for density transfer from resource site • Maintain economic value associated with adjacent community open space, scenic, recreational amenities • Avoids adverse economic impacts resulting from potential destabilization of slopes and stream banks, and increase in flood and landslide hazards through vegetation removal, increased impervious surfaces • Avoids adverse economic impact resulting from decreased amenity values for homes and businesses adjacent to resource sites and adjacent open space and recreational sites. • Decrease in short-term construction costs, but increase in long-term maintenance costs, resulting from green development practices 	<p>Neutral:</p> <ul style="list-style-type: none"> • Development potential approximately the same, but lower increase than properties largely or completely outside ESRA-SW. For this reason, recommend adjustments to ESRA-SW boundary to allow for full density transfer. Economic values associated with significant resources protected.

Table 6.3 Economic Consequences of Limiting Conflicting Uses Consistent with the Springwater Community Plan

Lot Type	Conflicting Uses	Consequences	Assessment
	Public facilities	<ul style="list-style-type: none"> • New and redeveloped roads provide an integrated transportation system within the community • Slight increase in construction costs due to mitigation 	Neutral to Positive: <ul style="list-style-type: none"> • Allows roads that are essential to an integrated urban community with mitigation for impacts on natural resources.

This analysis supports limiting conflicting uses within significant resource areas of the Springwater Community. Housing and employment opportunities are dramatically increased within non-resource areas (by an estimated 1,500 households and 16,000 new jobs in the Springwater Plan District area). Additional housing and employment options are permitted through transfers from resource sites to more suitable locations in the impact area, which protects the community’s unique natural, scenic, and open space resources.

There will be a number of constrained properties in some of the high valued resource areas (ratings of 4, 5, and 6) that would not be able to transfer densities on site. These sites could be addressed through other methods or development flexibility. Importantly, the higher rated resource sites, which are critical to the preservation of Johnson Creek watershed within the Springwater Community, may need methods to ensure preservation without development. The City could consider designating these or some portion of these parcels for public ownership. Thus, a public program to purchase these properties to preserve them in perpetuity could compensate the property owners.

6.2.5 Economic Consequences of Prohibiting Conflicting Uses

Table 6.4 summarizes the impacts on both significant resources and on conflicting uses of prohibiting conflicting uses.

Table 6.4 Economic Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts on resource sites)	<ul style="list-style-type: none"> • Loss of development potential for all parcels in this category. • Springwater Community Plan could not be implemented. 	Negative: <ul style="list-style-type: none"> • No new development allowed; substantial economic costs; housing and employment goals cannot be achieved. • Annexation not likely
Lots with partial significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> • Loss of development potential and density transfer options. • Although protects community open space, scenic, and recreational amenities, the economic value of these amenities will likely be lower, because fewer people will enjoy them • Although stabilization of slopes and stream banks, and reduction in flood and landslide hazards would occur, there would be no new development 	Negative: <ul style="list-style-type: none"> • Significant loss of development potential from existing zoning, without corresponding increase in amenity value to existing homes. • Annexation not likely
	Public facilities	<ul style="list-style-type: none"> • No new roads or public facilities would be allowed • Loss of connectivity and services provided by public facilities and roads 	Negative: <ul style="list-style-type: none"> • Road and public facility connectivity is essential to an integrated urban community and could not be provided.

Table 6.4 Economic Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
	Parks and recreation uses	<ul style="list-style-type: none"> Loss of integration of parks and trail system with the community's natural, scenic, and open space resources 	Negative: <ul style="list-style-type: none"> An integrated parks and trail system is a vital part of a successful community.
Lots with substantial significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> Conflicting uses prohibited on a number of parcels located within resource sites rated 4, 5, and 6. 	Negative: <ul style="list-style-type: none"> Comparable or lower development potential than allowed under existing zoning, without density transfer or economic value associated with natural resource amenities.
	Public facilities	<ul style="list-style-type: none"> Loss of connectivity provided by planned roads (on 14 properties) 	Negative: <ul style="list-style-type: none"> Road connectivity is essential to an integrated urban community.
	Parks and recreation uses	<ul style="list-style-type: none"> No existing or planned parks or recreation uses will impact the properties within the resource sites. 	Not applicable.

The economic consequences of prohibiting conflicting uses are generally negative for both resource and impact areas. New housing and employment opportunities would be eliminated, and prohibiting all conflicting uses within the impact area would essentially preclude further growth or urbanization of the Springwater Community. By prohibiting conflicting uses, the community's unique natural, scenic, and open space resources are preserved. Arguably, however, these resources will likely have considerably fewer economic amenity values should the Community not be able to grow. Further, there would be no economic incentive for the City to annex the properties as the economic value from property tax revenue would not likely support the costs of public services to the area.

6.2.6 Conclusion

The economic analysis supports limiting conflicting uses within significant resource areas and allowing them fully within the impact area. The analysis assumes that within the impact area, potential adverse effects on nearby resource sites can be mitigated by provisions for green development practices. For the highly constrained lots where housing density transfer may not be feasible, some additional flexibility may be warranted in the way the City may compensate these landowners.

6.3 SOCIAL CONSEQUENCES

This section considers the social consequences of allowing, limiting, or prohibiting conflicting uses in the Springwater Community. The discussion focuses on the following topics: recreational and educational opportunities; housing and employment opportunities; historic, heritage, and cultural values; screening and buffering of land uses; and health, safety, and welfare.

Allowing, limiting, or prohibiting conflicting uses may have a variety of potential social effects, including the following:

- Changes to the value of the site for recreation and education;
- Changes to the quantity and quality of housing units;
- Changes in an area's scenic qualities;
- Changes to the historic and cultural values of the site;
- Changes to the health, safety, and welfare benefits provided by resources; and

- Changes in the ability of natural resources to function as an edge or buffer between different land uses.

The characteristics of these potential social consequences are outlined in the following discussion. The social analysis focuses on how conflicting uses may create positive or negative social consequences within resource and impact areas.

Recreational and Educational Amenities (for more details See the Springwater Community Plan Report): Existing public recreational opportunities are limited in Springwater. There are no parks in the area. There is one trail, the Springwater Trail, which bisects the planning area and public space running adjacent to the Trail. There is the privately owned Persimmon Golf Course located in the area.

There are no public educational facilities within the Springwater Community.

Housing Opportunities: The Springwater Community Plan proposes urban levels of density for the area once annexed resulting in an estimated 1,500 housing units in the Springwater Plan District area.

Employment Opportunities. Employment opportunities in the Springwater Community are currently very restricted and are mainly those associated with agriculture, with the exception of the HI zone District that is currently within the City of Gresham. At build-out, there are estimated to be approximately 16,000 new jobs in the Springwater Plan District area.

Historic, Heritage, and Cultural Values. The floodplains and upland areas of the Johnson Creek basin are believed to have been used by Native Americans. Although no archeological sites are known in Springwater Community area, early Native Americans used the valley as a travel route, and hunting and other subsistence activities likely took place there.

Euro-American settlement in the area began in the mid 1800s.

Screening and Buffering: Natural resources, such as those in Springwater, can function as an edge to different land uses, separating and buffering them from each other both visually and physically. Forest vegetation can serve as a buffer between residential, institutional, commercial, and open space uses. Similarly, Johnson Creek and its tributaries (North Fork Johnson, Badger, McNutt, Sunshine, Brigman, Botefuhr and Hogan Creeks, and to a certain extent Bus and Ops Creeks) and their associated ravines, wetlands, and vegetation are major defining elements of the community that also provide buffering and other important watershed health functions.

Health, Safety, and Welfare. Erosion and flooding are natural phenomena in Springwater, but when aggravated by the modification, alternation or removal of vegetation, or increased stormwater runoff, it can lead to damage, injury, or displacement of people and property, and significantly impact aquatic habitats. For example, the area's vegetation helps to stabilize stream banks and hill slopes, and its soils infiltrate rainwater and reduce the frequency and severity of flood events. These functions contribute to the health, safety and welfare of community residents.

There are several other health and welfare benefits provided by forest and riparian vegetation. The following are some of the other health and welfare benefits:

- Vegetation in urban or urbanizing areas may reduce stress-related impacts on health.
- Exposure to natural environments has significant “restorative” benefits.
- Forests help reduce air pollution problems and resulting health impacts

6.3.1 Social Consequences of Allowing Conflicting Uses

Table 6.5 summarizes the consequences of allowing conflicting uses to occur in the Springwater Community. These consequences are discussed in the context of the social functions or benefits described above. As with the economic analysis, conflicting uses are addressed together or in groups where appropriate.

Table 6.5 Social Consequences of Allowing Conflicting Uses Fully

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts)	<ul style="list-style-type: none"> • Increase in the number of jobs and housing units at densities greater than the Community Plan proposes. • With all conflicting uses there will likely be a loss of nearby community open space and associated social values 	Negative: <ul style="list-style-type: none"> • Marginal increase in jobs and housing opportunities, but at expense of community open space, degraded water quality and decreased quality of life. • Also, risk that development with all conflicting uses allowed to degrade resource sites and associated social values
Lots with partial significant resource sites	All	<ul style="list-style-type: none"> • Increase in potential damage, injury, and displacement caused by erosion, landslides, and flooding along Johnson Creek and tributaries • Loss of scenic and open space values of resource sites • Decrease in screening and buffering benefits • Potential loss of historic features • Increase in housing, employment opportunities on constrained lands, through these goals are met outside of resource sites. 	Negative: <ul style="list-style-type: none"> • Unique social values of community and multiple resources highly degraded or lost.
Lots with substantial significant resource sites	All	<ul style="list-style-type: none"> • Increase in potential damage, injury, and displacement caused by erosion, landslides, and flooding along Johnson Creek and tributaries • Loss of scenic and open space values of resource sites • Decrease in screening and buffering benefits • Potential loss of historic features • Increase in housing, employment opportunities on constrained lands, through these goals are met outside of resource sites. 	Negative: <ul style="list-style-type: none"> • Unique attributes of community and multiple resources highly degraded or lost

This analysis supports allowing conflicting uses within the impact area, outside of significant resource sites. The resource sites provide important social values, and include many of the attributes that make the Springwater Community unique. The Springwater Plan District proposes a mix of housing and employment opportunities within the non-resource sites that

satisfies planning goals. Goals and policies identified in the Plan are designed to maintain existing amenities and develop new ones that will enhance the community’s unique resources.

6.3.2 Social Consequences of Limiting Conflicting Uses

Table 6.6 summarizes the consequences of limiting conflicting uses in the Springwater Community Area.

Table 6.6 Social Consequences of Limiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts)	<ul style="list-style-type: none"> • Maintain most social values on nearby protected open space areas • Maintain housing and employment objectives of Springwater Community Plan • Allow for public facilities and streets necessary to support proposed housing and employment • Maintain social values associated with clean water and aquatic habitat by implementing Green Development Practices, tree planting and sustainable design development 	Positive: <ul style="list-style-type: none"> • Social values of community open space maintained for new residents and employees. Green Development Practices minimize off-site impacts.
Lots with partial significant resource sites	All	<ul style="list-style-type: none"> • Decrease in potential damage, injury, and displacement caused by erosion, landslides, and flooding along Johnson Creek and its tributaries • Maintain scenic and open space values of ESRA-SW • Maintain screening and buffering benefits • Maintain historic features • Allow for housing, employment opportunities through density transfer provisions 	Positive: <ul style="list-style-type: none"> • Social values of community open space and natural resources conserved.
Lots with substantial significant resource area (and limited transfer-ability)	All	<ul style="list-style-type: none"> • Decrease in potential damage, injury, and displacement caused by erosion, landslides, and flooding along Johnson and Kelley Creeks • Maintain scenic and open space values of ESRA-SW • Maintain screening and buffering benefits • Maintain historic features • Allow for housing, employment opportunities through density transfer provisions 	Positive: <ul style="list-style-type: none"> • Social values of community open space and natural resources conserved.

This analysis supports limiting conflicting uses within significant resource sites. Housing and employment opportunities are dramatically increased within non-resource areas (by an estimated 1,500 housing units and 16,000 new jobs in the Springwater Plan District area). Additional housing and employment options are permitted through transfers from resource areas to more suitable locations in the impact area, which protects the community’s unique resources and avoids higher costs associated with development on constrained lands. Limiting conflicting uses in resource areas preserves a variety of important social values including recreational and educational values, soil stabilization, flood management, land use buffering, and scenic and open space values.

6.3.3 Social Consequences of Prohibiting Conflicting Uses

Table 6.7 summarizes the consequences of prohibiting conflicting uses in the Springwater Community Area. These consequences are reviewed in the context of the social functions or benefits described previously.

The social consequences of prohibiting conflicting uses are generally negative, except in certain resource areas where social benefits roughly balance the costs. New housing and employment opportunities would be eliminated, and prohibiting all conflicting uses within the impact area would essentially preclude further growth or urbanization of the Springwater Community area.

Table 6.7 Social Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts)	<ul style="list-style-type: none"> • Prohibiting conflicting uses on non-resource (impact) areas would preclude new housing and employment options • Social benefits of community open space and natural resource preservation would be limited, because fewer people to enjoy these benefits 	Negative: <ul style="list-style-type: none"> • No further growth in community; social benefits associated with community open space and natural resource preservation lost.
Lots with partial significant resource sites	All	<ul style="list-style-type: none"> • Most social benefits of resources preserved, including health, safety and welfare values, screening and buffering, scenic amenities • Recreational and educational opportunities limited by lack of people to enjoy resources and open space • Livability degraded by prevention of transportation and infrastructure connections. 	Negative: <ul style="list-style-type: none"> • Unique attributes of community open space preserved, but few people to enjoy, and most access and use precluded.
Lots with substantial significant resource sites	All	<ul style="list-style-type: none"> • Same as above, with housing limited on those located within resource rating of 4, 5, and 6. 	Negative <ul style="list-style-type: none"> • Unique attributes of community open space preserved, but few people to enjoy, and most access and use precluded.

6.3.4 Conclusion

The social analysis supports limiting conflicting uses within significant resource areas and allowing them fully within the impact area. The analysis assumes that within the impact area, potential adverse effects on the social values of nearby resource areas can be mitigated by green development practices, tree-planting requirements and sustainable design requirements outlined in the Plan. For the highly constrained lots where housing density transfer may not be feasible, there may be a need for the City to consider other methods of compensation such as purchase of the land.

6.4 ENVIRONMENTAL CONSEQUENCES

This analysis outlines the environmental consequences of allowing, limiting, or prohibiting conflicting uses within the Springwater Community. The inventory of natural resources in the Springwater Community Plan describes the environmental functions and values at this resource site (Springwater Community Plan Natural Resource and Hazards Inventory, October 2004). The basis for determining the significance of various types of natural resources also is provided in a technical memorandum to the report. The natural resource significance rating criteria are based on fundamental elements, or “functions” that must be present for natural systems to work properly, and for long-term sustainability. The functional elements included are based on recent scientific literature, the inventory, and the subwatershed assessment conducted as part of the inventory.

The following resource functions are those identified for the Springwater Community area:

- Water quality
- Channel dynamics and morphology
- Water quantity: stream flow, sources, and storage
- Microclimate
- Fish and aquatic habitat
- Organic inputs
- Riparian and upland wildlife habitat quality
- Upland sensitive species
- Upland interior habitat

In addition, each significant resource site has been assigned a Natural Resource Significance Classification rating of 1 to 6. This corresponds to their functional value and contribution toward preservation of the watershed in the Springwater Community.

Briefly, the rating class addresses the number of functions exhibited by the specific site. The greater the number of functions exhibited, the greater the significance class and overall importance to the watershed. This rating system allows differentiations between resource sites. That is, not all resource sites may be of equal importance to the maintenance of the watershed. Some resources sites may be more valuable than others (see Technical Memorandum on Resource Needs Analysis and Significance, August 2004).

The value of this rating is that decision makers could use it when deciding what levels of protections they are willing to accept in order to meet planning goals in the Springwater Community area.

The following are the significance Classifications:

1. Isolated Tree Groves (single attribute, not located adjacent to any other significant resource sites)
2. Tributary Reach (single attribute but located adjacent to other significant resource sites)
3. Tributary Reach and Tree Grove
4. Johnson Creek Reach, locally Significant wetland
5. Combination of Two: Johnson Creek Reach, Tree Grove, unique habitat, locally significant wetland
6. Combination of three or more: Johnson Creek Reach, tree grove, locally significant wetland, unique habitat

6.4.1 Environmental Consequences of Allowing Conflicting Uses

Basically, the resource functions listed above would be highly degraded or lost in the absence of an environmental protection program. Allowing conflicting uses in resource areas without limits or controls results in the loss of significant environmental functions and values identified in the Springwater Community Plan natural resources inventory. The environmental consequences, therefore, are extremely negative.

Table 6.8 summarizes the potential impacts of allowing the conflicting uses.

Table 6.8 Environmental Consequences of Allowing Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts)	<ul style="list-style-type: none"> ▪ Degradation of water quality and aquatic habitat functions from off-site impacts ▪ Reduction or disruption of groundwater recharge, stream flow, and hydro-period 	Negative: <ul style="list-style-type: none"> ▪ Lack of Green Development Practices means that water quality and aquatic habitat values of streams and wetlands are lost; probable reduction in groundwater discharge and hydro-period.
Lots with partial significant resource sites	All	<ul style="list-style-type: none"> ▪ Reduction of water quantity function ▪ Degradation or loss of fish and aquatic habitat functions ▪ Reduction of water quality, slope stabilization, microclimate amelioration functions ▪ Disruption or loss of vegetation and organic materials function ▪ Reduction of floodplain and channel dynamics functions ▪ Loss of wildlife habitat functions in wetlands, riparian areas, and uplands 	Extremely Negative: <ul style="list-style-type: none"> ▪ Community natural resources and functions highly degraded or lost.

Table 6.8 Environmental Consequences of Allowing Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with substantial significant resource sites	All	<ul style="list-style-type: none"> ▪ Disruption or elimination of all functional values listed above 	Extremely Negative: <ul style="list-style-type: none"> ▪ Community natural resources and functions highly degraded or lost.

6.4.2 Environmental Consequences of Limiting Conflicting Uses

The decision to limit conflicting uses as indicated in the Springwater Community Plan conserves most of the environmental resources and functional values identified in the natural resource inventory. Limiting conflicting uses allows the development goals of the Plan to be met, by preserving most of the ESRA-SW and providing reasonable mitigation for impacts resulting from planned public facilities and limited development. Although impacts are mitigated (i.e., reduced) there would still be limited degradation and loss of some functional values. Provisions for restoration potentially will increase functional values. The environmental consequences are generally positive under the Springwater Community Plan objective where development impacts are limited to areas generally outside the ESRA-SW and mitigated through green development practices and restoration within the resource site.

Table 6.9 summarizes the consequences of limiting conflicting uses.

Table 6.9 Environmental Consequences of Limiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> ▪ Degradation of water quality and aquatic habitat functions from off-site impacts mitigated through Green Practices ▪ Reduction or disruption of groundwater recharge, stream flow, and hydro-period mitigated through Green Practices 	Positive: <ul style="list-style-type: none"> ▪ Potential off-site impacts on resource functions mitigated by Green Development Practices.
	Public facilities	<ul style="list-style-type: none"> ▪ Potential degradation of water quality and aquatic habitat functions from off-site impacts, particularly streets, mitigated through Green Development Practices. 	Positive: <ul style="list-style-type: none"> ▪ Potential off-site impacts on resource functions mitigated by Green Development Practices.
	Parks and recreation uses	<ul style="list-style-type: none"> ▪ Potential increase in some functional values outside resource sites. 	Positive: <ul style="list-style-type: none"> ▪ Potential increase in some functional values.
Lots with partial significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> ▪ Protection of functional values through avoidance and density transfer ▪ Potential increase in some functional values with restoration 	Positive: <ul style="list-style-type: none"> ▪ Degradation of some resource functions but potential overall increase throughout the community through restoration.

Table 6.9 Environmental Consequences of Limiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
	Public facilities	<ul style="list-style-type: none"> Limited disruption resulting from construction of planned public facilities. Mitigation for most impacts through required restoration. 	Neutral to Slightly Negative: <ul style="list-style-type: none"> Limited loss of some resources and functions but adverse impacts limited through required mitigation and restoration.
	Parks and recreation uses	<ul style="list-style-type: none"> Limited disruption of functional values. Mitigation for most impacts through required restoration 	Neutral to Slightly Negative: <ul style="list-style-type: none"> Limited loss of some resources and functions but adverse impacts limited through required mitigation and restoration.
Lots with substantial significant resource sites (and limited transferability)	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> With recommended adjustments to resource site boundary to allow for full density transfer, minor reduction of resource area However, with required mitigation, potential increase in some functional values with restoration 	Neutral to Slightly Negative: <ul style="list-style-type: none"> Limited loss of some resources and functions but adverse impacts limited through required mitigation and restoration.
	Public facilities	<ul style="list-style-type: none"> Limited disruption of some functional values Potential increase in some functional values with restoration 	Positive: <ul style="list-style-type: none"> Potential off-site impacts on resource functions mitigated by Green Practices.
	Parks and recreation uses	<ul style="list-style-type: none"> No park or recreational uses planned for these parcels, except for potential trails 	Not Applicable

6.4.3 Environmental Consequences of Prohibiting Conflicting Uses

The environmental consequences of fully protecting the resource sites are positive. However, as noted in previous sections, the economic and social consequences are extremely negative since the Springwater Community Plan goals would not be met. It would not be likely that the City of Gresham would consider annexing the Springwater Plan District area if it was constrained to prohibiting all conflicting uses.

Table 6.10 summarizes the environmental consequences of prohibiting conflicting uses in the Springwater Community Plan.

Table 6.10 Environmental Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> No adverse impacts from off-site development on resource functions. 	Positive: <ul style="list-style-type: none"> No off-site impacts on resource functions.
	Public facilities	<ul style="list-style-type: none"> No adverse impacts from public facility construction on resource functions. 	Positive: <ul style="list-style-type: none"> No off-site impacts on resource functions.

Table 6.10 Environmental Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
	Parks and recreation uses	<ul style="list-style-type: none"> No adverse impacts from park construction on resource functions. 	Positive: <ul style="list-style-type: none"> No off-site impacts on resource functions.
Lots with partial significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> No adverse impacts from residential or commercial construction on resource functions. 	Positive: <ul style="list-style-type: none"> No on- or off-site impacts on resource functions.
	Public facilities	<ul style="list-style-type: none"> No adverse impacts from public facility construction on resource functions. 	Positive: <ul style="list-style-type: none"> No impacts from public facility construction on resource functions.
	Parks and recreation uses	<ul style="list-style-type: none"> No adverse impacts from park construction on resource functions. 	Positive: <ul style="list-style-type: none"> No on- or off-site impacts from parks on resource functions.
Lots with substantial significant resource sites	All (except for public facilities, parks recreation)	<ul style="list-style-type: none"> No adverse impacts from residential or commercial construction on resource functions. 	Positive: <ul style="list-style-type: none"> No on- or off-site impacts on resource functions.
	Public facilities	<ul style="list-style-type: none"> No adverse impacts from road construction on resource functions. 	Positive: <ul style="list-style-type: none"> No public facilities construction impacts on resource functions.
	Parks and recreation uses	<ul style="list-style-type: none"> No park or recreational uses planned except for trails. 	Not Applicable

6.4.4 Conclusion

This environmental consequences analysis supports either prohibiting conflicting uses or limiting conflicting uses to planned public facilities and limiting incursion into the resource sites to allow for full density transfer for substantially affected parcels, and using green development practices. Impacts from limited residential and public facility development within the resource sites can be reduced and mitigated through restoration. The resource areas provide important functional values and the opportunity of greatly improving resource function through restoration in the resource sites. The Springwater Plan District proposes a mix of housing and employment opportunities outside the resource sites while maintaining and restoring significant riparian, wetland, and upland areas within the resource sites with limited intrusion.

6.5 ENERGY ANALYSIS

This analysis outlines the energy consequences of allowing, limiting, or prohibiting conflicting uses. The energy discussion focuses on three topics: transportation; infrastructure; and the heating and cooling of structures. A general discussion of these topics is presented first, followed by an analysis applying these topics in the context of allowing, limiting, and prohibiting conflicting uses.

Transportation. Energy expenditures for transportation relate primarily to travel distance from origin to destination and mode of transportation used. Both variables can be affected by natural resource protection. The Springwater Community Plan outlines goals and policies to develop

an efficient transportation system with a range of modes available to those who reside and work in the Community as well as those commuting to and from the area to work or live (See Development Policies of the Springwater Community Plan Report).

Transportation in the Springwater Community involves moving people between homes, employment, commercial areas, and other services. The site will have major employment areas within the Community as well as be within very short distances of other major employment areas elsewhere in the City of Gresham and the eastern portions of Multnomah and Clackamas Counties. Automobiles will still be the primary means of transportation in and out of the area and though convenient, they generally are not energy efficient. Roads will be upgraded to allow for other transportation modes including transit and bicycles. The Springwater Trail, which passes through the northern part of the site, provides alternative transportation options.

With the Village Center, industrial, and employment areas to be developed within the community it is expected that residents will not have to travel far to and from work. Locating homes, jobs, and services within the Community means that residents may not need to travel outside the community to work or for basic services.

The availability of natural resources at the Springwater Community, such as the streams, wetlands and riparian areas, provide opportunities for wildlife observation, education, and recreation for area residents. A growing system of public open space is planned for developed within the Springwater Community. Because these open space resources are close to users, limited transportation energy is used in reaching them. In addition, the system of trails that are planned within the Springwater Community will provide walking routes to local services, schools, and civic amenities, potentially decreasing dependence on the automobile.

Infrastructure. Locating housing and other development outside of natural resource sites in a planned and efficient manner normally results in less infrastructure needed to serve sewer, water, transportation, and other needs. Development located away from flood and slope hazard areas can reduce or eliminate the need for additional construction considerations, hazard control structures, or emergency repairs. In general, urbanization that is carefully planned and performed efficiently adjacent to existing urban centers can help to reduce and manage energy consumption within the region.

Heating and Cooling of Structures. Energy consumption for the purpose of heating and cooling structures is impacted by resource protection in two ways: building form and presence of vegetation.

Protection of Springwater Community's trees and forested stream corridors, and other resource sites, can help reduce energy costs for heating and cooling. Trees and riparian vegetation within the Community will reduce energy demands for cooling in the summer by providing shade on nearby structures. Plants also absorb sunlight and transpire during growing seasons, thus reducing ambient air temperatures. This moderating effect can reduce energy needs for cooling of nearby development. Trees and large shrubs can also act as a windbreak during winter. Slowing or diverting cold winter winds will reduce heat loss in structures from convection, resulting in lower energy needs.

Planned urban densities will generally result in an efficient compact development form, which includes greater common wall construction and reduced building surface areas, reducing heat loss and energy consumption. In addition, the incorporation of sustainable development

designs will encourage more efficient selection and use of materials that reduce energy consumption.

6.5.1 Energy Consequences of Allowing Conflicting Uses

Table 6.11 summarizes the energy consequences of allowing conflicting uses to occur in the Springwater Community. These consequences are discussed in the context of the energy functions or benefits described above. As with the preceding analyses, conflicting uses are addressed together or in groups where appropriate.

Table 6.11 Energy Consequences of Allowing Conflicting Uses Fully

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts)	<ul style="list-style-type: none"> ▪ Proximity of housing, jobs, and services reduces energy needs for transportation ▪ Infrastructure development on unconstrained land reduces energy expenditures ▪ Without green development practices, energy benefits related to heating and cooling will be lost. 	Slightly Negative: The Springwater Community Plan provides for clustering of housing and jobs. These benefits are also found under the “limited option.” However, without green development practices, energy consequences are slightly negative.
Lots with partial significant resource sites	All	<ul style="list-style-type: none"> ▪ Transportation and infrastructure energy consumption increases as development extends into constrained lands ▪ Loss of nearby open spaces, increasing transportation energy demand for recreation ▪ Energy benefits related to heating and cooling of structures lost as vegetation is removed 	Negative: <ul style="list-style-type: none"> ▪ Energy benefits of resources lost, less energy-efficient use of land.
Lots with substantial sig. resource sites	All	<ul style="list-style-type: none"> ▪ Same as above; ▪ Building on highly constrained lots increases energy expenditures. 	Negative: <ul style="list-style-type: none"> ▪ Energy benefits of resources lost, less energy-efficient use of land.

This analysis supports the clustering of housing and jobs served by an energy efficient transportation system. These benefits, however, are also realized in the “limited option.” Allowing conflicting uses within the resource sites has negative energy consequences, as does the lack of green development practices. The resource sites provide important energy benefits for nearby development and for the community as a whole.

6.5.2 Energy Consequences of Limiting Conflicting Uses

Table 6.12 summarizes the energy consequences of limiting conflicting uses in the Springwater Community. These consequences are discussed in the context of the energy functions or benefits described above.

Table 6.12 Energy Consequences of Limiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no significant resource sites	All (off-site impacts)	<ul style="list-style-type: none"> ▪ This option includes the benefit of energy efficient development through density and clustering of jobs near housing ▪ Energy benefits related to heating and cooling preserved ▪ Green development practices conserve energy 	Positive: <ul style="list-style-type: none"> ▪ Energy benefits accrue from density transfer and heating and coloring effects of natural resource preservation and green development practices
Lots with partial significant resource sites	All	<ul style="list-style-type: none"> ▪ Transportation and infrastructure energy expenditures reduced through avoidance of constrained lands; ▪ Open spaces conserved, reducing transportation energy demand for recreation; ▪ Supports energy benefits related to heating and cooling of structures. 	Positive: <ul style="list-style-type: none"> ▪ Energy benefits accrue from density transfer and heating and coloring effects of natural resource preservation and green development practices.
Lots with substantial sig. resource area (and limited transferability)	All	<ul style="list-style-type: none"> ▪ Same as above; ▪ Lack of density transferability may lead to greater energy expenditures. 	Positive: <ul style="list-style-type: none"> ▪ Energy benefits accrue from density transfer and heating and coloring effects of natural resource preservation and green development practices. However, because not all density may be transferable for substantially covered parcels, limited incursion into the resource sites is recommended.

This analysis supports limiting conflicting uses within significant resource areas of the site, implementing density transfer, and employing green development practices. Urban housing and employment opportunities can be provided in an energy-efficient manner within non-resource areas. Additional housing and employment options are permitted through transfers from resource areas to more suitable locations in the impact area, which protects the community’s unique natural resources and avoids higher energy costs associated with development on constrained lands. Limiting conflicting uses in resource areas preserves a variety of important energy values related to transportation, infrastructure, and the heating and cooling of structures.

6.5.3 Energy Consequences of Prohibiting Conflicting Use

Table 6.13 summarizes the energy consequences of prohibiting conflicting uses in the Springwater Community. These consequences are reviewed in the context of the social functions or benefits described previously.

Table 6.13 Energy Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting Uses	Consequences	Assessment
Lots with no sig. resource site	All (off-site impacts)	<ul style="list-style-type: none"> ▪ Precludes new housing and employment options, potential of forcing developers to look for land further distant, thus increasing vehicle miles traveled. 	Negative: <ul style="list-style-type: none"> ▪ No further growth in community, which would result in higher energy costs and expenditures.
Lots with partial sig. resource site	All	<ul style="list-style-type: none"> ▪ Loss of transportation and infrastructure connectivity within valley would lead to significant inefficiencies and energy costs; ▪ Loss of recreational and educational opportunities in resource areas could increase energy costs. 	Negative: <ul style="list-style-type: none"> ▪ No further growth in community, which would result in higher energy costs and expenditures. ▪ Local access and recreational use precluded.
Lots with substantial sig. resource site	All	<ul style="list-style-type: none"> ▪ Same as above; ▪ Lack of density transferability may lead to greater energy expenditures. 	Negative: <ul style="list-style-type: none"> ▪ No further growth in community, which would result in higher energy costs and expenditures. ▪ Local access and recreational use precluded.

The energy consequences of prohibiting conflicting uses are negative, creating the potential for urban sprawl into more remote parts of the region, potentially outside of established urban growth boundaries. Prohibiting all conflicting uses within the impact area would essentially preclude further growth or urbanization of the Community. Prohibiting conflicting uses within resource areas would prevent efficient transportation and infrastructure systems, and increase energy costs. It would also limit access to open spaces for recreational use, increasing travel costs.

6.5.4 Conclusion

The energy analysis supports limiting conflicting uses within significant resource areas and allowing them fully within the impact area.

The retention of natural resources in the Springwater Community can reduce heating and cooling related energy needs both within the site and in the surrounding community. Conservation of resources can also reduce infrastructure-related energy use and enhance the attractiveness of local walking and bicycle routes, including the Springwater Trail and other trails. This can decrease transportation-related energy use. Locating homes, jobs, and services in close proximity to one another can significantly reduce transportation-related energy demands.

7.0 Determining level of protection Based on ESEE Results

This section contains the levels of protections recommended for implementation for the Goal 5 significant resources. It will be based on the ALP, the resource classifications that the City has identified for each resource site, and the goals and policies that the City has developed to plan the Springwater community. The Goal 5 significant resource sites will be identified and incorporated into the Environmentally Sensitive Resource Areas (ESRA-SW) developed to provide adequate protections to maintain the functional value of each site.

After review of the ESEE impacts on property owners within Springwater, several conclusions can be drawn. First, the Springwater Community Plan is designed to provide greater residential and employment densities than what currently exists. The economic benefits of urbanization are substantial for all lands including the ESRA-SW sites. The analysis indicates that most properties located partially within the ESRA-SW will experience substantial increases in development potential and economic value as a result of the Springwater Community Plan implementation compared to the existing rural zoning.

For landowners with highly constrained property that may be located substantially within resource sites, the economic impacts are varied and could be marginal or negative. The proposed ESRA-SW sub-district addresses these impacts in a number of ways. A program has been developed to provide additional economic value from lands within the ESRA-SW through a density transfer allowance. This density transfer allowance increases the net development potential of lands outside the ESRA-SW. Aggregation of properties in common ownership or as part of a larger development package may effectively increase the overall development potential of lands adjacent to the ESRA-SW. Additional value accrues to local landowners from the proximity of these properties to the community’s natural, scenic, and open space amenities.

Table 7.1 summarizes the conclusions for each of the four ESEE factors considered. In the table, “prohibit” indicates an analysis conclusion to prohibit conflicting uses, “limit” refers to limiting conflicting uses, and “allow” refers to fully allowing conflicting uses. The final column, “conclusion,” lists the aggregated assessment for the site.

Table 7.1 Conflict Resolution Summary Table

Property	Economic	Social	Environmental	Energy	Conclusion*
Lots with no ESRA-SW coverage	Limit	Limit	Limit	Limit	Limit
Lots with partial ESRA-SW coverage	Limit	Limit	Prohibit	Limit	Limit
Lots with substantial ESRA-SW coverage (and limited transfer-ability)	Limit**	Limit**	Prohibit	Limit	Limit**

* *Green Development Practices standards that will apply throughout the Plan District will minimize impacts on nearby/downstream significant resources and resource functions.*

** *In certain cases, on-site density transfers are not possible, with potential loss of economic and social values. Therefore, this analysis recommends limited incursions into the ESR-SW A to allow full density transfer potential to be realized, or alternatively, outright purchase of those parcels located within the resource sites.*

Most properties containing significant resources will experience substantial increases in development potential and economic value as a result of Plan District implementation. Fully allowing conflicting uses (i.e., allowing unrestricted development within the ESRA-SW) fails to meet the goals and objectives of the Concept Plan, fails to protect the unique attributes of the community, and could result in major impacts and loss of significant natural resources and ecological functions. Prohibiting conflicting uses altogether would preclude urbanization of the community, and similarly fail to meet the goals of the community, as expressed in the Springwater Community Plan.

Limiting conflicting uses through proposed ESRA-SW land use regulations has positive economic, social, environmental and energy implications for the landowners, resources, and the larger community – so long as existing uses can be maintained, planned streets, utilities, and pedestrian trails are allowed to pass through the ESRA-SW in a manner that minimizes impacts, and residential units within the ESRA-SW can be transferred to more suitable buildings sites outside the ESRA-SW.

Some properties with “substantial ESRA-SW coverage” do not have sufficient area outside the ESRA-SW to fit all of the allowed transfer units on site. As a result of the economic and social analysis, the ESEE recommendation is to create a provision that permits these highly constrained properties to build into the ESRA-SW, after available non-ESRA-SW land has been used, in a manner that minimizes impacts. Alternatively, the City of Gresham could decide to compensate parcel owners by purchasing the parcels located within the resource sites.

7.1 ESRA BOUNDARIES

Finally, there is a need to determine the correct boundaries for the resource sites that will become part of the ESRA-SW sub-district. As mentioned in the ESEE analysis, resource sites have been classified according to their contribution to the functional value of the watershed by using a 1 to 6 rating (see section 2.3 and Figure 2.1). This reflects the variability of the resource sites. That is, not all sites have equal value. While they may contribute to maintenance and protection of a watershed’s function and value, the ESEE approach allows flexibility to make the following determinations:

- Flexibility to determine buffer widths and boundaries that differ between each resource site, yet provide adequate protection
- When justified by the ESEE analysis a jurisdiction may decide not to provide protective measures should it be demonstrated that the “conflicting use is of sufficient importance relative to the resource site” that any “measure to protect the resource to some extent should not be provided” (ORS 660-023-0040(5)(c))

7.1.1 Springwater Environmental Protection and Enhancement Goals

As mentioned in the introduction of this section, one of the goals for the Springwater Community development will be to “protect, restore and enhance significant natural resources, including stream corridors, wetlands, and forested areas.” This goal and the 12 policy statements, which are designed to guide development, are a critical part of the principles (others include economic development, sustainability, community, livability, and transportation) that the Springwater Community Plan will use to ensure a successful development and a desirable place to live (see Springwater Community Plan Report).

The policies shed light on how the natural resource goals will be met. These are important statements because they help outline levels of environmental maintenance, protection, and enhancement that will be implemented in the community. An important element of the environmental protection and enhancement is the determination of the ESRA-SW sub-district size and extent. That is, what are appropriate boundaries for the natural resource sites that meet the natural resource goal?

The policy statements clearly recognize that proper stewardship of the Springwater Community portion of the Johnson Creek Watershed is necessary because of its importance locally and regionally. Further, the policies express that any new development must be balanced against:

- Protection of sensitive species and habitat, water quality, and groundwater resources,
- Restoration of watershed functions as well as sensitive/natural species,
- Protection of steeply sloped lands, and
- Protection of wildlife habitat corridor for wildlife migration.

With goal and policy statements in mind, combined with the significant resource site classifications and the “Limited” conflicts approach that this ESEE analysis supports, it is possible to provide guidance and recommendations for ESRA-SW boundaries. Not all ESRA-SW boundaries need to be identical; there can boundary flexibility depending on the combination of the three factors.

7.1.2 ESRA-SW Boundary Determination Guidelines

The following outlines the boundaries for the Springwater ESRA-SW. Using the four factors of goal/policies, resource rating classifications, Metro Title 13 protections (as part of the Gresham/Multnomah Intergovernmental Agreement), and allowance of Limited conflicts as supported by the ESEE analysis, it is possible to outline a set of guidelines to determine appropriate ESRA-SW boundaries. These guidelines are then compared to the proposed Springwater Concept Plan to determine whether the ESRA-SW boundaries are adequate to at least meet the minimum boundary requirements.

Once the minimum boundaries for protection of significant natural resource sites have been identified based on the four factors, the ESRA-SW boundaries should be broad enough to:

- Prevent resource site degradation
- Protect the functional value of the resource site and health of the watershed
- Provide where possible opportunities for enhancement of resource site and overall watershed health

7.1.2.1 Boundary Determination and Natural Resource Classifications

The ESRA-SW boundary can vary depending on the significant resource site’s functional classification and their location in the watershed. The following are boundary guidelines for each resource classification. For detailed discussion of the significance class determination see the *Springwater Community Plan Natural Resource Protection and Restoration Plan* (April 2005).

Class 1 – Isolated Tree Grove

Class 1 areas are small-sized tree groves isolated from streams or wetland. They have the lowest functional value within the planning area and limited enhancement potential. Sites in this classification provide some habitat resource value, but not are considered critical to preservation of watershed health. Boundary protections can be minimal and could, given, the tree planting standards, be non-existent. No specific recommended boundary.

Class 2 – Tributary Reach

Class 2 areas are located along the relatively narrow tributaries to the Johnson Creek main stem. While they lack mature tree cover they have value by providing function to prevent erosion, bank cutting, and some wildlife habitat value. In most cases, these areas have been disturbed (mowed) and no longer have native vegetation, but they do contribute to overall watershed health. Boundaries need to be adequate to protect this function, though they could be narrower than the natural resource inventory boundary and still protect the sites. Should enhancement opportunities be considered, the sites would need to be equal to the boundary identified in the natural resource inventory. Recommended boundary width is 100 feet either

side of stream or wetland unless there are steep slopes (greater than 25% slope) in which case the recommended boundary width is 175 feet.

Class 3 – Tributary Reach and Tree Grove

Class 3 acknowledges the increased functional value of two resource features in one site, i.e., tributary reach and a tree grove. The combination of the elements provides stream protection for aquatic habitat, water quality and erosion protection from canopy and riparian vegetation, and forested corridors to support wildlife habitat. Boundaries for these areas need to be of adequate width to protect the tree groves and that there be adequate width of tree groves spanning the tributaries or the Johnson Creek main stem to maintain wildlife passage. Recommended boundary width is 175 feet either side of stream or wetland, or 250 feet where tree groves are located away from water features.

Class 4 – Johnson Creek Reach or Locally Significant Wetland

Class 4 sites include either the entire Johnson Creek corridor or those sites identified through the Local Wetland Inventory (see Reference Documents) as locally significant wetlands. As documented through the inventory process, these sites provide significant value to watershed health through water quality and channel protection and support of aquatic and terrestrial habitat. ESRA-SW boundaries should match the natural resource inventory boundaries in order to protect existing resource functions. Similarly for enhancement opportunities, the ESRA-SW boundary should be equal to the natural resource inventory boundary. Recommended boundary width is 200 feet either side of stream or 100 feet surrounding a wetland.

Class 5 – Combination of Two: Johnson Creek Reach, Tree Grove, Unique Habitat, Locally Significant Wetland

Class 5 sites include multiple functions that contribute to watershed health, habitat protection (aquatic and terrestrial) and protection of steep slopes. ESRA-SW boundary should match the existing natural resource inventory boundary to maintain existing resource functions and provide enhancement opportunities. Recommended boundary width is 200 feet either side of stream or wetland. Recommended boundary should surround entire resource site if it is located away from a water feature.

Class 6 – Combination of Three or More: Johnson Creek Reach, Tree Grove, Unique Habitat, Locally Significant Wetland

Class 6 sites provide the greatest functional value of all resource sites. These sites exhibit the greatest number of resource functions and are vital to maintaining watershed health. These sites are also the most sensitive to changing conditions and can be degraded should there not be adequate protection. Therefore, ESRA-SW boundaries should match the existing natural resource boundary to preserve existing resource functions and provide enhancement opportunities. Recommended boundary width is to surround entire resource site.

7.1.2.2 Boundary Determination - Sites Adjacent to Water Features

The ESRA-SW boundary must also conform to the requirements set forth in the Intergovernmental Agreement between the City of Gresham and Multnomah County. That agreement states that the City will apply Metro's Title 13 protection standards and where possible exceed them.

A recent draft of Metro's Title 13 Model Habitat Conservation Ordinance (March 24, 2005) outlines the proposed setback boundary distances for protecting resource sites adjacent to water features. These setback boundary requirements have been applied to Springwater's natural resource classifications (see previous classification definitions and Figure 2.1) to

determine a recommended boundary setback for the ESRA-SW District. Table 7.2 identifies the recommended setback widths. For comparative purposes the table also includes the minimum setback widths currently required by the Gresham Water Quality Resource Area Ordinance and Metro’s existing Title III Ordinance. All setback distances are measured in feet from top-of-bank if a stream or from delineated wetland boundary.

Table 7.2 Springwater Minimum ESRA-SW Setback Distance – Sites Adjacent to Water Features

Resource Classification	Regulated Corridor for Water Quality Protection¹	Recommended Distance for Primary Factor Protection²
Class 2 – Tributary to Johnson Creek with no or highly modified riparian vegetation	50 feet	100 feet either side of top-of-bank or one site potential tree height for streambank protection and replacement of riparian vegetation
Class 2 – Tributary to Johnson Creek, slopes greater than (>) 25% grade. Applies only to a small segment of Hogan Creek. (see Figure 7.1, letter A)	75 feet	175 feet either side of top of bank for stream bank protection; water quality
Class 3 – Tributary to Johnson Creek in forest canopy	75 feet	175 feet either side of top of bank for riparian/upland connectivity and proximity to upland habitat area; large wood recruitment
Class 3 -- Tributary to Johnson Creek, slopes greater than (>) 25% grade in forest canopy. Applies only to small segments of Brigman and Botefuhr Creeks, and a larger segment of Hogan Creek. (see Figure 7.1, letter B)	150 feet	175 feet either side of top of bank for wildlife passage while protecting the integrity of the streambanks or vegetated ravines
Class 4 – Johnson Creek Mainstem	150 feet	200 feet either side of top of bank or to the edge of the 100 year floodplain, whichever is greater. For the extent of 100 yr floodplain and channel dynamics; wildlife passage; riparian/upland connectivity; flood storage
Class 4 – Locally Significant Wetland as shown in Figure 4 of the Natural Resources Report	50 feet	100 feet surrounding the entire wetland for connection to upland interior habitat
Class 5 – Johnson Creek mainstem, tree groves, unique habitat, and or locally significant wetland.	150 feet	200 feet either side of top of bank or to the edge of the 100 year floodplain, whichever is greater. For the extent of 100 yr floodplain and channel dynamics; wildlife passage; riparian/upland connectivity; flood storage

¹ From City of Gresham’s Water Quality Resource Areas Ordinance and Metro’s existing Title 3 Ordinance.

² Metro’s Title 13 Model Habitat Conservation Ordinance (3/24/05).

7.1.2.3 Boundary Determination – Sites Not Adjacent to Water Features and Class 6 Resource Site

For resource sites not located adjacent to water features and a Class 6 resource site, recommended boundary distance guidelines have been identified by the Springwater Community Working Group to meet protection goals. Table 7.3 displays the recommended distance boundaries for those natural resource site classifications away from water features and a Class 6 resource site near Johnson Creek.

It is recognized that the protection recommendations for these areas go beyond Goal 5 requirements. They are recommended because of the Springwater Community Planning goals designed to promote a sustainable community. A previous section of the ESEE report (Section 7.1.1) outlined the Community Plan’s stewardship goals for environmental resources. Among the goals were protection of steep slopes, sensitive species and habitats, and protection of wildlife habitat corridors for wildlife migration. The boundary recommendations for sites not adjacent to water features meets these goals by protecting steep slopes and maintaining corridors that allow wildlife to migrate between upland areas and the stream corridors. The boundary recommendation for the Class 6 resource site meets these goals by protecting a particularly high value and sensitive habitat site located along the upper mainstem of Johnson Creek.

7.3 Springwater Minimum ESRA-SW Setback Distance – Sites Not Adjacent to Water Features & a Class 6 Resource Site

Resource Classification	Recommended Boundary on Sites Not Adjacent to Water Features¹
Class 3 – Tree Groves as corridors between water features See Figure 14 Tree Groves in the Natural Resources Report. Applies only to the tree grove between Sunshine and McNutt Creeks and the tree grove near Badger Creek.	250-feet wide for riparian to upland connection; wildlife habitat larger patch sizes, microclimate and shade, recharge to groundwater sources and large woody recruitment
Class 5 -- Slopes greater than (>) 25% grade. Applies only to the Hogan Butte and the Persimmon Areas. (see Figure 7.1, letter C)	Preserve entire resource site; but allow needed public facilities
Class 6 – Johnson Creek Reach, Tree Grove, Unique Habitat, Locally Significant Wetlands	Preserve entire resource site; but allow needed public facilities

¹ From Springwater Community Working Group

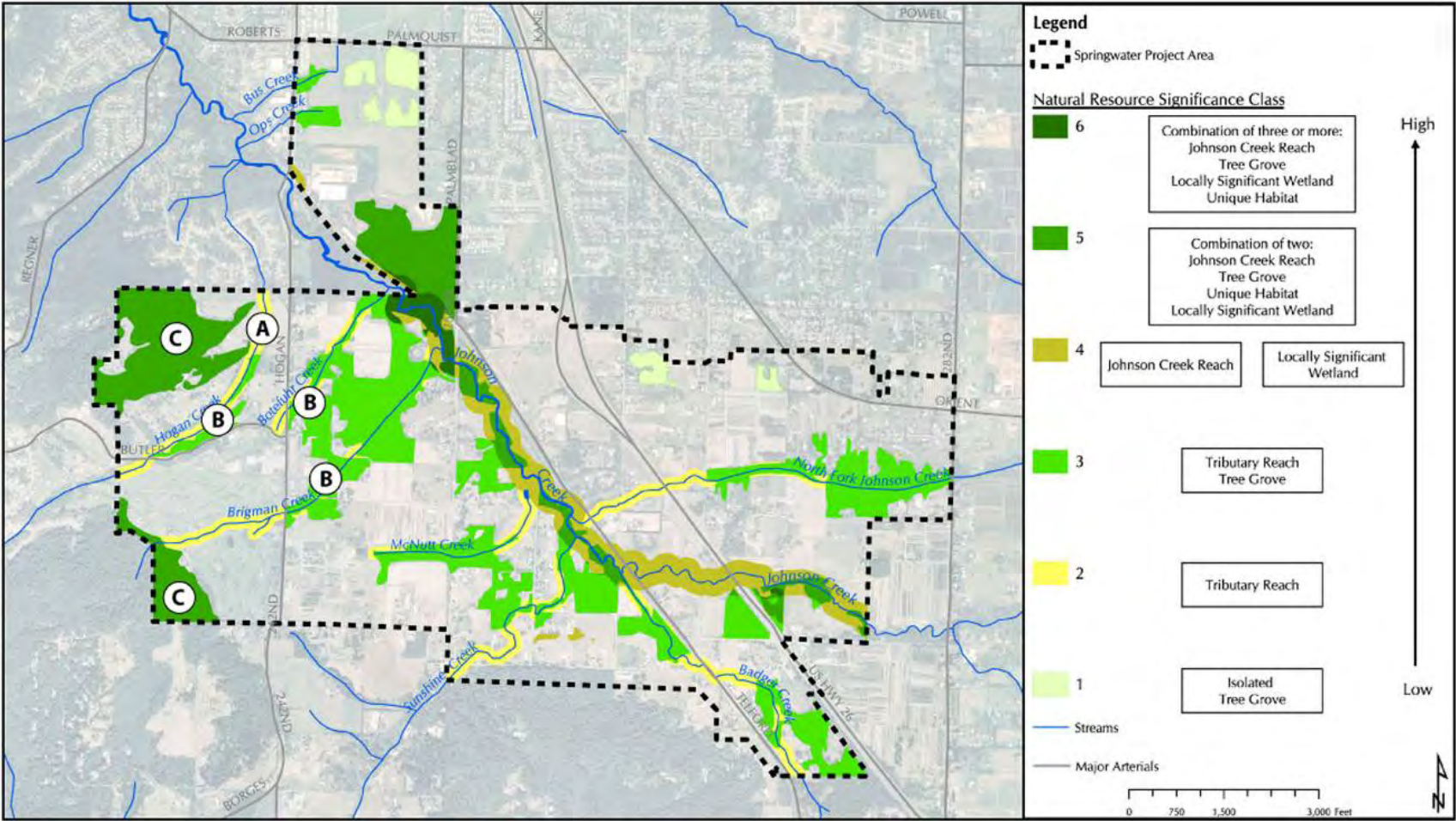


Figure 7.1 Approximate Locations of Steep Slope Sites by Natural Resource Significance Class

7.2 ESRA-SW COMPARISON TO CONCEPT PLAN AND NATURAL RESOURCE SITE INVENTORY BOUNDARY

The following section compares boundary guidelines in the previous sub-section to the proposed Springwater Community Concept Plan (Figure 7.2) and the resource site inventory boundary (Figure 7.3). Figure 7.3 is a composite map that overlays the proposed ESRA-SW district boundary on the resource site inventory boundary. This allows the reader to view differences, if any, between the ESRA and resource boundary.

The ESRA-SW boundary guidelines are applied to each of the resource sites by resource significance classifications and/or stream reach. In the first sub-section a determination has been made as to whether the Concept Plan boundary meets the recommended ESRA-SW boundary guidelines. In the second subsection the ESRA-SW boundary is compared to determine differences, if any, between the proposed ESRA-SW boundary and the resource site inventory boundary. Both the Concept Plan and Natural Resource Site Inventory Boundary figures are labeled 1 to 5 to identify sections that are addressed in the comparisons.

7.2.1 ESRA-SW Boundary and Concept Plan Comparison

The recommended ESRA-SW sub-district boundary widths are met for the entire Springwater Community except in locations that are indicated in Figure 7.2. There are five sites where the ESRA-SW sub-district boundaries do not exist. These five are identified and discussed in detail below.

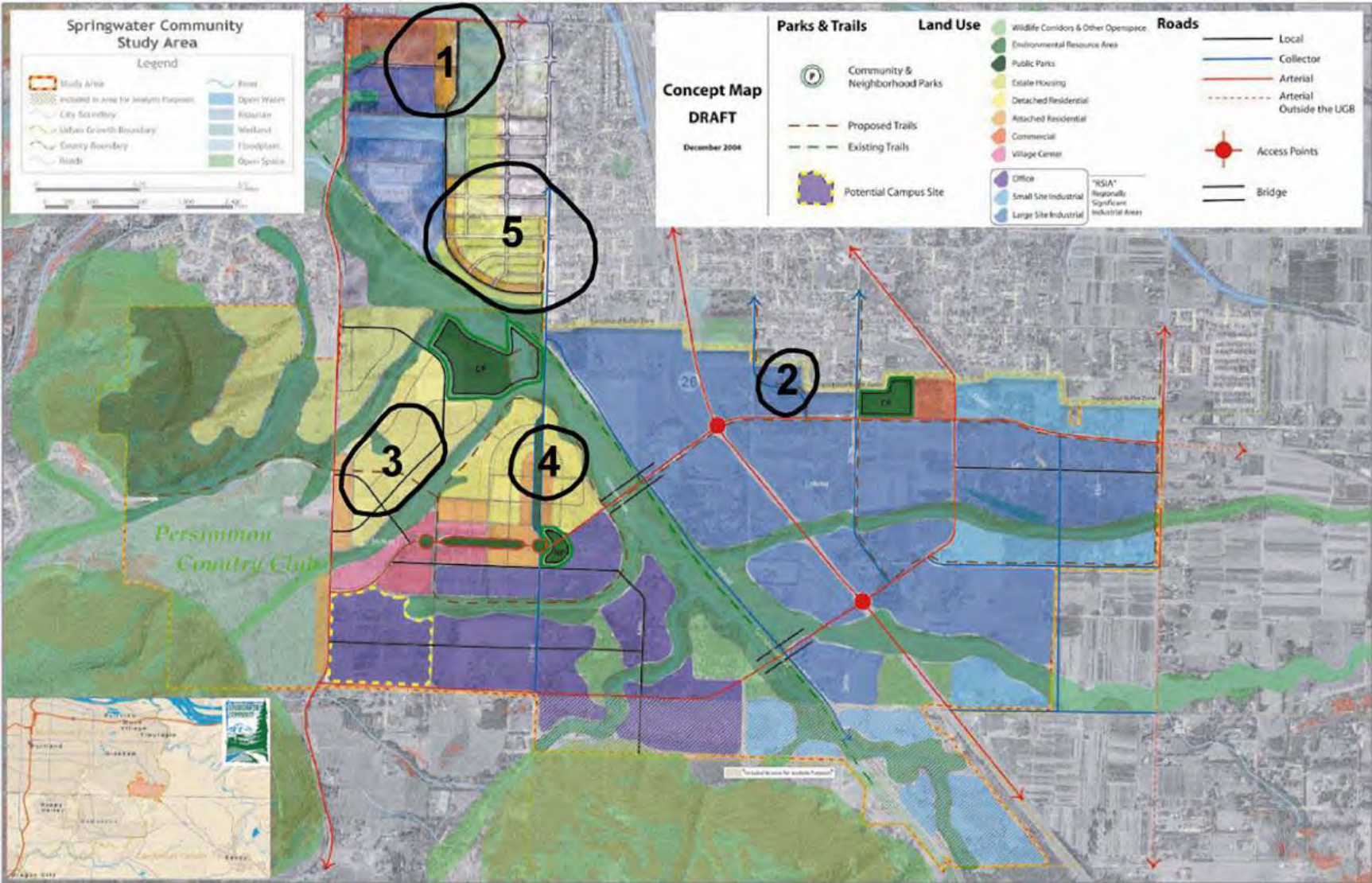
7.2.1.1 Sites 1 and 2

Sites 1 and 2 in Figure 7.2 do not have ESRA-SW sub-district boundaries. These sites have a natural resource significance class rating of #1. Sites with this classification provide the lowest contribution to watershed health and protection (see Figure 7.1 and sub-section 7.1.2.1). The sites are located in the Brickworks area (zoned district HI or Heavy Industrial) and the Springwater Community area along the northern boundary of the Springwater Community bounded by 262nd Street on the western side and 267th Street on the eastern side (to be zoned IND-SW or Industrial).

These are isolated tree groves that, if left, unprotected and the conflicting uses of the proposed zone district allowed, would not impact the overall functional value of the watershed. Certainly, tree removal would be a concern and therefore such removal would need to comply with the tree planting requirements, but the overall impact would not risk the environmental health of the Springwater Community. Given the lower functional value of these resource sites and tree planting the requirements that must be followed should there be development at the sites, there is no need to provide an ESRA-SW boundary for these locations.

7.2.1.2 Site 3

Site 2 has a tree grove that spans the upper reaches between Botefuhr and Brigman Creeks. Site 3 has a natural resource significance class rating of #3, which means that the site's contribution to watershed health is based either on its proximity to a tributary of the Johnson Creek Watershed or in this case its contribution as a tree grove connecting tributaries to allow wildlife passage between reaches, to a forested area, or for wildlife cover protection.



The concept plan does not provide a boundary for this site, which has a recommended tree grove corridor boundary width of 250 feet to allow for wildlife passage. The reason for this is due to the higher development densities that are proposed for this area. The area is to be zoned Low Density Residential (LDR-SW) which allows single detached dwellings. The following is the rationale for the lack of an ESRA-SW boundary:

- Encourage urbanization such as higher residential density, commercial and business development and activities that result from urbanization (e.g., vehicular traffic, impervious surfaces, residential and business population) that may conflict with wildlife and aquatic habitat.
- Promote public safety: reduce the potential interaction between human populations and wildlife (e.g., deer/vehicle collisions) that might otherwise result in safety and health concerns.

Reduce risk to wildlife: increased vehicle movement, noise, presence of domestic pets could result in greater risks to wildlife if there is a tree grove corridor.

7.2.1.3 Site 4

Site 4 has a natural resource significance class rating of #3. It is located upland from the Johnson Creek. Its rating, like Site 3, is based on its contribution as a tree grove that provides wildlife cover and protection.

The concept plan provides a partial boundary around some of the tree grove but there is a significant portion of Site 4 that is outside the ESRA-SW. This is due to the same reasons as Site 3. High development densities are proposed for this area. The area is to be zoned Low Density Residential (LDR-SW), Townhouse Residential (THR-SW), and Research/Technology Industrial (RTI-SW). Such development will allow attached dwellings commercial and retail development. The following is the rationale for the lack of an ESRA-SW boundary surrounding the entire tree grove area:

- Encourage urbanization such as higher residential density, commercial and business development and activities that result from urbanization (e.g., vehicular traffic, impervious surfaces, residential and business population) that may conflict with wildlife and aquatic habitat.
- Promote public safety: reduce the potential interaction between human populations and wildlife (e.g., deer/vehicle collisions) that might otherwise result in safety and health concerns.
- Reduce risk to wildlife: increased vehicle movement, noise, presence of domestic pets could result in greater risks to wildlife if there is a tree grove corridor.

7.2.1.4 Site 5

Site 5 has a natural resource significance class rating of #5. It is located in the Brickworks area within Gresham city limits. As a resource class #5 rating its major contribution to watershed protection is based on a combination of tree grove and unique habitat protection qualities. The boundary width recommendation for this resource rating is to preserve the entire site. The Concept Plan, however, proposes housing development in this area and no ESRA-SW boundary.

There are several indications that the Concept Plan's proposed activity for this site might change. First, the City of Gresham is continuing its assessment of the appropriate land uses and ESRA-SW protection boundaries to propose for this site. Second, the City currently has a protection ordinance for heritage trees. A Hogan Cedar tree that is located in this site is on that

list. The City also has a tree ordinance to protect significant, mature trees. Many of the trees that are within the site qualify for protection under this ordinance. Since the site has a high significance rating it is likely that the Concept Plan land use proposal will be modified to protect the area following the recommended boundaries for a class #5 natural resource site.

7.2.2 ESRA-SW and Natural Resource Boundary Comparison

By overlaying the ESRA-SW district on the significant natural resource boundaries, it is possible to compare the ESRA-SW boundaries to the resource site boundaries. Figure 7.3 displays these overlays.

Within the Springwater Community Planning Area (the area excluding Brickworks and Clackamas County) the ESRA-SW boundary matches closely with nearly all natural resource classes, except for the 4 sites that are labeled on the figure. In a few other locations there are slight differences in boundaries, however, they do not affect the functional integrity of the resource sites.

7.2.2.1 Site 1

Site 1 is located along the North Fork of Johnson Creek and has a natural resource significance rating of #3 as a Johnson Creek Tributary. A recommended boundary for a #3 rating is 175 feet. The proposed ESRA-SW boundary for this site, though, is wider than the recommended width. The total corridor width approaches 500 feet. The natural resource boundary associated with this tributary, however, extends in some places beyond the ESRA-SW boundary by several hundred feet.

From the standpoint of protection of watershed functions the ESRA-SW boundary width that has been recommended for this site is considered sufficient to help maintain the functional integrity of the Johnson Creek watershed. That the boundary has been expanded by a total of nearly 150 feet will provide additional resource protection.

7.2.2.2 Site 2

Site 2 has a natural resource significance class rating of #3. It is located upland from the Johnson Creek. Its rating is based on its contribution as a tree grove that provides wildlife cover and protection. The ESRA-SW boundary does not include a significant portion of this natural resource site.

It is removed from ESRA-SW protection because the area has been designated for higher density development (housing, office and commercial). This is the flexibility that performing an ESEE analysis allows under the Goal 5 statute (ORS 660-023-0040(5)(c)). The Springwater Community Plan has identified this area for future development. Through the ESEE analysis that has assessed the consequences of conflicting uses, it has been determined that development is considered of greater importance than the Goal 5 protections. Therefore at this particular location the ESRA-SW boundary does not protect the entire natural resource site.

That there is not an ESRA-SW boundary surrounding this site does not mean that the site will be completely degraded. There are environmental standards in the proposed development code for these sub-districts that promote sustainability and environmental protection. These requirements include standards for water quality, stormwater run-off, tree replacement, etc.

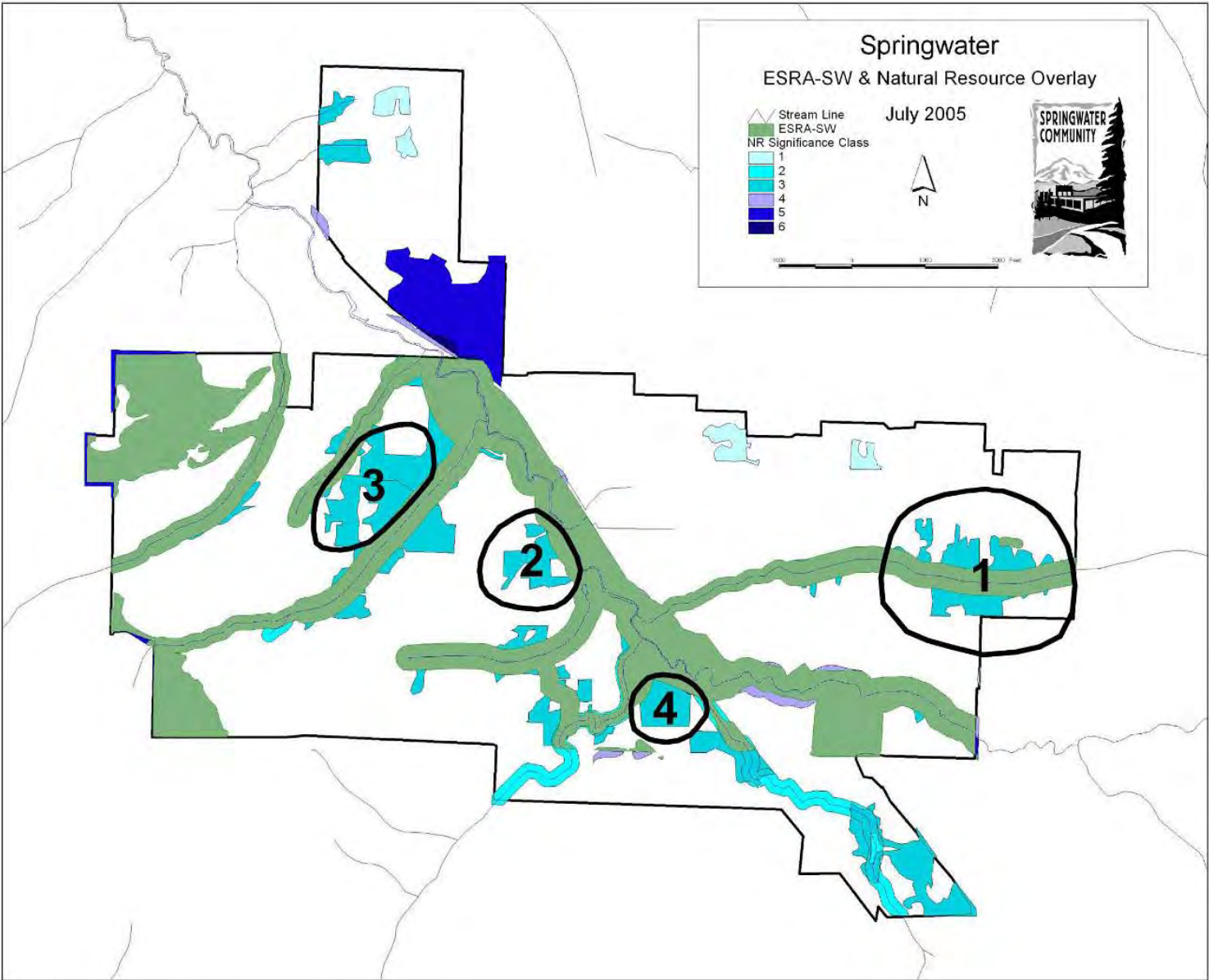


Figure 7.3 Springwater ESRA-SW and Natural Resource Boundary Overlays

7.2.2.3 Site 3

Site 3 has a natural resource significance class rating of #3. It is located between Brigman and Botefuhr Creeks. Its rating is based on its contribution as a tree grove that provides wildlife passage, cover and protection. The ESRA-SW boundary does not include this natural resource site.

It is removed from ESRA-SW protection for the same reasons as Site 2, which has been designated for higher density development (principally housing). Like Site 2, the ESEE allows flexibility in determining protection boundaries. For this specific site allowing the consequences of conflicting uses has been determined to be of greater importance than protecting the site.

Like Site 2, the development standards for the proposed sub-districts in Site 3 will require environmental protections to address water quality, stormwater run-off, and vegetation and tree replacement. These requirements will not prevent the conflicting uses but will reduce their overall impact on the resource site.

7.2.2.4 Site 4

Site 4 has a natural resource significance class rating of #3. It is located between Sunshine Creek and the confluence of Badger and Johnson Creeks. Like Site 3 the rating is based on its contribution as a tree grove that provides wildlife passage, cover and protection. The proposed ESRA-SW boundary does not include the entire natural resource site boundary at this location.

Site 4 is also removed from ESRA-SW protection because the area has been designated for higher density development, primarily office development. Again, the ESEE allows flexibility in determining protection boundaries. For this specific site allowing the consequences of conflicting uses has been determined to be of greater importance than protecting the site.

Like Site 2, the development standards for the proposed sub-district in Site 4 will require environmental protections to address water quality, stormwater run-off, and vegetation and tree replacement. These requirements will not prevent the conflicting uses but will reduce their overall impact on the resource site.

Springwater Community Plan



Springwater Annexation and Development Strategies Report

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

SPRINGWATER COMMUNITY PLAN ANNEXATION AND DEVELOPMENT STRATEGIES

With the adoption of this Plan, there is a development path for the entire Springwater area. The next steps to development of the area based on this plan hinge on two essential steps: First, a majority of property owners in the area have to agree to annexation. Secondly, the private sector has to be motivated to develop the property. Both of these elements depend on many elements some of which, such as the state of the economy, are totally outside the control of anyone involved. There are elements however that the City can strategize and plan for based on an analysis of the staged feasibility of land acquisition and development in the Springwater Plan Area.

In an annexation process, individual property owners typically act in their own best interests. With a large number of unique tax lots and property owners, there will be a complex matrix of interests as the many personal circumstances interact with the Plan goals and interested buyers. These will ultimately align, but in unpredictable ways and at an unpredictable timeline. Gresham needs tools that will allow it to react to the alignment of public and private interests in a timely and flexible way.

There are three crucial steps to be carried out prior to planned development of properties:

1. The areas must be annexed. Generally, the most desirable method to do this is using a “double majority” petition – that is, a petition that is signed by property owners representing a majority of the area, and a majority of the registered voters living in the area. While this is not the only way to process an annexation, for Springwater it is the most likely process since it allows considerable flexibility in terms of staging annexation areas, and an election in the area to be annexed does not have to be held. The area to be annexed may be a portion or all of the Springwater Plan area, but must be contiguous to City Limits at time of annexation.
2. Planned services must be provided or guaranteed in conjunction with development. This includes sewer, water, storm drainage, and transportation (typically the arterial, collector and local streets are built when the property develops). In addition, park acquisition and development needs to be ensured, and environmental area compensation needs to be funded where needed.
3. Land Use Districts based upon the Springwater Plan District Map will be assigned to properties at time of annexation. Development approvals must be obtained prior to actual land divisions or construction of improvements on private properties. Once construction of the private and public improvements have been completed, the development can be occupied.

PLAN VS. STRATEGY

Both individual interests and economic conditions must be right and timely for the kind of development contemplated in the plan. Over time, a variety of potential interests for both existing and future property owners and for developers will evolve and will certainly change over the course of the Plan horizon (20 years). For the City of Gresham to help implement the Plan, there is a need for a high degree of flexibility in order to accommodate opportunities that arise over time. The City will need to be proactive in partnering with property owners and with the private sector in achieving the alignment of the three major factors to development. A “typical”

annexation plan proposes an orderly annexation of a few phases, following one another in a clean and logical progression. Because of the size and the challenges (as well as the opportunities) inherent in the Springwater Plan Area, what is being recommended is an Annexation Strategy Tool which identifies the most likely annexation modules based on a series of factors, including willing property owners, proximity to existing services, topography, natural resources, drainage basins, targeted industries, relationships between modules and economic projections for all plan elements. This tool establishes a City plan of action to support the annexation, marketing and development of those modules.

While it is important to have an understanding of likely initial annexation areas, the actual annexation phasing may not proceed as planned, especially when it comes to complex interactions among individuals, the economy, and developers. The City will need to be able to respond quickly and efficiently to development opportunities that arise over time. This plan includes the tool for the City to use to evaluate and respond to unanticipated opportunities for annexation and development, and also to develop preliminary scenarios that can be used to help examine new and more effective ways for financing the services for the area. This tool has been used to identify likely initial annexation areas, but can easily be modified by the City to evaluate other annexation scenarios.

Annexation and target industry recruitment strategies will work together and each will need to be flexible enough for the City to respond and work within the overall implementation goals and to respond quickly as circumstances and opportunities evolve.

ANNEXATION STRATEGIC TOOL

At this point in time, based on evaluation of elements identified in the prior section of this report, the Springwater area is suggested to be composed of 14 modules ranging in size from 52 to 294 acres each, as shown in Figure 1, below. The modules are formed to include all of the properties that would be benefited by the service extension to the area, and they take into account connections to existing neighborhoods along with the other elements. The boundaries follow property lines whenever possible.

It is desirable, but not essential, to annex as much of the module as possible when the services are ready to be extended in order to spread the costs of these new services to as many benefited properties as possible, and to open a logical and appropriately sized area for potential development opportunities. An important determinant in shaping the modules is the planned public facilities extensions, (including wastewater services) looking to maximize areas which can be developed based on logically phased public facilities construction.

Any one of these could be logical annexation modules, and the recommended tool will include analysis and costs for logical extensions of public services, as well as estimation of development values based on the Springwater Plan Land Use District permitted uses. As annexation potentials develop, the City can utilize this tool to do preliminary evaluations of property owner interests and expectations for providing public facilities services.

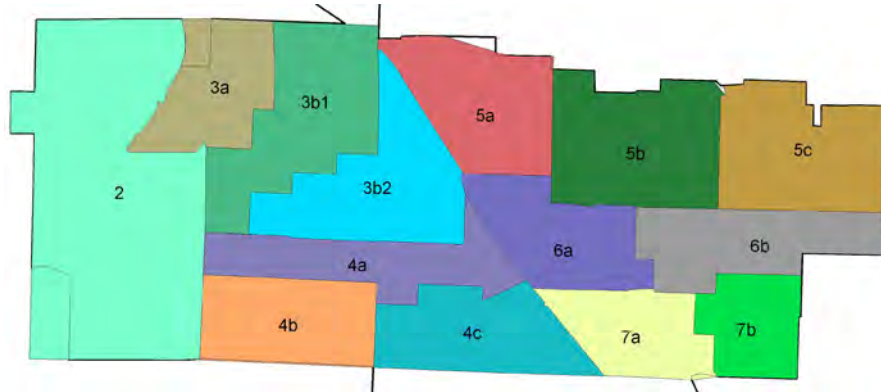


FIGURE 1. ANNEXATION MODULES

The module database includes relevant data to make it a useful tool for both evaluating proposals and developing policies to respond to future challenges. For example, it includes estimates of how much development and new construction value is assumed at buildout of each module. In addition, the annexation module database also contains data on antecedents; that is, the modules that must be developed in order to bring services to the boundary of the module.

Module components:

The module database will utilize data including the following information:

1. Current Data
 - a. Parcels and Tax Assessor's Data
 - b. Current Housing Units
 - c. Total Assessed Value
 - d. Number of Registered Voters
2. Data Calculated from Plan's Implementation
 - a. New Housing
 - b. New Commercial Space
 - c. New Employment
 - d. New Parks
 - e. Open Space Protected
 - f. New Impervious area
 - g. Future Assessed value
 - h. System Development Charges
3. Estimated Costs to the City
 - a. Cost of Sewer
 - b. Cost of Water
 - c. Cost of Storm Drainage
 - d. Cost of acquisition and development of Parks
 - e. Cost of Open Space Acquisition or Compensation (ESRA implementation)

Because the modules are based in GIS, they can be linked with any other GIS system, including the tax assessors, Metro's RLIS database, the County Election office, aerial photos, and countless others. This helps insure that the most updated information is easily accessible over time.

While the concept is simple it can be used to quickly assess a successful strategy in what will be a complex and dynamic process.

RECOMMENDED ANNEXATION STRATEGY

The goal of developing land for new employment has always been a primary driver behind the generation of the Springwater planning.

This Annexation Modules tool will be utilized to identify what will be recommended as the first phase annexations areas for Springwater, and will be used as an ongoing tool for the City to continue to strategize and respond quickly to changing circumstances over the Plan timeline.

At this time, the primary Phase One area for industrial recruitment and development would be that area surrounding the proposed northerly intersection of a new Collector road and Highway 26. This is generally that area which includes Modules 5A and 5B, roughly 200 acres of proposed Industrial land.

RECOMMENDED RECRUITMENT/DEVELOPMENT STRATEGIES

A key aspect for successful industrial development in Springwater will be the ability to identify and market the Springwater Community as a unique opportunity area and to develop industrial recruitment strategies for the targeted industries.

The Economic Development Plan recognizes the value of the Village Center and the residential component of the Community Plan as basic elements which support the effective marketing and recruitment of the Plan area. The recruitment plan recognizes the need for flexibility in industry targets and emphasizes knowledge-based professional and technical service industries. Early development of the Village Center, if properly conceived, can help establish an image for Springwater and increase the area's desirability as a location for industrial investment.

The Plan recommends the early development of a recruitment team, including representatives of the City, the development community, local residents, business leaders from the region and others with specific areas of expertise related to the industries being recruited. This "Team Gresham" would have as its express purpose the evaluation, promotion, and shepherding of economic development activity on selected Springwater sites.

Secondly, the Plan recommends a parcel-specific inventory for all land within the industrial targeted areas. This inventory should result in "land briefs" for each site that describes all available information such as parcel sizes, slope, ownership, etc. This inventory allows quick identification of prime development sites for recruitment and response to opportunities as they arise.

In addition to the parcel inventory, the City should prepare a list of brokers and property owners and take steps in regularly scheduled meeting or work sessions to ascertain levels of interest from both buyers and sellers. It will be in the best interests of property owners, brokers and developers to establish communication networks and to evaluate land assembly strategies to best position sites for potential purchase and development.

Once these steps have been taken, a more formal marketing and recruitment campaign can begin. The primary purpose of any marketing is to generate interest in the area from companies with expansion or relocation plans. The market must also focus on attracting skilled workers to the region. An additional key target audience for Springwater is the people and businesses that are already in the region.

The marketing efforts will need to identify the target audiences and focus the efforts on them. The primary targets for this marketing effort are:

- Regional business leaders that can influence business location decisions
- Key allies, such as state and regional economic development organizations and institutes of higher education
- Members of the Media
- Site location consultants
- Decision-makers at companies within the targeted industries

The consultant recommends the following marketing strategies for Gresham:

1. Develop a consistent theme for marketing Gresham in conjunction with Springwater. The City should move forward on initiatives that help position the community and lay the basis for more targeted Springwater marketing. (It is similar to a marketing strategy that promotes the larger company while signaling the roll out of a new product.)
2. Build awareness locally among the region’s business leadership that the community is dedicated to advancing business opportunities. Identify those business leaders most likely to influence decision-makers and invite them to establish an “Ambassador” program.
3. Build awareness through the region. Opportunities such as Springwater need to be promoted through partner advertising and networking.
4. Build awareness of Springwater among corporate site selectors. Gresham should create a data base of site consultants and target them through direct marketing, visitation opportunities, and invitation to the City to see specific projects.
5. Continue to build awareness among decision makers in target industries. Produce one-page summary for each target industry, develop database for target companies, conduct a direct marketing campaign, and participate in selected key industry trade events.

Target Industries:

Some of the target industries identified for the Springwater plan area are identified in the following table:

SUMMARY OF TARGET INDUSTRIES		
Target	Appropriate for Springwater?	Timeframe
Advanced Materials	Yes	Mid-term
Specialized Software Applications	Yes	Short-term
Forestry & Agricultural Biotechnology	Yes	Mid-term
Nanotechnology	Yes	Long-term

Recreational Equipment/Recreation Technology	Yes	Short-term
Specialty Food Processing	Possible	Short-term
Transportation Equipment/Technology	Possible	Short-term
Logistics	Not Likely	Short-term
Renewable Energy Technology	Yes	Short-term

In addition to the listed targeted industries, there are several other factors that act as a set of criteria that could be applied when developing the marketing package and can broaden the potential targets. They include sustainability, incentives and financing considerations.

Sustainability: There is significant interest in the region in positioning Springwater as a sustainable community. This positioning could take several forms. One would be to require that all structures built in the Springwater area be constructed using “green building” techniques. The formation of an eco-industrial park (EIP) at Springwater would be another way to incorporate sustainability into the community. The EIP concept entails identifying manufacturing and service companies that would benefit from co-location and collaboration in the management of resources and environmental concerns, such as energy, water, and materials management. Third would be the targeting of “green” companies—those that produce environmentally friendly or “holistic” products (e.g., products that use organically produced materials).

Incentives: The competitive environment for business expansion and relocation has never been more intense. The successful recruitment of corporations – as well as high profile start-ups – always involves some form of public inducement. In the case of Springwater, it is recommended that incentives be made available to developers and businesses that conform to the broad goals of the project. Possible incentives include infrastructure improvements, tax abatements, developer support and promotions.

Financing Options: The Springwater project should be of financial benefit for the City. Some of the financing considerations include public finance, private investment, timing and public use.

- **Public finance** > Since the financial viability of cities are always of concern, the use of tax incentives must be structured with great care. The best way to achieve that goal is to reserve tax abatements for those business who meet high standards of wage and capital investment.
- **Private investment** > The idea of a *developer's forum* can help define the scale of public involvement required to trigger development. This will also help frame the development standards that will have to be met at Springwater.
- **Timing** > The timing of development does have a specific relationship to its financial performance. The presence of services and other amenities, such as retail, have a direct bearing on the desirability of a location for potential homeowners and industrial users.
- **Public uses** > One tool for spurring investment in a specific site is the inclusion of public uses, such as post offices or city services like police and fire. The location of a public use in a commercial area, such as the Village Center, can increase the viability of related activity, such as medical and professional services, as well as retail, which would benefit from the traffic generated by the public facility.

The City will continue to explore incentives, land assembly strategies, public-private partnerships, and economic development promotions -- both industry-specific and broader based -- in order to increase and to maintain the visibility of the Springwater Community as a unique opportunity area.

Springwater Community Plan



Springwater UGMFP Title 11 Compliance Report

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

Urban Growth Management Functional Plan (UGMFP) Title 11 Compliance Report

Introduction

This report describes how the Springwater Plan District (Plan) complies with Title 11 of the Metro Urban Growth Management Functional Plan (UGMFP).

In December 2002, the Metro Council (Ordinance No. 02-969B) brought the Springwater Community Plan area into the Urban Growth Boundary (UGB). Land brought into the UGB is subject to Title 11: Planning for New Urban Areas.

It is the purpose of Title 11 to require and guide planning for conversion from rural to urban use of areas brought into the UGB. It is the intent of Title 11 that development of areas brought into the UGB implement the Regional Framework Plan and 2040 Growth Concept. (3.07.1105 – Purpose and Intent)

All territory added to the Urban Growth Boundary ... shall be subject to adopted comprehensive plan provisions consistent with the requirements of all applicable titles of the Metro Urban Growth Management Functional Plan and, particularly, this Title 11. The comprehensive plan provisions shall be fully coordinated with all other applicable plans. The comprehensive plan provisions shall contain an urban growth plan diagram and policies that demonstrate compliance with the RUGGOs, including the Metro Council adopted 2040 Growth Concept design types. (3.07.1120 – Plan Requirements)

For purposes of this report only, the Springwater Community Plan area is the 1,151.3 acres in Multnomah County brought into the UGB in 2002 (Metro Study Area 6 and part of Study Area 12). There are three areas included in the Springwater Community Plan study area that are not subject to this report (See Figure 1). The area shown in Figure 1 as 2020 Springwater UGB Expansion Area is the area subject to this report.

- Study area 12 of the 2002 UGB expansion included 139 acres on land in Clackamas County (the area east of 252nd Avenue) that originally was being considered as part of the Springwater Community and was included in the study area for analysis purposes. The land was included in the City of Damascus 2004 incorporation and thus is not subject to this Title 11 Compliance Report.
- Unincorporated land (119 acres) found at the northwest corner of the Springwater Community that has been inside the UGB (and the Gresham's Urban Services Boundary) for over 20 years.
- The "Brickworks" site which is 183 acres of designated Heavy Industrial land within the Gresham city limits. It was included in the study area to analyze how the site would work with the UGB expansion area and the appropriateness of re-designating the site or portions of the site as employment or for mixed-uses.

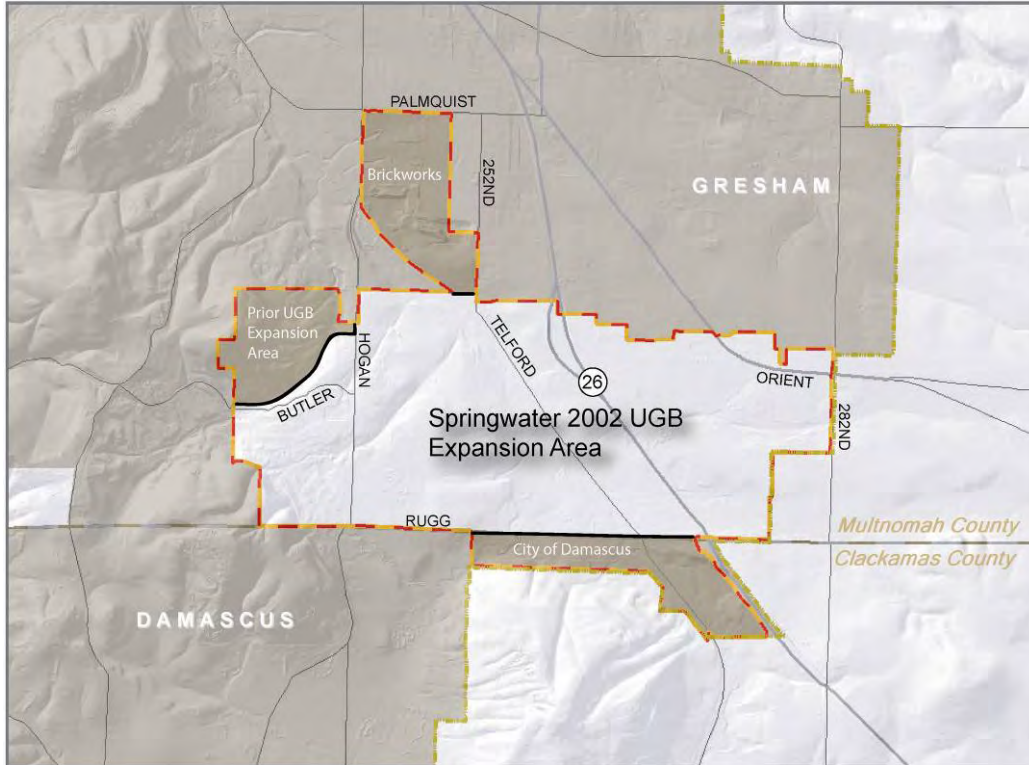


Figure 1 – Springwater Study Area

Title 11 requires the submittal to Metro of the following:

On or before 60 days prior to the adoption of any comprehensive plan amendment subject to this Title 11, the local government shall transmit to Metro the following:

- 1. A copy of the comprehensive plan amendment proposed for adoption;***
- 2. An evaluation of the comprehensive plan amendment for compliance with the Functional Plan and 2040 Growth Concept design types requirements and any additional conditions of approval of the urban growth boundary amendment. This evaluation shall include an explanation of how the plan implements the 2040 Growth Concept;***
- 3. Copies of all applicable comprehensive plan provisions and implementing ordinances as proposed to be amended. (3.07.1130.A Implementation Requirements)***

The City submitted the Planning Commission Draft to Metro on July 29, 2005, and which constitutes a copy of the proposed comprehensive plan amendments and applicable plan provisions and implementing ordinance to be amended. The Springwater Community Plan (CPA 04-8178) consists of the following:

- Springwater Community Plan Summary
- Springwater Natural Resources and ESEE Analysis Report
- Springwater Economic Development Strategy Report
- Springwater Title 11 Compliance Report
- Springwater Goals, Policies and Action Measures

- Springwater Public Facility Plans (water, wastewater, stormwater, parks)
- Springwater Plan District Plan Map
- Springwater Plan District Land Use Development Code
- Springwater Transportation System Plan

This report constitutes the compliance evaluation report. The City has scheduled, at the earliest, an October 4 enactment meeting, so that the 60 days prior provision is met. The City, on May 13, 2005, submitted to Metro an earlier draft of the proposed Comprehensive Plan Amendments, which was at least 45 days prior to the first scheduled hearing (Planning Commission on August 8, 2005).

Section 3.07.1130.B provides a method of extending timelines for adoption of comprehensive plan amendments required by Title 11. No extension of timelines is requested.

Organization

The rest of this report is organized to first show the text of a Title 11 criterion or other applicable provisions or the Conditions of Approval for Ordinance 02-969B (*italicized*); and second provide findings that describe how the proposed comprehensive plan amendments (CPA 04-8178) comply with the specific criterion; and third reach a conclusion as to whether or not the criterion is met.

Section 3.07.1120 Urban Growth Boundary Amendment Urban Reserve Plan Requirements

A – Provision for annexation to a city or any necessary service districts prior to urbanization of the territory or incorporation of a city or necessary service districts to provide all required urban services.

Findings

The Plan lands are currently in unincorporated Multnomah County. The City has an Intergovernmental Agreement (IGA) with Multnomah County (Transition of Planning and Development Services) that provides that the City will be responsible for urban reserve planning (Fourth Amendment 3/11/98). This amendment is to a 1979 Urban Planning Area Agreement that provides for Gresham providing urban services after annexations.

Gresham and Multnomah County also have an IGA specific to Springwater (5/13/04). This IGA established a Gresham and Multnomah County partnership that includes doing the following:

- Create a Springwater Urbanization Plan consistent with Title 11
- Coordinate with Metro, ODOT, Clackamas County, TriMet and the Damascus/Boring Concept Planning project
- Utilize a comprehensive public involvement process
- Address mutual objectives of a jointly adopted resolution which includes addressing the urban/rural edge
- Pursue mutual efforts to develop and implement the financial components necessary to implement the Plan.
- Pursue mutual efforts to amend the Regional Transportation Plan (as needed) and to support funding projects through MTIP and other funding sources

The City provides full city services including water, wastewater, stormwater, fire, police, development and building services, parks and trails, and streets. The City has a current IGA

with Multnomah County (1995) regarding arterial and collector road jurisdiction. The Springwater IGA provides that the 1995 roads IGA would continue to be implemented but also recognized that the City and the County may enter into good faith discussions and negotiations on road jurisdictions.

The City has an established Urban Services Boundary (USB). The USB establishes the geographical limits of where the City provides, or will provide after annexation, city-supplied urban services. A recent ordinance (CPA 04-1480) amending the USB to include the lands covered by the Title 11 compliance report was passed by the Council and became effective on June 3, 2005. This ordinance also established a new annexation goal to “provide for the orderly and efficient annexation of Pleasant Valley, Springwater and subsequently planned new community urban areas.” This ordinance also updated the City’s annexation approval code to be consistent with the Metro 3.09, including allowing for the expedited annexation process. Criterion includes “For Springwater, the adopted Springwater Plan District Plan Map shall apply” and adopted Public Facility and Transportation System Plans shall apply. As is discussed elsewhere in this report the Plan includes public facility and transportation system plans.

Conclusion

The City is engaged in the urban reserve planning for Springwater and will provide city-supplied urban services to Springwater after annexations as provided for in agreements with Multnomah County. As the City is a full service city no additional agreements with other urban service providers are necessary. The City has included Springwater in its USB and has annexation code provisions that can allow for annexations after the comprehensive plan amendments are adopted and effective. The Plan is consistent with this criterion.

B – Provision for average residential densities of at least 10 dwelling units per net developable residential acre or lower densities that conform to the 2040 Growth Concept Plan design type designation for the area.

Findings

The Metro Order that brought Springwater into the UGB only anticipated residential acreage west of Hogan Road (Inner Neighborhood) and potentially along Hogan Road (Corridor). The Plan does provide for residential acres west of and along Hogan Road but it also provides for some residential acreage east of Hogan Road. Findings and conclusion regarding 2040 Growth Concept Plan design types are found in response to Condition B of *General Conditions Applicable to All Land Added to UGB* found later in this report.

The 2002 UGB expansion added just less than 1,300 acres of land. 1,151 acres of the expansion is within the portion of Multnomah County to be governed by the City, and is such the subject of this title 11 compliance. The table below details the amount and distribution of land within the Plan both within the 2002 UGB expansion and the area that was in the UGB prior to the 2002 expansion.

Table 1: Springwater Buildable Land Analysis – Gross Acres by Classification

Plan Sub-District	Plan Data Estimate Prior UGB Expansion Area	Plan Data Estimate 2002 UGB Expansion	Plan Data Estimate Total
ESRA	66.2	304.8	371.0
Parks		33.6	33.6
VLDR-SW	54.0	43.1	97.1
VLDR-SW (Private Open Space) ¹		105.1	105.1
LDR-SW		99.4	99.4
THR-SW		43.5	43.5
NC-SW		7.4	7.4
VC-SW		23.3	23.3
RTI-SW		106.8	106.8
IND-SW		384.2	384.2
Total Acres	120.1	1,151.3	1,271.5

¹ Comprised entirely of Persimmon Golf Course lands - not expected for development

Of the 1,151.3 acres of land within the lands subject to Title 11, protected environmental lands, and land set asides for infrastructure and parks (Gross to net reduction), 552 acres were determined to qualify as “Net Buildable”. Table 2, below, describes the allocation of these lands

Table 2: Springwater Buildable Land Analysis – Gross to Net Assumption

Plan Sub-District	Description	Gross Buildable Acres	Gross to Net Calculation ²	Net Buildable Acres
VLDR-SW (Prior UGB Expansion Area)	Very Low Density Residential	54.1	22%	42.2
VLDR-SW (2002 UGB Expansion Area)	Very Low Density Residential	43.1	22%	33.6
LDR-SW	Low Density Residential	99.4	22%	77.5
THR-SW	Townhouse Residential	43.5	22%	33.9
NC-SW	Neighborhood Commercial	7.4	22%	5.8
VC-SW	Village Commercial (mixed use)	23.3	22%	18.2
RTI-SW	Industrial	106.8	22%	83.3
IND-SW	RSIA Industrial	384.2	22%	299.7
Total Acres		761.9		594.3

² Gross-To-Net of 22% is based on the 25% standard presented by Metro in the 2002-2022 Urban Growth Report: A Residential Land Need Analysis Final Report - December 2002 Page 20 Appendix A, Item #3, Ordinance 02-969. The 3% discount represents land deducted in Table 1 to account for parks.

With the proposed comprehensive plan and implementing ordinances the area will have a capacity for 1,456 total dwellings at buildout occupying 145.1 net acres of buildable residential land. Accordingly Springwater achieves the Metro standard of an overall average density equal to or greater than 10 dwelling units per net residential acre of land with an average of 10.04 Units per Net Residential Buildable Acre (NRBA).

Table 3, below summarizes the residential density assumptions for the Springwater Plan District:

Table 3: Springwater Buildable Lands Analysis - Summary of Residential Development Capacity 2002 UGB Expansion Area

New Dwelling Capacity	Net DU Per Residential Acre	Net Residential Land Acres	Dwelling Units
VLDR-SW	3.63	33.62	122
LDR-SW	7.26	77.55	563
THR-SW	17.42	33.93	591
VC-SW		NA = MU Land ⁴	180
Total New Units			1,456
New Net Residential Land Acres		145.1	
<i>Dwelling Units per Net Residential Buildable Acre</i>			10.04

⁴ The residential component of the mixed-use village will be stipulated in the master plan requirement for certainty of capacity.

Conclusion

The proposed comprehensive plan amendments are consistent with this criterion. The residential density, as stated above averages 10.04 units per net buildable residential acre of land.

C – Demonstrable measures that will provide a diversity of housing stock that will fulfill needed housing requirements as defined by ORS 197.303. Measures may include, but are not limited to, implementation of recommendations in Title 7 of the Urban Growth Management Functional Plan.

Findings

The City’s approach to providing a diversity of housing in Springwater is closely tied to meeting housing needs related to the industrial and employment districts. Springwater was originally seen as only having housing on the west side of Hogan Road and perhaps along the Hogan Road corridor. Residential development on the west side of Hogan Road is limited by the existing golf course development, slopes and stream areas. A small lot (attached and detached) sub-district (THR-SW) is proposed along the corridor in the non-sloped and non golf course areas and larger lot single family housing (VLDR-SW, LDR-SW) elsewhere. Some housing is proposed on the west side of Hogan Road. This will support the Village Center and provide some nearby housing for industrial and employment districts. These areas are not well suited for industrial development due mainly to topography and natural resources.

Five key housing types are proposed for Springwater (see Table 4 for Housing Range):

1. Large Lot Single Family Detached Housing (Average 12,000 square foot lots).
2. Standard Single Family Detached Housing (Average 6,000 square foot lots)
3. Small Lot Single Family Detached Housing
4. Townhouse Single Family Attached Housing
5. Attached housing in Mixed Use Buildings in the Village Center

Table 4 Springwater Buildable Lands Analysis – Housing Range			
Plan Sub-District	Net Buildable Acres	Assumed Residential Lot Size	Dwelling Units
VLDR-SW (2002 UGB Expansion Area)	33.6	12,000	122
LDR-SW	77.5	6,000	563
THR-SW	33.9	2,500	591
VC-SW ¹	12.7	0 ¹	396
			1,672
			(216)
Total	157.7		1,456

¹ 1,000 square foot unit size applied for potential capacity for mixed-use housing development

Key issues related to housing choice addressed by the Springwater Plan District include:

- A focus on executive housing opportunities primarily on or near steeper slopes. Topography and streams along with the proximity to the Persimmons Golf Course provides an opportunity provide some housing opportunities for upper management and executives related to the Springwater industrial and employment areas.
- Locating small lot (attached and detached) housing along Hogan Avenue, a 2040 Corridor and planned primary transit route. This small lot housing is also located near the Village Center along two collector streets, one of which will provide local transit circulation service. The units provide additional housing to support the industrial and employment districts.
- Locating standard lot detached housing north and near the Village Center on those lands that are more constrained by slope and stream corridors than other areas in Springwater. And which will have limited access to US 26 as the planned future access is at the southern section of part of Springwater.
- Allowing and promoting housing over commercial (mixed-use buildings) in the Village Center to help create a lively pedestrian district.
- Planned and existing housing units, coupled with an anticipated 15,000 employees, are intended to provide necessary support for the Village Center. The Village Center has been identified as an important amenity for attracting industries to Springwater.

ORS 197.303 is a State planning statute that defines “needed housing.” Needed housing in general is the housing types shown to be needed within an urban growth boundary. Additionally, it means, but is not limited to, attached and detached single-family housing and multiple family housing for both owner and renter occupancy, government assisted housing, manufactured dwellings parks, and manufactured dwelling on single lots within single-family dwelling subdivisions.

All of these “needed housing” types except for manufactured dwelling parks are proposed for Springwater. Government assisted housing is not a function of zoning or permitted uses. The City does allow special needs housing and elderly housing as community service uses in the Springwater residential districts.

Demonstrable measures that provide a diversity of housing include:

- Permitting the following housing types in the three proposed residential sub-districts. The proposed VLDR-SW and LDR-SW will allow single family and manufactured homes on individual lots. The LDR-SW will allow duplexes and both the VLDR-SW and LDR-SW will allow accessory dwellings. The THR-SW allows attached and detached single family on small lots and accessory dwellings in conjunction with the detached single family dwellings.
- Attached Housing is allowed in the mixed-use Village Center (VC-SW). Housing opportunities are focused on mixed-use buildings.
- Provisions for planned developments to allow an alternative of clustering of units in part to preserve open spaces.
- Provisions for elderly and special needs housing in all residential districts.

Conclusion

The Plan has demonstrable measures to provide diversity of needed housing in single family, townhouse and mixed-use sub-districts. The City is in compliance with Title 7 and measures utilized within the existing city boundaries will also be utilized in Springwater. The proposed comprehensive plan amendments are consistent with this criterion.

D – Demonstration of how residential developments will include, without public subsidy, housing affordable to households with incomes at or below area median incomes for home ownership and at or below 80% of area median incomes for rental as defined by U.S. Department of Housing and Development for the adjacent urban jurisdictions¹. Public subsidies shall not be interpreted to mean the following: density bonuses, streamlined permitting processes, extensions to the time at which systems development charges and other fees are collected, and other exercises of the regulatory and zoning powers.

Findings

The Springwater Plan includes homeownership and rental housing opportunities for households at or below median household income. For households at or below \$37,107, the median household income for Gresham according to the estimate by the 2003 American Community Survey, the proposed mixed-use attached units in the Village Center and the detached and attached small lot units in the THR-SW sub-district are considered affordable.

According to HUD guidelines, housing is affordable if annual mortgage payments are no more than 26 percent of the household's annual income². In Gresham, that would equate to \$804 per month. Fannie Mae contends that affordable housing should be dependent on the household's total debt, not just mortgage debt, and recommends a range of 35% to 41% of monthly gross income to determine the range of housing affordability. Both Fannie Mae and HUD consider the following assumptions to be standard lending practices when determining affordable home prices: 30 year mortgage, 6.75 annual interest rate, 90 percent financed. Based on these assumptions, the Fannie Mae mortgage calculator (<http://www.fmcals.com/tools-tcc/fanniemae/calculator>) was utilized to determine a range of affordable home prices. Homes selling between \$77,886 and \$133,521 are considered affordable for those at or below median household income. Table 5 below specifies the affordable home selling prices.

¹ Statistics for analyzing affordable housing are based on current Gresham homeownership markets.

² From the Witch Hazel Village Community Plan, June 30, 2003.

Table 5. Affordable Homeownership Prices

% of Mortgage Debt	Actual Dollars of Mortgage Debt	% of Other Debt	Actual Dollars of Other Debt	Affordable Monthly Payment	Home Sales Price
26%	\$804	0%	\$0	\$1,113	\$133,521
26%	\$804	9%	\$278	\$835	\$100,142
26%	\$804	n/a	N/A	\$804	\$96,433
26%	\$804	15%	\$464	\$649	\$77,886

1. Fannie Mae recommends affordable housing based on household debt ranging from 35% to 41%.
2. Standard lending practices = 30 year mortgage at 6.75% annual interest rate and 90% financing.
3. The Fannie Mae mortgage calculator was utilized to identify the range of affordable housing.

The types of housing that would represent viable development opportunities, based on the local housing market are small lot, town home and condominium housing³. Each of these housing types has product that can be found within, or below, the high-end (\$133,521) price for affordable housing. The THR-SW and VC-SW sub-district provide for these housing types.

Affordable rental housing is defined by Metro as affordable for households at or below 80 percent of the area median household income. For Gresham, this equates to \$29,686 as the affordable rental housing income limit. Assuming affordable rent payments do not exceed 30 percent of monthly income, a family of four could afford a monthly rent of \$742.⁴ A review of rental listings for Gresham indicates that apartment units, at rents ranging from \$550 to \$900, would provide affordable renting housing for Springwater⁵. The VC-SW housing designations provided by the Plan would allow apartment dwelling units as part of a mixed-use building.

According to Metro's report "Damascus/Boring Concept Plan Affordable Housing Analysis" (May11, 2005), both attached single-family and high and medium density multi-family housing can be affordable to residents based on HUD affordability standards. In fact, the report states that attached single family (which is allowed under the THR-SW zone at 15 units/acre) is the only owner-occupied housing type affordable to households in the region earning 100% of the region's median household income. The report also states that high density and medium density multi-family residential units (allowed under the VS-SW zone) can be made affordable to households making between 51-80% of the region's MHI (starting at \$33,951/year) or more.

³ RMLS listings were reviewed for Gresham homeownership market.

⁴ This calculation was extrapolated from 2004 HUD income guidelines.

⁵ www.rent.com rental listings were reviewed for Gresham rental housing market.

Conclusion

The Plan provides affordable rental and homeownership opportunities. The proposed comprehensive plans amendments are consistent with this criterion.

E – Provision for sufficient commercial and industrial development for the needs of the area to be developed consistent with the 2040 Growth Concept design types. Commercial and industrial designations in nearby areas inside the Urban Growth Boundary shall be considered in comprehensive plans to maintain consistency.

Findings

The Plan includes four sub-districts to accommodate commercial and/or industrial development. The four sub-districts are Village Center, Neighborhood Commercial, Industrial and Research and Technology Industrial and are summarized below. See Table 6 for employment density assumptions:

Village Center-SW (VC-SW)

This sub-district is intended to be gathering place for employees and residents of Springwater. It will contain a mix of retail, office, civic uses, and housing opportunities in a pedestrian oriented area. It will serve the daily needs of the local neighborhood and the adjacent employment areas. It shall be served by a multi-modal transportation system with good access by vehicular, pedestrian, bicycle, and when appropriate, transit traffic.

Neighborhood Commercial-SW (NC-SW)

This sub-district is to provide for small to medium sized shopping and service facilities and limited office uses adjacent to the existing residential neighborhoods to the north and the adjacent planned industrial district. It is located at the intersection of a planned arterial and collector street.

Industrial-SW (IND-SW)

This sub-district provides a wide range of uses, including all the targeted industries such as advance materials, specialized software applications, recreational equipment and technology, and corporate headquarters as well as many traditional industrial uses. The prohibited uses include those that are heavy, traditional industrial uses (tanneries, metals manufacturing, chemical plants). Large format retail is restricted to ensure the availability and vitality of the lands for industrial uses. Warehousing and distribution are permitted only as accessory. The IND-SW zoning is located east of Telford Road and has about 424 gross buildable acres.

Metro's title 4 RSIA Industrial land protection standards were considered integral to this sub-district. Limits are placed on retail commercial and professional services that cater to daily customers by limiting such uses to no more than 3,000 square feet for a single use, and to no more than 20,000 square feet for multiple uses in single building or multiple buildings that are part of the same development project.

Research and Technology Industrial-SW (RTI-SW)

This sub-district is intended to provide industrial and related employment opportunities in office buildings. Primary uses include knowledge-based industries (graphic communications, creative services), research and development facilities, professional services primarily serving industrial businesses and workers, and medical facilities. The design will create pedestrian friendly areas and utilize green development practices. Development can take advantage of the views and access to creeks in the area. Its proximity to the Springwater Trail, Village Center, and Village Center Loop trail provides amenities. The RTI-SW sub-district is located west of Johnson Creek

in the southern portion of Springwater (south of McNutt Road) and is about 149 gross acres of developable land.

Metro’s title 4 Industrial land protection standards were considered integral to this sub-district. Limits are placed on retail commercial and professional services that cater to daily customers by limiting such uses to no more than 5,000 square feet for a single use, and to no more than 20,000 square feet for multiple uses in single building or multiple buildings that are part of the same development project.

Plan Sub-District	Net Buildable Acres	Assumed Square Feet Per Unit³	Assumed Floor Area Ratio	Employment Land Building Square Feet	Square Feet Per Employee	Jobs
VC-SW (Employment Portion)	5.5		0.50	118,820.8	350	339
RTI-SW	83.3		0.55	1,995,797.2	350	5,702
IND-SW	299.7		0.35	4,568,860.3	500	9,138
Total	594.3					15,330

Springwater was brought into the UGB primarily for the development of employment lands and as a place that could provide some “shovel-ready” land in a relatively short time period.

The proposed mix of Industrial and Research & Technology Industrial sub-districts in Springwater was based on findings made in the Springwater economic development needs analysis. These findings included:

- Springwater needed to be more diverse than depending on traditional manufacturing anticipated by the RSIA designation
- National trends require a different way of thinking about “primary jobs”. Some companies that fall under manufacturing categories actually contain large numbers of non-manufacturing employees whereas others closely associated with manufacturing, such as Research and Development and Product Design, are classified as professional services.
- Some portion of new industrial development will be absorbed by existing space in Gresham.
- Research and Technology Industrial in office buildings can cover a broad spectrum of design, use and land requirements. A large category of these uses do not require face-to-face contact. Corporate centers, call centers and other related professional uses are in demand but may have no specific interest in downtown or town center locations.

The economic development analysis recommends target industries for Springwater (short, medium and long term). The targeted industries were developed based on consideration of:

- Existing regional industries and their support services as revealed by an analysis of historical and projected employment patterns in the region
- Interviews with local economic development and industry professionals

- National growth trends and current market conditions
- A review of published reports and industry clusters studies completed by other researchers and economic development organizations for the region and the state
- The limitations and advantages presented by the Springwater site

The targeted industries included:

- Advanced Metals
- Medical Devices
- Specialized Software Applications
- Forestry & Agricultural Biotechnology
- Recreational Equipment/Recreational Technology
- Corporate Headquarters
- Professional Services
- Renewable Energy Technology

The economic development analysis concluded that these targeted industries could be accommodated with the proposed mix of industrial and office sub-districts.

The IND-SW sub-district has many of the site attributes associated with RSIA. These include:

- Excellent arterial access (planned) that includes phased improvements to US 26 (two crossings are planned – a northern over crossing and a southern interchange) and a new arterial that will traverse the industrial area connecting to the new US 26 interchange and a potential arterial connection to Boring/Damascus.
- Some mix of 20+ acre sites that provide opportunities to be aggregated into large developments generally in a square or rectangular configuration
- Flat lands
- Ability to create an industrial district of 250 to 300 acres.

The Research and Technology Industrial district is somewhat separated from the RSIA Industrial district by the mainstem of Johnson Creek and the Springwater Corridor Trail. It will be connected to the RSIA Industrial district by a planned collector street (that ultimately will be built as an overcrossing US 26) and by a planned arterial street that will eventually connect to Rugg Road along the southern boundary of Springwater and the Research and Technology Industrial district. It will be served by Hogan Avenue that will be improved to a four lane arterial and is a planned primary transit route. Hogan Avenue will also be a main corridor to the Damascus/Boring Concept Plan area. The site has more slope than normally associated with industrial development but is suitable for office development.

The Village Center will be designed to meet the needs of future area industries, businesses, and residents. It will also be a key amenity and attraction for industrial and office development. As recommended by the economic development analysis it will be a walkable, mixed-use district, including medium density housing, retail, and commercial areas. The market assessment indicated the planned industrial and employment and new residential districts along with nearby existing residential neighborhoods will be sufficient to support the retail portion. The size of the Village Center is large enough to support a specialty grocery store, but it will not directly compete with the existing Gresham Regional Center or planned Damascus and Pleasant Valley Town Centers.

The small Neighborhood Commercial center provides an amenity to the nearby existing residential neighborhoods (which are currently underserved) and the planned industrial district. It is small in scale and intended to provide a variety of daily retail and service needs.

Conclusion

The economic development analysis conducted for Springwater recommends the four commercial and industrial sub-districts. It concludes that these are sufficient for the needed commercial and employment development in Springwater and are necessary for the successful economic development of nearly 15,000 jobs. The proposed comprehensive plan amendments are consistent with this criterion.

F. A conceptual transportation plan consistent with the applicable provisions of the Regional Transportation Plan, Sections 6.4.4 through 6.4.7 Regional Transportation Plan⁶ and that is also consistent with the protection of natural resources either identified in acknowledged comprehensive plan inventories or as required by Title 3 of the Urban Growth Management Functional Plan. The plan shall, consistent with OAR Chapter 660, Division 11, include preliminary cost estimates and funding strategies, including likely financing approaches.

Findings

The Springwater Plan District proposes a Springwater Transportation System Plan that will amend the City's current Transportation System Plan (TSP). The proposed TSP amendments document the planning framework, policies and strategies, system inventory and assessment, and forecast and alternatives, which have resulted in a conceptual transportation system plan. The conceptual transportation system plan consists of the following:

- Motor Vehicle Plan including Functional Street Classifications
- Transit Plan
- Bicycle and Pedestrian Plan
- Street Cross Sections
- Freight Master Plan
- US 26 Improvements
- Street Project List Including Costs and Funding Strategies
- Local Street Connectivity Map

Section 6.6.4 (RTP) Transportation System Analysis Required for Local Plan Amendments concerns "city comprehensive plan amendments that would recommend or require an amendment to the Regional Transportation Plan." The Springwater Plan District will require amendment to the RTP as it proposes new regional arterials, transit service, and multi-use trails. Potential RTP amendments include:

- Upgraded Hogan Avenue to 4 lane arterial
- A new 4 lane arterial from Orient Drive to an upgraded 4 lane arterial Rugg Road
- A new east-west collector street
- Upgraded 2 lane collector Teleford, 252nd Avenue, and 282nd Avenue
- Design and access improvement to US 26
- Multi-use Village Center Loop and Employment Loop Trails

⁶ Although the language of this Title 11 section refers to "Title 6 of the Urban Growth Management Functional Plan" Title 6 no longer concerns Transportation. Instead transportation elements have been moved to Title 6 Regional Transportation Plan. Specifically (as stated in section 6.3 -- Demonstration of Compliance with Regional Requirements) are 6.4.4 through 6.4.7, 6.6., 6.6.3 and 6.7.3. Section 6.6 (6.6.3) deals with amendments to the RTP which are not part of the proposal and thus are not applicable to this Report. Section 6.7.3 deals with Project Development Requirements and is not applicable for a Conceptual Transportation Plan and this Report.

The Transportation System Analysis section of the Springwater TSP summarizes the modeling analysis that was used and that resulted in the proposed conceptual transportation plan. It is more completely documented in the Springwater Appendices. The City conducted the transportation system analysis for Springwater using the Metro regional travel demand model. The results of the analysis include identifying regional strategies, local transit, pedestrian and bike improvements, appropriate modal splits; improvements to the street system including connectivity standards, traffic calming methods and the need for significant capacity improvements in the Plan District. A separate (TGM Grant) project Springwater US 26 Concept Design and Access Study was completed for the Springwater plan. It recommends a phased approach to improvements as the land develops for industrial and other urban uses. At build-out there will be two new crossings. One is the north collector facility which will ultimately be bridged over US 26 but in earlier phases will be an at-grade controlled intersection. The second is a southern arterial that will be a full interchange.

Section 6.4.5 (RTP) Design Standards for Street Connectivity describes that the design of local street systems should be such to keep through trips on arterial streets and provide local trips with alternative routes. In general, the section requires a map and provides guidance to landowners and developers on desired street connections. It also requires street connectivity standards that provide full street connections at no more than 530 feet except where streets cross Title 3 water, in which case the average spacing is 800 to 1,200 feet. In water crossing situations the larger spacing is to be interspersed with pedestrian accessways at no more than 530 feet when feasible.

The proposed transportation system plan is intended to meet these standards. The connectivity plan generally provides for connections every 300 feet for pedestrians and bicycles and every 530 feet for automobiles. It provides for protection of residential neighborhoods from potential traffic impacts at the northern edge of Springwater where a planned industrial district abuts an existing residential district. The 530 foot standard for street connections is not provided where the street crossing would impact streams and wetlands (Title 3 and Goal 5 resources). In these cases pedestrian “foot bridges” provide the extra connectivity when greater street spacing is required due to water crossings. Springwater is essentially a “greenfield” setting – the existing network of streets is rural and an entirely new network of connections will be needed to create the Plan District’s vision of a new, urban and employment community.

The proposed street design cross sections are all “green streets.” The guidelines and cross sections of Metro’s *Green Streets* are used for those cross sections.

Section 6.4.6 (RTP) Alternative Mode Analysis. This section deals with improvements in non-SOV mode share. The Springwater proposed TSP includes a transit plan that shows regional and community bus service and transit streets. The land use types and densities along the proposed transit streets are transit supportive (village center, townhouse residential, and office employment center). The Village Center will have strong pedestrian linkages to the adjacent residential areas to its north and the adjacent office employment areas to its south. The bicycle and pedestrian system connects neighborhoods to the village center, to the office and industrial areas and to multi-use trails and transit stops.

As the Springwater TSP will amend each City’s existing TSP, existing strategies found in those TSPs will also apply the Springwater.

Section 6.4.7 (RTP) Motor Vehicle Congestion Analysis. This section deals with how motor vehicle congestion is modeled and with regional motor vehicle performance measures. This section is not an applicable provision for Title 11 compliance but rather is an applicable provision for the City-wide TSPs.

Consistency with Title 3 – Title 3 deals with protecting beneficial water uses and functions and values of natural resources in water quality and flood management areas. The Springwater Plan District has identified and mapped water quality and floodplain areas and incorporated them into the Environmental Sensitive and Restoration Areas (ESRAs). In developing the conceptual transportation plan particular attention was given to both minimizing the number of stream crossings and minimizing the length of those stream crossings – this is reflected in the Springwater Plan District plan map. In addition the street design standards for stream crossings will utilize Metro’s *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* handbook.

Preliminary cost estimates and funding strategies consistent with OAR Chapter 660, Division 11. Preliminary cost estimates and funding strategies were developed as part of creating the TSP and are consistent with OAR Chapter 660, Division 11. The Springwater TSP includes:

- Preliminary cost estimates
- A project and funding plan that includes a list of projects and description, cost, timing, jurisdiction, and likely funding sources for each project
- A discussion of funding strategies including grants, developer exactions, and transportation impact fee assessments

Conclusion

The Springwater TSP describes a conceptual transportation system including street functional classifications and design, pedestrian and bike plans, transit plans, connectivity and other local street design issues consistent with RTP, Title 3 considerations and preliminary costs, and likely funding strategies for needed improvements. The proposed comprehensive plan amendments are consistent with the criterion.

G. Identification, mapping and a funding strategy for protecting areas from development due to fish and wildlife habitat protection, water quality enhancement and mitigation, and natural hazards mitigation. A natural resource protection plan to protect fish and wildlife habitat, water quality enhancement areas and natural hazard areas shall be completed as part of the comprehensive plan and zoning for lands added to the Urban Growth Boundary prior to urban development. The plan shall include a preliminary cost estimate and funding strategy, including likely financing approaches, for options such as mitigation, site acquisition, restoration, enhancement, or easement dedication to ensure that all significant natural resources are protected.

Findings

The proposed Plan includes a natural resource protection plan. A Goal 5 ESEE analysis has been completed and is part of the proposed comprehensive plan amendments. The process included a natural resources inventory (identifying and mapping natural resources areas), a resources significance determination, an Economic, Social, Environmental and Energy (ESEE) analysis of the consequences of resource protection, an Environmentally Sensitive Resource Area (ESRA-SW) funding strategy and ESRA-SW resource protection standards in the development code. The Springwater Plan District established an ESRA-SW sub-district to implement Springwater’s natural resource goals and to resolve conflicts between development

and conservation of natural resources. The ESRA-SW development standards apply to those lands identified on the ESRA-SW map.

The mapped and regulated areas include Johnson Creek and its tributaries; wetlands (including those identified in a Local Wetland Inventory), associated floodplains, and sloped areas (25 %+).

Green development practices are included in the Plan District development code. Green development practices are a toolbox of techniques that promote sustainable building practices. They include regulations that mimic and incorporate predevelopment hydrology of a site into future development. The intent is to minimize potential adverse impacts of stormwater run-off to water quality, fish and other wildlife habitat, and flooding. The use of these green development practices enhance water quality and control the stormwater flow utilizing techniques of retention, infiltration and evapotranspiration to treat runoff and reduce the volume of stormwater.

Conclusion

The Springwater Community Plan has:

- Extensively identified and mapped natural resources areas.
- Identified through the State Goal 5 process those natural resources areas to be protected and restored.
- Developed a funding and non-regulatory restoration strategy.
- Developed development code standards to protect and enhance the ESRA areas while providing for urban development in the rest of the Springwater Plan District area.

The proposed comprehensive plan amendments are consistent with this criterion.

H. A conceptual public facilities and services plan for provision of sanitary sewer, water, storm drainage, transportation, parks and police and fire protection. The plan shall, consistent with OAR Chapter 660, Division 11, include preliminary cost estimates and funding strategies including likely financing approaches.

Findings

The proposed Plan includes a Public Facilities Plan (PFP) for sanitary sewer (wastewater), water, storm drainage (stormwater management) and parks (including open spaces and trails). The Springwater PFP specifically addresses the requirements of OAR Chapter 660, Division 11. For each element it includes an inventory and general assessment of the existing public facilities; a list of the significant public facility projects needed to support the proposed land uses; a rough cost estimate of each project; written descriptions and general location map of the proposed public facilities; goals, policies and future action measures; a statement of who will provide the services; estimates of when the projects would be needed; and a discussion of existing funding mechanism and a likely funding strategy for each facility.

The PFP also evaluated the TSP to be consistent with the State OAR and that work was incorporated into the proposed TSP. The Springwater PFP amends the current citywide PFPs.

Interviews with the police and fire/safety agencies did not identify the need for additional police or fire facilities.

Conclusion

The Public Facilities Plan (PFP) establishes a framework for how urban services will be developed and maintained with the implementation of the Plan. The PFP is consistent with

OAR Chapter 660, Division 11. The proposed comprehensive plan amendments are consistent with this criterion.

I. A conceptual school plan that provides for the amount of land and improvements needed, if any, for school facilities on new or existing sites that will serve the territory added to the UGB. The estimate of need shall be coordinated with affected local governments and special districts.

Findings

Springwater land is within the Gresham/Barlow School District. Project staff worked with the District to determine Plan needs. The district has projected that new residential development in Springwater would add 1,150 to 1,500 new elementary and middle school students. This would require a new elementary and a new middle school. An elementary school requires 10 acres and a middle school requires 20 acres; but if sited together they could be on a 25 acre site.

The District did not identify a specific site but rather expressed a desire for a site near future students in Springwater. The part of Springwater proposed as RSIA industrial (east of Telford Road) does not permit schools. However, other non-RSIA industrial lands would permit schools under the City's community services development procedures that will be applied to the Plan. This provides adequate opportunity to site the schools, combined or separate.

Conclusion

A conceptual school plan has been developed in coordination with the Gresham/Barlow School District and is included in the proposal. The proposed comprehensive plan amendments are consistent with this criterion.

J. An urban growth diagram for the designated planning area showing, at least, the following, when applicable:

- 1. General locations of arterial, collector, and essential local streets and connections and necessary public facilities such as sanitary sewer, storm sewer, and water to demonstrate that the area can be served;***
- 2. Location of steep slopes and unbuildable lands including, but not limited to, wetlands, floodplains and riparian areas;***
- 3. General locations for mixed-use areas, commercial and industrial lands;***
- 4. General locations for single and multi-family housing;***
- 5. General locations for public open space, plazas and neighborhood centers, and***
- 6. General locations or alternative locations for any needed school, park or fire hall sites.***

Findings

The Springwater Plan District Plan Map (Plan Map) serves as the basic urban growth diagram and includes most of the applicable elements listed above including general locations of streets; the environmental areas (ESRA); land use areas (mixed, commercial, office, industrial and residential) and open space, trails and parks.

The PFP has maps for each of the public facilities listed in 1 (plus parks and trails) that show how the area can be served. The TSP also has maps that show the different transportation facilities (streets, pedestrians and transit) and how the area can be served. As noted earlier, a specific conceptual location has not been sited but schools can occur in non-industrial areas. No needed fire or police facilities have been identified.

Conclusion

The applicable items listed in the section have been mapped and are included in the proposed Plan. The proposed comprehensive plan amendments are consistent with this criterion.

K. The plan amendments shall be coordinated among the city, county, school district and other service districts.

Findings

Development of the Springwater Community Plan included representatives of related jurisdictions and entities. Representatives of the City of Gresham, Metro, Multnomah County, and Gresham-Barlow School District served in active planning roles on work teams and/or on the Springwater advisory group known as the Community Working Group. Additionally the project has been coordinated with the Damascus/Boring planning effort with Springwater project staff participating on Damascus/Boring work teams and advisory groups.

Conclusion

The Plan amendments have been coordinated among the appropriate agencies. The proposed comprehensive plan amendments are consistent with this criterion.

Metro Conditions on Addition of Land to UGB (Ordinance No. 02-969B)

I. General Conditions Applicable to All Land Added to UGB

A. The city or county with land use planning responsibility for a study area included in the UGB shall complete the planning required by Metro Code Title 11, Urban Growth Management Functional Plan (“UGMFP”), section 3.07.1120 (“Title 11 planning”) for the area. Unless otherwise stated in specific conditions below, the city or county shall complete Title 11 planning within two years. Specific conditions below identify the city or county responsible for each study area.

Finding

The City has an Urban Planning Agreement with Multnomah County that gives the City planning responsibilities for urban reserve planning. The City also has IGA (Gresham Contract #1897) with Multnomah County specific to the Springwater project that establishes a partnership with Multnomah County in developing an urbanization Plan for Springwater. The IGA established the City as the lead in the urbanization planning project. Study areas 6 and 12 (partial) in Multnomah County are the 2002 UGB expansion area included in the proposed Springwater Plan.

The Metro ordinance establishing the Springwater UGB expansion became effective on March 5, 2003. Specific condition A.1 requires completion of Title 11 planning within four years as an exception to this general condition. Adoption of the Plan is expected to be complete and effective by December 1, 2005 which is well before March 5, 2007 (4 years from March 5, 2003). As detailed in the compliance report the proposed Springwater comprehensive plan amendments are consistent with Title 11.

Conclusion

Through the adoption of the proposed Plan, the City will have completed the Title 11 planning within the time period established for Springwater. The proposed comprehensive plan amendments are consistent with the condition.

B. The city or county with land use planning responsibility for a study area included in the UGB, as specified below, shall apply the 2040 Growth Concept design types shown on Exhibit N of this ordinance to the planning required by Title 11 for the study area.

Finding

The December 2002 Metro 2040 Growth Concept map Springwater designations included three design types:

- The area east of Hogan Road (242nd Avenue) as Regionally Significant Industrial Areas (RSIA). RSIA are industrial areas with site characteristics that are relatively rare in the region that render them especially suitable for industrial use.
- The area directly adjacent to Hogan Road was designated as a Corridor. Corridors are along good quality transit lines, feature a high-quality pedestrian environment, convenient access to transit and a density recommendation of 25 persons per acre.
- The rest of the lands were designated as Inner Neighborhood. Inner Neighborhoods are residential areas accessible to jobs and neighborhood businesses with smaller lot sizes with a density recommendation of 14 persons per acre.

In developing this Plan, some land was found to be unsuitable for industrial or employment uses however, most of the developable lands have been designated for employment related uses.

The Springwater Community Plan represents a greater level of detailed planning, site analysis, and setting community goals than had been done at the time it was brought into the UGB and Metro 2040 Growth Concept Design designations were applied.

The major steps in the planning process were:

- Inventory of base conditions and projections of land-use, transportation, natural resources and infrastructure needs
- Market analysis evaluating current market conditions and trends impacting economic development of industrial uses, village center characteristics and housing needs
- Initiation and carrying out of public process to gain input and provide information.
- Establishment of an advisory group, the Community Working Group (CWG), a 23 member group representing a diversity on interests including Springwater residents and property owners; neighborhood associations; business owners; developers; school districts; fire, police and other urban services providers; elected and appointed officials; and environmental and livability organizations
- Establishment of project goals
- Development of four scenario plans
- Evaluation of the scenarios and preparation of a draft Concept Plan
- Endorsement of final draft Concept Plan
- Development of comprehensive plan amendments to establish the Springwater Plan District

This planning process has resulted in a Springwater Plan that is different than the original UGB 2040 Design types. Revisions to the 2040 Growth Concept Design designations based on this greater level of planning are recommended as follows:

- The land east of Telford Road and 262nd Avenue shown on the plan map as IND-SW will remain as RSIA.
- There are two areas east of Telford/262nd Avenue that are changed from the original RSIA designation. One is a small area of sloped land southeast of Palmbled/262nd and

Telford that is proposed as LDR-SW and would be Inner Neighborhood. The second is a small commercial area near Orient Drive that is proposed as NC-SW and would be Employment. Employment areas include various types of employment and some residential development with limited commercial uses and recommended density of 20 persons per acre.

- The land generally between Hogan Avenue and Telford Road/262nd Avenue and just to the south of McNutt Road that is proposed as RTI-SW would be Industrial.
- The Corridor designation along Hogan Avenue would remain and would encompass the Village Center, the THR-SW sub-district where it abuts Hogan Avenue and the OFF-SW sub-district where it abuts Hogan Avenue.
- The rest of the land, including the LDR-SW, VLDR-SW and the THR-SW sub-districts that are not on the Hogan corridor would be Inner Neighborhood.

The major change to 2002 UGB 2040 Growth Concept design types is to the land between Hogan and Telford that was designated as RSIA but which is proposed to be a mix of inner neighborhood, industrial, employment and a nodal extension of corridor.

- The area directly east of Hogan Avenue (and shown as VLDR-SW and LDR-SW) that is proposed as Inner Neighborhood is characterized by diagonally flowing tributaries (Botefuhr and Brigman creeks) of Johnson Creek. The land between the two tributaries has a dense forest canopy with slopes between 5 to 10% in some areas and 10 to 25% slopes in much of the area. There is also some area of greater than 25% slope. The rest of the Inner Neighborhood area is on 5 to 15% or higher slopes with only a small amount of less than 5% slope.
- These two tributaries and sloped land near Johnson Creek make it impractical to plan a new arterial street to serve this area. Planned access to US 26 will be limited to the south interchange. However, the area will have good access to the Industrial district via the planned north collector.
- The small section of LDR-SW on the east side Johnson Creek is an area with slopes of 5 to 25% and is thus proposed for Inner Neighborhood.
- The residential areas will support the Village Center, providing an evening presence (as opposed to the daytime presence of the industrial and office districts). The combination of steep slopes, natural resources (two tributaries and extensive forested canopy) and as residential will support the Village Center and provide housing for the future employment and industrial areas and is more compatible with the natural resources it is appropriate for Inner Neighborhood.
- The Village Center is proposed as an extension of the Corridor district as a nodal area. The Village Center will be a mixed-use development that will develop at transit supportive densities and thus consistent with the existing corridor designation.
- The Research and Technology Industrial area is proposed as an Industrial district. Although there are significant clusters of less than 5% slopes there is a considerable area of 5 to 10% and 10 to 15% slopes associated with McNutt Creek and Sunshine Creek. Slopes, natural resources and flood plain associated with the west side of Johnson Creek prevent the possibility of aggregating a large parcel for RSIA type development. Nor will the area have direct visibility to US 26. It will have access to US 26 at the southern interchange via a planned arterial that will connect to Rugg Road at the southern edge of Springwater.
- The Research and Technology Industrial district will provide many of the same uses as the RSIA Industrial district but also for targeted industries such as a corporate headquarters and professional services and is intended to accommodate forms of future industrial uses. The economic development analysis found the business services are

“dramatically underrepresented in Gresham” and said it is a “key to the recruitment of new industries of all types”. Linking this sector to the Village Center would reinforce the Village Center and help attract other small businesses. Retail and professional service uses that cater to daily customers in the Research and Technology Industrial district are limited to 5,000 square feet per use and 20,000 square feet for multiple uses. Although slope and access constraints make this area unsuitable for RSIA development its economic development potential for corporate headquarters and for professional, scientific and technical services and limits on retail and professional services use make it appropriate for Industrial.

- The small (six plus acre) Neighborhood Commercial district located near Orient Drive at the northern limit of Springwater will provide for small to medium sized shopping and service facilities and limited office uses. It is adjacent to the existing residential neighborhoods to the north and the adjacent Springwater Industrial district. Retail and service uses are limited in size and primarily cater to workers and nearby residents. As an example retail stores are limited to 10,000 square feet, restaurants to 3,500 square feet, a grocery store to 35,000 square feet, and professional services to 5,000 square feet. It is appropriate for Employment.

Conclusion

The Springwater planning process in its inventory and needs assessment phase applied the 2040 Growth Concept Plan designations as adopted in 2002. However, in subsequent planning process it was found that some land was unsuitable for the RSIA designation mainly related to slope, environmental constraints and access and visibility to US 26. Additionally it was found that this same area was more suited for Inner Neighborhood, Corridor, Industrial and Employment designations. This was mainly for economic development purposes and to take advantage of site characteristics. Title 11 expects the detailed level of planning that has occurred with the community over the past 18 months. It is appropriate that the 2040 Growth Concept Plan Map be refined based on this planning effort and it is recommended that the changes outlined in the findings above be applied as the 2040 Growth Concept Plan Map is updated after the Springwater Plan is adopted. This condition is met.

C. The city or county with land use planning responsibility for a study area included in the UGB shall apply interim protection standards in Metro Code Title 11, UGMFP, section 3.07.1110, to the study area.

Finding

The City and Multnomah County entered into an IGA (Gresham Contract #1897) effective in May 2004. The IGA specifically provides that “County shall continue to apply interim protection standards in Metro Code Title 11 UGMFP and in the Conditions of Ordinance 02-969B.”

Conclusion

Multnomah County is applying the interim protection standards and this condition is met.

D. In Title 11 planning, each city or county with land use planning responsibility for a study area included in the UGB shall recommend appropriate long-range boundaries for consideration by the Council in future expansion of the UGB or designation of urban reserves pursuant to 660 Oregon Administrative Rules Division 21.

Finding

The Springwater expansion area is bounded to the west and north by the existing city of Gresham. It is bounded to the south by the Damascus 2002 UGB expansion, an area that is

now part of the City of Damascus. The only non-UGB area adjacent to Springwater is unincorporated Multnomah County lands to the east. The aforementioned City/County IGA has the following agreement concerning Rural/Urban Edge Planning: “D.1 Consistent with the joint objectives of the aforementioned resolutions, City and County will coordinate development of a permanent hard rural/urban edge between the Springwater UGB boundary and the unincorporated rural Multnomah County to the east that are part of the West of Sandy River Rural Area Plan. D.2 Actions necessary to accomplish a hard rural/urban edge will be included in the Plan for Springwater and the amended West of Sandy River Rural Area Plan.” Pursuant to this IGA the City would recommend no change to the UGB on the east side of Springwater.

Conclusion

Springwater is surrounded by lands within the UGB on its west, north, and south sides. The City and the County have established a hard urban/rural edge at the east boundary of Springwater. The City recommends no change to the UGB adjacent to Springwater. This condition is met.

E. Each city or county with land use planning responsibility for a study area included in the UGB shall adopt provisions in its comprehensive plan and zoning regulations – such as setbacks, buffers and designated lanes for movement of slow-moving farm machinery - to ensure compatibility between urban uses in an included study area and agricultural practices on adjacent land outside the UGB zoned for farm or forest use.

Finding

A major purpose of the aforementioned Gresham/Multnomah IGA is to “join in a common strategy to support the timely development of Springwater and the creation of a permanent and thriving urban/rural edge.” This edge is located at the east extent of Springwater, partly along 282nd Avenue where adjoining lands are MUA-20 (Mixed Use Agricultural) and partly along EFU (Exclusive Farm Use) zoned land west of 282nd Avenue. Elements of the plan that support this agreed purpose and this condition include:

- Designating all of the Springwater land at this edge as Industrial. There was consideration during the scenario alternatives evaluation to have a neighborhood commercial area on 282nd Avenue. However, this alternative was not selected as evaluations indicated that there is less conflict between farm operational practices and industrial users as opposed to urban residential and commercial uses. Industrial uses are less likely to be concerned about noise, hours of operation (early morning, late night), and odor and field burning/aerial spraying than residential or commercial users. Additionally, industrial users are less likely to cause problems to rural farm users such as trespassing, vandalizing and theft than urban residential or commercial users.
- The current MUA-20 lands are separated from Springwater by 282nd Avenue. The current EFU lands will be separated from Springwater by a proposed community street. Buildings with street frontage in the Springwater Industrial development will have a required setback.
- The designation of 282nd Avenue as a collector rather than as an arterial street. Additional access management controls will be applied to the west side of 282nd Avenue so that Springwater development will not access off of 282nd Avenue. These actions reduce the conflict between commuter traffic to Springwater and the rural traffic.
- Routing northbound traffic from the south (Damascus) to connect to US 26 west of 282nd Avenue. This will also lessen conflicts between Springwater commuter traffic and rural traffic on 282nd Avenue.

Conclusion

The industrial designation at the edge, separation between Springwater and rural area by streets and building setback, and the classification and access control of 282nd Avenue help ensure the compatibility between Springwater and the adjoining mixed agricultural and exclusive farm zoned lands. This condition is met.

F. Each city or county with land use planning responsibility for a study area included in the UGB shall apply Title 4 of the UGMFP to those portions of the study area designated Regionally Significant Industrial Area (“RSIA”), Industrial Area or Employment Area on the 2040 Growth Concept Map (Exhibit N). If the Council places a specific condition on a RSIA below, the city or county shall apply the more restrictive condition.

Finding

As detailed in General Condition ‘B’ the Springwater Planning process has resulted in a finding that while most of the area shown as RSIA on Exhibit N should be retained some of the area shown as RSIA is better suited for Inner Neighborhood, Corridor and Employment designations.

The proposed Industrial-SW (IND-SW) sub-district will apply Title 4 for RSIA lands. This is appropriate as the area will have access and visibility to US 26. The IND-SW limits retail and profession service uses that cater to daily customers to occupy no more than 3,000 square feet of sales or service area in a single outlet, or multiple outlets that occupy no more than 20,000 square feet. The IND-SW also limits the division of 50 acre or more lots. Both of these provisions are provided in Title 4 (3.07.420) regarding RSIA. Also findings are made in this report that the proposal is consistent with specific conditions that apply to the RSIA.

The proposed Research and Technology Industrial-SW (RTI-SW) sub-district will apply Title 4 for Industrial lands. The RTI-SW will limit square footage of single retail and professional services uses to 5,000 square and to multiple outlets to 20,000 square feet (as provided for in Title 4 for Industrial).

The proposed Neighborhood Commercial-SW (NC-SW) sub-district will apply Title 4 for employment lands. This sub-district generally allows small and medium sized retail uses with retail stores limited to 10,000 square feet, restaurants to 3,500 square feet, a grocery store to 35,000 square feet, and professional services to 5,000 square feet.

Conclusion

The proposed IND-SW sub-district applies Title 4 for RSIA, the proposed RTI-SW applies Title 4 for Industrial and the proposed NC-SW sub-district applies Title 4 for Employment and this condition is met.

G. In the application of statewide planning Goal 5 (Natural Resources, Scenic and Historic Areas, and Open Spaces) to Title 11 planning, each city and county with land use planning responsibility for a study area included in the UGB shall comply with those provisions of Title 3 of the UGMFP acknowledged by the Land Conservation and Development Commission (“LCDC”) to comply with Goal 5. If LCDC has not acknowledged those provisions of Title 3 intended to comply with Goal 5 by the deadline for completion of Title 11 planning, the city or county shall consider any inventory of regionally significant Goal 5 resources adopted by resolution of the Metro Council in the city or county’s application of Goal 5 to its Title 11 planning.

Finding

Metro has not adopted a Goal 5 program and therefore LCDC has not considered or found Metro's Goal 5 program in compliance with the State Goal 5 rules. Therefore the part of this condition that applies is "the city ... shall consider any inventory of the regionally significant Goal 5 resources adopted by resolution of the Metro Council in the city's ... application of Goal 5 to its Title 11 planning."

The Springwater planning for natural resources began with an inventory and needs analysis. As is stated in the natural resources report that is part of the comprehensive plan amendments: "These sources included: "1. Metro's baseline information for riparian and wildlife resources, *specifically Metro's adopted regionally significant habitat inventory* ... The planning team found this inventory for Metro's Goal 5 resources needed refining to better understand the possibilities after future development. The areas that were misinterpreted or in a few cases overlooked in Metro's high-level air photo evaluation were corrected through ground-level observation ... consistent with Metro's inventory, the project found most of the riparian areas and waterways are assumed to be regionally significant." The inventory was the basis for the Goal 5 ESEE analysis that was done for Springwater.

Conclusion

The natural resources planning for Springwater specifically included Metro's adopted regionally significant Goal 5 resources as indicated in the Natural Resources report. This condition is met.

H. Each city and county with land use planning responsibility for a study area included in the UGB shall provide, in the conceptual transportation plan required by Title 11, subsection 3.07.1120F, for bicycle and pedestrian access to and within school sites from surrounding area designated to allow residential use.

Finding

No specific place in Springwater was designated a school site (consistent with the Gresham/Barlow School District's direction) but the need for future elementary and middle school was identified. The proposed Springwater development code would allow schools in the residential, mixed-use, and employment Springwater sub-districts but not in the industrial sub-district. This means that any school sited would be west of Telford Road. The Springwater TSP includes a bicycle and pedestrian plan that details that all arterial, collector and important local connecting streets will have bicycle lanes and sidewalks. Additionally it details an off-street trails system that also provides for bicycle and pedestrian traffic. This system of arterials, collectors, important local connectors and off-street trails will provide good student access from the residential sub-districts to any school site located west of Telford Road. In addition all local streets that will have sidewalks which enhance future access to a school and any school site proposed in the RTI-SW would require an additional access plan for connections between the school site and adjacent residential areas.

Conclusion

Bicycle and pedestrian access to school sites will be provided by future arterial, collector, local connectors and local streets as well as off-street trails. The condition is met.

A. Study Areas 6 (partial), 10 (partial), 11, 12, 13, 14, 15, 16, 17, 18 and 19 (partial)

1. Clackamas and Multnomah Counties and Metro shall complete Title 11 planning for the portions of these study areas in the Gresham and Damascus areas as shown on Exhibit N within four years following the effective date of this ordinance. The counties shall invite the participation of the cities of Gresham and Happy Valley and all special districts

currently providing or likely to provide an urban service to territory in the area. If a portion of the area incorporates or annexes to the City of Happy Valley or the City of Gresham prior to adoption by Clackamas and Multnomah Counties of the comprehensive plan provisions and land use regulations required by Title 11, the Metro Council shall coordinate Title 11 planning activities among the counties and the new city pursuant to ORS 195.025.

Finding

As was noted earlier, the City has an Urban Planning Agreement with Multnomah County that gives the City planning responsibilities for urban reserve planning. The City also has an IGA (Gresham Contract #1897) with Multnomah County specific to the Springwater project that establishes a partnership with Multnomah County in developing an urbanization plan for Springwater. The IGA established the City as the lead in the urbanization planning project. The study area 6 and 12 (partial) in Multnomah County is the 2002 UGB expansion area included in the proposed Springwater Plan.

Additionally the City has an agreement with Metro to participate in the Clackamas County and Metro-led Damascus/Boring Concept Plan project that involves 2002 UGB expansion areas covered under these special conditions. The City is actively participating in the Advisory Committee, the Land Use Work Team, the Transportation Work Team, and the Natural Resources Work Team.

The Metro ordinance establishing the Springwater UGB expansion became effective on March 5, 2003, with the four year date being March 5, 2007. The current hearing scheduled is to have, at the latest date, an enactment ordinance on November 1, 2005, with an effective date 30 day later.

Conclusion

Multnomah County has entered into an IGA providing for Gresham to lead the Springwater Plan effort. The Plan is scheduled to be effective on December 1, 2005 well before the four year period that ends on March 5, 2007. Gresham was invited by Metro and Clackamas County to participate in the Damascus/Boring Concept Plan project and is an active participant in the main advisory committee and several of the functional work teams. This condition is met.

2. In the planning required by Title 11, subsections A and F of section 3.07.1120, Clackamas and Multnomah Counties shall provide for annexation to the Tri-met district of those portions of the study areas whose planned capacity for jobs or housing is sufficient to support transit.

Finding

According to the TriMet District the Springwater Community Plan area is already within the District's boundary. A transit plan that was developed in coordination with TriMet is included in the Springwater TSP.

Conclusion

Springwater is in the TriMet District and this condition is met.

3. In the planning required by Title 11, Clackamas County shall ensure, through phasing or staging urbanization of the study areas and the timing of extension of urban services to the areas, that the Town Center of Damascus, as shown on the 2040 Growth Concept Map (Exhibit N) or comprehensive plan maps amended pursuant to Title 1 of the UGMFP,

section 3.07.130, becomes the commercial services center of Study Areas 10 and 11 and appropriate portions of Study Areas 12, 13, 14, 17 and 19. Appropriate portions of these study areas shall be considered intended for governance by a new City of Damascus. The Damascus Town Center shall include the majority of these areas' commercial retail services and commercial office space. Title 11 planning for these areas shall ensure that the timing of urbanization of the remainder of these areas contributes to the success of the town center.

This condition regards Clackamas County and the Damascus Town Center and is thus not applicable to the Springwater comprehensive plan amendments.

4. In the planning required by Title 11, Clackamas and Multnomah Counties shall provide for separation between the Damascus Town Center and other town centers and neighborhoods centers designated in Title 11 planning or other measures in order to preserve the emerging and intended identities of the centers using, to the extent practicable, the natural features of the landscape features in the study areas.

Finding

City staff with the Springwater Plan project has participated and provided information to the Damascus/Boring Concept Plan project. One result of that participation is that the Springwater Plan was part of the alternatives maps and the evaluation of those maps to arrive at a proposed Damascus/Boring hybrid concept plan. This means that the location of the Damascus Town Center can take into account neighborhood commercial land proposed for Springwater.

Two commercial areas are proposed for Springwater. A small 5.6 net acre site is proposed at the north edge of Springwater near Orient Drive. It is intended to provide local services to the planned Industrial district and the existing Gresham residential district to the north. Floor area is restricted (3,500 sq. ft. for restaurants, 5,000 for offices, 10,000 for retail and 35,000 for grocery). Its size, limited floor area and location would not affect the identity of the Damascus Town Center. The other commercial area is an 18.9 net acre "Village Center". The Village Center is a mixed-use area allowing housing above retail and commercial space. It is located on Hogan Avenue north of McNutt Creek and the proposed Office district and about 1,800 feet north of the Clackamas County line. Its primary purpose is to provide amenity for the Springwater industrial and employment districts. The planned residential districts along with nearby existing City residential neighborhoods will support the village center. Generally office and clinic uses are limited to 10,000 square foot footprint and retail to a 35,000 square foot print (with the intent of a grocery store). Its location, size and orientation to Springwater will not affect the identity of the Damascus Town Center.

Conclusion

The Springwater planning effort has been coordinated with the Damascus/Boring Concept Plan effort to inform and ensure that neighborhood commercial areas in Springwater will not affect the identity of the Damascus Town Center. The two commercial areas planned for Springwater are limited in scale, at significant distances from the County line (and Damascus city limits), and are oriented towards Springwater and thus will not affect the Damascus Town Center identity. The condition is met.

5. If, prior to completion by Clackamas County of Title 11 planning for the Damascus Area, the county and Metro have determined through amendment to the 2000 Regional Transportation Plan to build the proposed Sunrise Corridor, the county shall provide for

the preservation of the proposed rights-of-way for the highway as part of the conceptual transportation plan required by subsection G of section 3.07.1120 of Title 11.

This condition regards Clackamas County and the Damascus Area and is thus not applicable to Springwater comprehensive plan amendments.

6. Neither Multnomah County nor, upon annexation of the area to the City of Gresham, the city shall allow the division of a lot or parcel in an area designated RSIA to create a smaller lot or parcel except as part of the lot/parcel reconfiguration plan required in Condition 7.

Finding

The City and Multnomah County entered into an IGA (Gresham Contract #1897) effective in May 2004. The IGA specifically provides that “County shall continue to apply interim protection standards in Metro Code Title 11 UGMFP and in the Conditions of Ordinance 02-969B.” That would include this Condition.

Land, when annexed into the City, will be designated as one of the Springwater land use sub-districts. The proposed Industrial-Springwater sub-district that implements RSIA includes the Title 4 provisions concerning the division of lots or parcels. This means that, once in the City of Gresham, no land divisions will occur except as provided by Title 4.

Conclusion

Multnomah County is currently enforcing Title 11 interim protection standards and these conditions of approval. Gresham will impose Title 4 land division restrictions upon annexation of RSIA lands. This condition is met.

7. Multnomah County or, upon annexation of the area to the City of Gresham, the city, as part of Title 11 planning, shall, in conjunction with property owners and affected local governments, develop a lot/parcel reconfiguration plan for land designated RSIA that results in the largest practicable number of parcels 50 acres or larger.

Finding

The requirements of this condition do not fall within that which the City could accomplish through the use of regulation. Accordingly, it is not possible to point to any regulation that will ensure compliance with this condition. The City cannot require landowners to combine their properties for sale or development.

The City has made significant strides in accomplishing land assembly. This task predominately falls under the responsibility of the City’s economic development and outreach efforts. The City is devoting significant staff time to encourage land owners to work together to assemble larger parcels.

The Springwater economic development research notes there are several examples of property owners’ agreements, which can be effective in land assembly, and in both giving control to a group of property owners and in providing simpler negotiations and potential purchase process for a potential buyer/end user. An example of this is Real Estate Investment Trusts (REIT).

One step that the City has taken is a “Brokers Forum”, to help property owners in the Springwater area to consider land assemblage along with other issues that relate to future sales

of property. A second forum will be scheduled focusing on the land assembly strategies, such as a REIT, that property owners may want to consider.

Action measures that will help achieve land assemblage are part of the proposed Economic Development Goal (10.802). They include conducting a parcel-level inventory of all industrial zoned land to create “land briefs” for each parcel and to prepare a list of brokers and owners based on the inventory and to continue to schedule meetings of these brokers and owners.

Additionally, the City has created a strategy for annexation and development that should prove beneficial in creating usable pieces of land. The Springwater area has been broken up into 14 modules, as shown in figure 2 below. Any one of these would be logical annexation modules, and logical extensions of public services. Therefore, as annexation potentials develop, the City has the ability to quickly calculate whether the double majority exists in any module, and if it does, what can be expected for providing services and developing property.

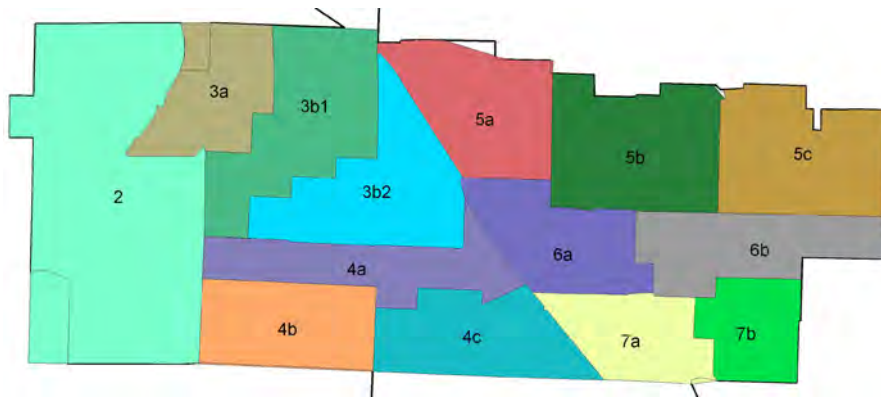


FIGURE 2. ANNEXATION MODULES

Springwater Community Plan



Springwater Goals, Policies and Action Measures

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

SPRINGWATER COMMUNITY PLAN REPORT DEVELOPMENT PLAN POLICIES

Introduction

This section of the report includes information to support the Gresham *Community Development Plan Policy Document*. It outlines the goals, policies, and action measure that were used to develop the urbanization plan for Springwater, and includes Public Facilities Plans (PFPs) which describe how urban services will be provided to support the development recommended in the Springwater Plan District. These elements will amend Volume 2 – Community Development Plan Policies.

Goals, Policies, and Action Measures

INTRODUCTION

The following Goals, Policies, and Action Measures were initially developed in the early stage of the Concept Plan development, and were endorsed by the Community Working Group. A goal is a general statement indicating a desired end or the direction needed to achieve that end. A policy is a statement identifying a position and a definitive course of action. Policies are more specific than goals. Action measures outline specific projects or standards which, if done, would implement goals and policies. The listing of action measures in the *Development Plan* does not obligate the City to accomplish them, nor do they impose obligations on applicants who request amendments to the *Development Plan*.

Each goal, policy and action measure section below contains a discussion on background. The background piece includes a brief history of Springwater planning, summarizes key elements or characteristics of each section, and summarizes the major issues that resulted in the endorsed Springwater Concept Plan. Taken together the sections on Goals, Policies, and Action Measures provide the basis for the Springwater Plan District map and development code.

The Goals, Policies, and Action Measures included in this section are:

- 10.801 Create a Community
- 10.802 Economic Development
- 10.803 Sustainability
- 10.804 Livability
- 10.805 Transportation
- 10.806 Natural Resources

The goals and policies were used to guide initial development of the scenarios, and also to evaluate the scenarios and select pieces of each scenario to incorporate in an overall Plan that best meets the needs of the community, city, and region.

The *Concept Plan* also resulted in goals for Water (10.822), Wastewater (10.823), Stormwater (10.824) and Parks (10.825). Those are located in the individual Public Facility Plans.

10.800 SPRINGWATER PLAN DISTRICT

STATEWIDE PLANNING GOAL 14: URBANIZATION

“To provide for orderly and efficient transition from rural to urban land use.”

INTRODUCTION

In 2003, the City of Gresham in partnership with Multnomah County and in cooperation with Metro, Clackamas County and others, embarked in planning for a new urban area – Springwater. Springwater was added to the region’s urban growth boundary (UGB) in December 2002 to accommodate forecasted industrial and employment needs for the region. It is 1,405 acres located in Multnomah County south (to the Multnomah/Clackamas County border) and east (as far as 282nd Avenue) of the current Gresham city limits.

Rural residential are the most widespread existing uses in Springwater with a population of 833 (2000 census). Other uses include a portion of a golf course (Persimmons) and few small commercial buildings. The two miles of the main stem of Johnson Creek flows through the site along with an extensive system of tributaries and wetlands. The existing transportation system was designed primarily to serve the rural residential uses and farm to market route for past agricultural uses. The site is served by Highway 26 traveling north to south. There are no public water, wastewater, or stormwater facilities. There are no public parks. The Springwater Corridor trail, a multi-use regional facility, generally parallels Johnson Creek through the site.

New urban areas must be brought into a City’s comprehensive plan prior to urbanization with the intent to promote integration of the new land into existing communities. Planning efforts began with the establishment of the Springwater Community Working Group (CWG) which held its first meeting January 2004.

In May 2004, the CWG endorsed a set of goals and policies to guide development of the Springwater Community Plan and subsequent implementation actions. This established essential goals that the Springwater Community would:

- Be economically and environmentally sustainable
- Provide industrial land to generate a variety of family-wage job opportunities
- Foster sustainability through good environmental stewardship
- Have a high quality of life
- Have a well planned transportation system
- Preserve, protect and enhance natural resources

In October 2004, the CWG endorsed the Springwater Concept Plan Draft Map. The central theme of the Plan is to create an urban community for family-wage jobs through the integration of land use, transportation, and natural resource elements and by utilizing sustainable practices. The Council endorsed the Concept Draft Map in November 2004.

Subsequently implement plans and ordinances based on the Concept Plan Draft Map were developed as the Springwater Community Plan. In April 2005 the CWG endorsed the Springwater Community Plan.

An extensive planning process has resulted in the Springwater Plan District. The Springwater Plan District will fulfill the desire that resulted from the planning process to create a quality and sustainable industrial and employment environment, with a sense of place that is unique to

Springwater. The Plan District will implement this through its large industrial and office employment districts, its mixed use Village Center and surrounding townhouse district, single family and estate housing neighborhoods; transportation alternatives including trails and transit, improvements to US 26, pedestrian friendly urban design and the integration of the natural environment into the design of the community. Critical to the sense of place in Springwater is Johnson Creek and other natural resources including an extensive network of streams and wetlands. The Plan District, with a focus on sustainability and jobs, will allow it to develop in such a way that minimizes impact on these natural features, while allowing these features to enhance the built environment.

What follows are goals, policies and action measures for each of the major elements that make up the Springwater Plan District. Endorsed by the Community Working Group and refined during the development of ordinances, these statements focus on the key concepts and policy directions for subsequent regulations and implementation efforts to realize the Plan District to provide for an orderly transition of Springwater from rural to urban uses.

10.801 CREATE A COMMUNITY

Background

The Metro Council brought Springwater into the Urban Growth Boundary (UGB) in December 2002. When land is brought into the UGB, Title 11 of the Metro *Urban Growth Management Functional Plan* requires that the added territory be brought into a city's comprehensive plan prior to urbanization with the intent to promote the integration of the new land into existing communities.

Title 11 requires a series of comprehensive plan amendments including maps that address provisions for annexation; housing, commercial, and industrial development; transportation; natural resource protection and enhancement; public facilities and services including parks and open spaces; and schools.

Early in the Springwater Community Plan development, a Community Working Group (CWG) was convened to provide input through the planning effort. Together, the CWG and the project team developed a set of goals and policies that were ultimately adopted by the CWG. The purpose of the goals and policies was to identify the City of Gresham's intent to accomplish certain results through the Springwater Community Plan. The following goal was adopted for creating a community:

The Springwater Community shall be an economically and environmentally sustainable community. The primary focus of the plan will be on providing a high number of industrial and industry-related jobs that enhance the economic viability of Gresham, the greater East County region and its citizens. Industrial and employment lands will be complemented with a village center and housing and will be carefully integrated with the upper Johnson Creek system. Sustainable green building and development practices will enhance the community's unique character, while supporting the protection and restoration of the area's natural resources.

In the scenario evaluation process, this goal was used as a way to provide a comprehensive evaluation of the number and type of jobs provided by each scenario, the amount of land used for various employment types, the number of households provided, the impact of Springwater's development on the local and city-wide jobs to housing balance, the ability to logically and cost-effectively provide public services to the community, and the ability to integrate sustainable development features such as low impact development practices.

Summary of Major Issues

The following are some of the major issues that were considered in creating a balanced community for Springwater:

- **Creating a Village Center in an accessible, aesthetically-pleasing location.** The Village Center is located at one of the premier view points in Springwater. The Village Center will have a commercial and mixed-use core, with two sets of park blocks intersecting in a public plaza area. The Village Center will be accessible to nearby residential neighborhoods and to the industrial and employment areas through both improved transportation corridors and new pedestrian/bicycle trail loops.
- **Considering total development costs when developing annexation strategies.** Since Springwater does not currently have urban services, the cost of initial development in the planning area is strongly linked to the proximity to existing public services. The annexation strategy for Springwater considers not only market drivers and

industrial land needs, but the infrastructure cost that must be borne by either the city or the developer.

- **Offering flexibility in development opportunities.** To maximize the attractiveness of Springwater to potential developers, there needs to be a range of opportunities available for industrial development. The Springwater Plan locates various industrial development types to best match the local topograph and transportation access, but provides flexibility to accommodate a wide range of potential employers who can bring high-value jobs to the region.
- **Providing a variety of housing options.** With housing options ranging from large lot “estate” housing to high-density, mixed-use areas, Springwater will provide housing in close proximity to industrial areas for a range of employees.
- **Protecting natural resources as an amenity to the region.** There are many high value natural resources in Springwater that should be protected or enhanced to protect the riparian and upland species in the region and increase the attractiveness of Springwater to developers and residents. This will be achieved through a natural resource management plan that outlines priorities for protection and enhancement activities, and a trail plan that provides access to the riparian areas while minimizing the impact to the natural resources.
- **Providing adequate school facilities.** The Gresham/Barlow School District identified the need for two additional schools in the Springwater area. Approximately 25 acres are needed to site one elementary and one middle school. Although a specific site was not selected, the preference would be to locate the school within walking distance of the Village Center and adjacent residential areas.

Goals

1. The Springwater Community shall be an economically and environmentally sustainable community.
2. Springwater will provide a high number of family-wage jobs that enhance the economic viability of Gresham, the greater East County region and its citizens.
3. Industrial and employment lands will be complemented with a village center and housing, and will be carefully integrated with the Johnson Creek system.
4. The Springwater Community Plan shall result in a strong rural/urban edge.

Policies

1. The Springwater Community Plan will serve as the basis for the City’s comprehensive plan amendments and implementing measures that will guide future urbanization.
2. The Springwater Community Plan will carefully consider Springwater’s relationship to adjoining communities and especially its role for economic development as annexations and extensions of public facilities occur.
3. The Springwater Community Plan will provide for full public services including transportation, surface water management, water, sewer, fire and police services, schools, recreation and parks facilities, and connections to open spaces.

4. Urbanization shall be guided by an urban services and financial plan that will ensure that annexation, service provision and development occur in a logical, efficient, and cost-effective manner; that major public facilities are provided at the time they are needed; and that economic development is maximized.
5. Sustainable development will be promoted through a combination of incentives, regulations, and recruitment.
6. The Plan shall create a permanent hard-line UGB edge west of the Orient Rural Center/282nd Avenue.
7. The Plan must comply with State, Regional and Local goals and requirements.
8. The Plan must comply with the Intergovernmental Agreement between the City of Gresham and Multnomah County.

Action Measures:

1. Update the City of Gresham's Sewer, Water, and Stormwater Master Plans to reflect the infrastructure needs associated with urbanization in Springwater
2. Implement recommendations of the Water and Wastewater SDC study being conducted concurrently with the completion of this Plan. Update the SDC improvement project list to include the relevant near-term projects listed in the CIP section of this plan.
3. Establish equitable funding mechanisms to implement the recommended CIP for the stormwater management system, and provide adequate funding for stormwater management facility maintenance.
4. Continue discussions with Clackamas County and the City of Damascus regarding service provision in the Sunshine Valley area of Damascus, and negotiate service agreements as appropriate. Regardless of the solution, the agreement needs to comply with provisions of ORS 195 that relate to urban service providers.
5. Establish a Plan District. A Plan District designation provides a means to create unique zoning districts and development regulations that address the specific opportunities and problems identified in the Springwater Community Plan.

10.802 ECONOMIC DEVELOPMENT

Background

Bringing industrial development and family-wage jobs to east Multnomah County was one of the primary drivers for bringing the Springwater area into the UGB. Gresham offers several advantages as an employment center, including a skilled manufacturing workforce, close proximity to the Portland International Airport and regional rail hubs, a respected community college system, and a strong economic development program backed by committed leadership. The Springwater area has scenic views and access to high-end recreational amenities such as the Springwater Corridor Trail, Mt. Hood, and the Columbia River Gorge.

An economic and industrial employment site study, a Village Center study, and a residential housing study were completed to help inform the land use and economic planning for Springwater. They have informed the planning process and helped shape the scenarios and the concept and the final Plan.

The CWG and planning team developed the following Plan goal related to economic development:

The Springwater Community shall provide industrial land that will generate a variety of family-wage job opportunities. Job creation is aimed at correcting the imbalance between the number of households and the number of jobs in the East Metro region and increasing the City's economic strength. The plan will actively encourage businesses with an interest in sustainability and protecting the community's rich natural resources. Springwater will include a village center that can serve residents, employees, and businesses.

Summary of Major Issues

Industrial Development – Current and Projected Employment Trends

While recent employment growth trends in the region have reflected the recession, economic indicators show that the Portland area is in a good position relative to other urban areas to take advantage of industrial growth as the economy recovers. Furthermore, based on its 2025 forecast, Metro clearly sees the East Multnomah County area emerging as more of a job center than it has been in the past, with the area forecast to gain more than 20,000 jobs in the 2000-2010 period. This is more than one-fifth of all new jobs in Multnomah County and 8 to 9 percent of all new jobs metro wide during the decade. Another 30,000 jobs are anticipated for East Multnomah County over the following 15 years, from 2010 to 2025.

However, Metro's forecast suggests that traditional manufacturing will not be a significant factor in the region's job growth. East Multnomah County currently has less than 5 percent of the metro wide industrial employment, and this share is only projected to rise modestly over the next 20 years. As a percent of total jobs added, industrial employment falls from 1 in every 3 jobs added in the 2000-2005 period (32.3 percent) to roughly 1 in 7 by 2020-2025 (13.7 percent).

In addition to global trends affecting manufacturing expansion in general, one reason for the area's relative lag in anticipated industrial job growth may be its occupational structure. Although Gresham does have a skilled blue-collar labor force, these existing skill sets may not be compatible with the new technology job growth (such as those in advanced processing, and computer and design, for instance) that the metro area – and Gresham – hopes to attract in the coming years.

Telecommunications

The telecommunications component of the North/South Corridor Plan identified several elements that may be useful for the purposes of the Springwater Community Plan. First, the one corridor without any substantial high capacity (fiber) telecommunications services is Hogan Road - 242nd Avenue. This is also the one corridor that extends south into the new communities of Springwater and Damascus, and, therefore, has the highest potential for new additional services. The land uses adjacent to the 242nd Avenue corridor could benefit from this in terms of the timing of new improvements, and the likelihood that high-quality telecommunications services would come through this route. Also, the study recommends that all arterial and highway improvement projects include, at a minimum, a conduit to carry future telecommunications facilities to be installed by the private service providers. This would significantly simplify future telecommunication system expansion.

Target Industries

The team used a combination of quantitative and qualitative methods to identify appropriate industrial targets for Springwater. The target industry list is based on consideration of:

- Existing regional industries and their support services as revealed by an analysis of historical and projected employment patterns in the region and interviews with local economic development and industry professionals
- National growth trends and current market conditions
- A review of published reports and industry cluster studies completed by other researchers and economic development organizations for the region and the state
- The limitations and advantages presented by the Springwater site
- The experience of the project team

The target industries were selected based on existing industry strength in Multnomah County and the Metro region, local industry growth trends higher than those seen nationally, potential to leverage existing research initiatives in the region, ability of the industry to bring high-wage occupations, and the interest of state and local officials in targeting the industry.

Based on this analysis, the target industry list in Table 4 was prepared. Each of these industry targets is profiled in detail in a Target Industry Matrix included in the Reference Documents. For purposes of this table, “Short-term” timeframe refers to 1 to 3 years, “Mid-term 3 to 5 years, and “Long-term greater than 5 years.

Table 4. Summary of Target Industries

Target	Appropriate for Springwater?	Timeframe
Advanced Materials	Yes	Short-term
Medical Devices	Yes	Mid-term
Specialized Software Applications	Yes	Short-term
Forestry & Agricultural Biotechnology	Yes	Mid-term
Nanotechnology	Yes	Long-term
Recreational Equipment/Recreation Technology	Yes	Short-term
Headquarters	Yes	Short-term
Professional Services	Yes	Short-term

Specialty Food Processing	Possible	Short-term
Transportation Equipment/Technology	Possible	Short-term
Logistics	Not Likely	Short-term
Renewable Energy Technology	Yes	Mid-term

Core industries (those companies already established in the region) represent the first tier of economic development opportunity. However, the ability to retain “traditional manufacturing,” even if successfully lured to an area, is increasingly unlikely. With increasingly advanced fabrication requirements, manufacturing should be seen in a new light. Industries were once thought of as the working of raw material, but are now a matter of design, process control, and assembly. Therefore, identifying companies employing specialized engineering and advanced manufacturing processes should be part of a successful recruitment strategy for Springwater. Within this broad concept, a few specific industries are worthy of consideration, including medical devices, advanced materials, recreational technology, and specialized software applications.

An additional target, corporate headquarters, is also recommended for the study area. There are several obvious benefits from professional service employment, especially when connected with a corporate center. These include environmental friendliness, highly educated workers, and the prestige factor associated with a corporate “brand.” Add to these the potential cluster effect of additional professional activity, such as the need for ancillary services in legal, marketing and accounting activity and the argument becomes stronger.

Portions of the Springwater area are in many ways extraordinarily well suited for a corporate center. The quality golf course, the beauty of the setting, and the availability of housing all come into play. In addition, corporate center recruitment in other parts of the country has resulted in the ability to attract manufacturing, distribution, and commercial development in near proximity. Recruiting a corporate headquarters may prove to be the signature project by which the Springwater study area can become known throughout the State.

Village Center

Workers and residents of the Springwater community will require supporting commercial services. The development of a Village Center is one means for accomplishing this goal. Two important assumptions guided planning for the Village Center:

- The design of the Village Center should meet the needs of future area industries, businesses and residents, as well as nearby existing urban and rural residents. It should not compete directly with existing retail centers in the Gresham area, such as Historic Downtown, the Rockwood Town Center and planned new areas such as the Pleasant Valley Town Center.
- The Village Center should be a walkable, mixed-use district, including medium-density housing, retail and commercial areas.

An assessment was made of the current retail environment in Gresham and the broader region, and of national data on shopping center characteristics to develop an understanding of uses typically found in neighborhood-serving retail areas. There was an evaluation of whether projected population growth in east Multnomah County and expected increases in retail spending would be sufficient to support a Village Center.

The market assessment indicates sufficient demand in east Multnomah County to support the retail portion of the proposed Village Center. The analysis of market demand, coupled with the

City's vision for the area, and Metro's regulations governing neighborhood-serving retail developments, suggests that an incremental, long-term build-out of the Village Center may be the best strategy for serving the needs of future area industries, businesses, and residents, as well as nearby existing urban and rural residents. The use of an incremental build-out plan would allow specific phases that could be triggered by certain population and employment thresholds.

Residential

Springwater was envisioned as a community in which people could live, work, and play. Accomplishing this vision requires some level of housing. As part of the planning process the characteristics of housing needed for the Springwater community and crafting an overall strategy for housing within the area were assessed.

Based on the average number of jobs per household in the region, it would take more than 10,000 households to provide the targeted 15,000 employees in Springwater. While some of these jobs could be filled by current residents of Gresham and Springwater or residents of nearby communities such as Pleasant Valley, it is unlikely that all of them would be. Furthermore, one of the key planning requirements was that the commercial and retail services in Springwater would not compete with adjacent centers. For Springwater's commercial and retail services to be self-supporting, a minimum population of approximately 3,000 people is required. While some of the support for the Village Center may come from outside Springwater, it is difficult to estimate the extent to which existing residents would help support the Village Center. Both of these issues point to the need, and capability, of Springwater to support a certain level of housing.

Housing demand within Springwater is likely to be driven to some extent by the industry targets chosen and the City's success in attracting specific companies to the area. However, given the City's goals and the characteristics of the property, the team views some executive housing as a logical strategy for Springwater. The topography of the site, particularly the buttes on the western edge, and the abundant natural features make it an appealing site for high-end residential development. Existing amenities, such as the Persimmon Golf Course and access to Mt. Hood, make the area attractive to outdoor enthusiasts. With the right mix of uses and scale, the Village Center development could be an important element in creating the "complete environment" for corporate executives and upper-level management.

Goals

1. The Springwater Community will provide industrial land that will generate a variety of family-wage job opportunities.
2. The Plan will actively encourage businesses with an interest in sustainability and protecting the community's rich natural resources.
3. Springwater will include a village center that can serve residents, employees, and businesses.

Policy Statements

1. Maximize the land area and accessibility for industrial and industry-related jobs.
2. Develop a feasible recruitment and marketing plan for short, medium and long-term phasing.

3. Ensure that the site has adequate communication technologies, such as broadband Internet access.
4. Be forward thinking in identifying Springwater industrial job opportunities in anticipating viable opportunities in the short, medium and long-term.
5. Define industrial jobs to include a variety of industrial sectors.
6. Provide for a range of job opportunities, catering to various skill sets and building on the skills of workers in the East Metro region.
7. Consider the relationship of industrial opportunities in Springwater to other employment opportunities including the Oregon Science and Technology Partnership (OSTP), Rockwood Urban Renewal and potential new industrial areas to the south in Clackamas County (Springwater/Damascus) and other new planning areas such as Pleasant Valley.
8. Foster industrial opportunities by enhancing the quality of the built environment.
9. Create a high-quality village center as well as high-quality neighborhoods with a mix of housing options to help foster industrial opportunities.
10. Recruit businesses with a sustainable (“green”) philosophy.
11. Provide many diverse opportunities for family-wage jobs.
12. Work to correct the imbalance of jobs to housing within Gresham and the East Metro region.
13. Work with Mt. Hood Community College to ensure that the training and education needs of incoming business and industry are met.

Action Measures:

1. Initiate a target marketing campaign for Springwater in the context of the City of Gresham’s marketing and economic development initiatives.
2. Develop marketing materials (including a brochure, web page, and target industry letters) that reflect a preferred approach and marketing theme. A specific marketing and advertising strategy should be developed with a tracking system that enables the City to evaluate the effectiveness of each marketing channel (mail-outs, telemarketing, trade events) and adjust marketing activities accordingly
3. Conduct parcel-level inventory for all land within industrial and commercially zoned tracts of Springwater. This inventory should result in the creation of “land briefs” for each parcel that describes all available information on the property, including: ownership, assessed valuation, current sales listing, and available infrastructure.
4. Prepare a list of brokers and owners based on the parcel inventory. Set out a meeting schedule with those brokers and owners to establish interest levels in participation.
5. Identify developer candidates and solicit a request for proposal for specific sites within Springwater. The Village Center should be considered as a pilot project.

6. Work with selected developer(s) to identify and market potential anchor companies. This work should be part of a prospect management system that coordinates the efforts of East County organizations, such as local governments and OSTP.
7. Develop a public relations strategy for Springwater and East County, including the creation of an East County Ambassador program and the preparation of a regional profile.
8. Determine the required level of public commitment to Springwater, including assessing options for public involvement in specific projects and developing an incentive package for Springwater.
9. Ensure that the City development plan code provides for farmers markets as appropriate in the Springwater area.
10. Develop an economic linkage between new Springwater industries and the nursery industry.
11. Consider including conduit for future fiber optic cable as a component of roadway improvements in Springwater.

10.803 SUSTAINABILITY

Background

The City of Gresham's goal for Springwater is to develop an economically, environmentally, and socially sustainable community. Providing sustainable development will help integrate the quality of life with the quality of the community that develops as Springwater is urbanized and annexed. The philosophy of sustainable development starts at the community planning level and continues through the design and construction of individual buildings. Each element along the continuum from community to structure is critical to this systematic model. This approach seeks to balance the use of natural resources with the creation of spaces and places needed to meet the community's social, functional, and economic needs.

Early in the Springwater Community Plan development, a Community Working Group (CWG) was convened to provide input through the planning effort. Together, the CWG and the project team developed a set of goals and policies that were ultimately adopted by the CWG. The purpose of the goals and policies was to identify the intent of the City of Gresham to accomplish certain results through the Springwater Community Plan. The following goal was adopted for sustainability:

The Springwater Community shall foster sustainability through encouraging businesses, industries and homes that are designed and built with good environmental stewardship. This shall be accomplished through green practices that provide for energy efficiency, water conservation, reduced pollution, and avoid environmentally harmful materials and processes. The Springwater Community strives to be a model for successful sustainable industrial development. Development shall also preserve, restore, and enhance natural resources by meeting or exceeding local and regional standards. Land uses, transportation systems and natural resources shall be carefully integrated and balanced.

Summary of Major Issues

The following are some of the major issues that were considered in planning for sustainable development in Springwater. These issues represent the full range of sustainable development opportunities, from the community level to the building level.

Economic Development. Positioning Springwater as a sustainable community can take several approaches, all of which should be considered during implementation of the Plan.

- Targeting companies that produce environmentally-friendly or holistic products
- Targeting groups of industries that would benefit from co-location and collaboration in the management of resources and environmental concerns such as energy, water, and materials management
- Promoting or requiring green building practices for industrial, commercial, and residential development. The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Green Building Rating System includes standards for building construction and operation that aim to improve occupant well-being, environmental performance, and economic returns of buildings. The LEED program uses both established and innovative practices, standards, and technologies to improve the environment for building occupants and minimize the impact of building construction. Incorporating elements of the LEED program in the Springwater code and supporting developer participation in the U.S. Green Building Council's LEED Program will result in a more sustainable built environment in Springwater, as well as supporting other sustainability goals.

Site Development Practices. Green site development practices are implemented through a combination of techniques that minimize the impact of development on the natural areas and surrounding communities. Green site development incorporate the following elements:

- a. *Stormwater Management.* The high level of industrial and urban development planned for Springwater will increase stormwater runoff and pollutant load beyond what is currently experienced. Green or low impact development uses a system of landscaping features that treat and infiltrate stormwater on the development site instead of using a traditional piped collection and conveyance system. Stormwater that is not managed on individual sites will be conveyed using Green Street swales rather than a conventional piped system. The benefit of green development is that it minimizes the production of stormwater runoff and manages it close to the source. These practices mimic the natural hydrology of the area, minimizing erosion and enhancing water quality in the streams. Green development practices include the following:
 - i. Minimizing impervious surface coverage
 - ii. Using ecoroofs to absorb precipitation and reduce runoff from developed areas.
 - iii. Maximizing tree canopy through preserving and planting trees in landscaped areas and parking lots, on residential property, in street medians, and in neighborhood and community parks
 - iv. Using onsite stormwater treatment techniques such as bioswales and landscape planters.
 - v. Using Green Streets for all streets that do not have a high level of on-street parking (as in the Village Center).
- b. *Xeriscape Landscaping.* Xeriscape landscaping promotes water conservation by minimizing the amount of native vegetation removed, limiting new vegetation to native or drought tolerant vegetation, and limiting irrigation. This approach also supports and encourages protection and restoration of natural areas where development occurs on parcels adjacent to Environmentally Sensitive Resource Areas.
- c. *Minimizing Night Sky Impacts.* Urbanization of Springwater will result in new lighting sources that could increase night sky illumination and impact the nocturnal environment. Applying site lighting restrictions reduces the development impact by avoiding off-site lighting and night sky pollution.

Water Reuse. The high density of proposed industrial development, distance from the City of Gresham’s existing wastewater treatment plant, and potential demand for reclaimed water for either non-contact industrial uses or environmental benefits (such as aquifer recharge, streamflow augmentation, etc.) support investigating wastewater reuse in Springwater.

Goals

1. The Springwater Community shall strive to be a model for successful, sustainable, industrial development, and foster continued sustainability through encouraging businesses, industries and homes that are designed for and built with good environmental stewardship.

Policy Statements

1. Create a sustainable community through business practices, philosophies, and strategies that reduce environmental impacts; for example, using techniques like Leadership in Energy Efficiency and Design (LEED) criteria and renewable energy sources.

2. Target environmental businesses and encourage businesses to use green practices that reduce waste and pollution; avoid waste, pollution, and environmentally harmful materials and processes; conserve water and energy; and protect and enhance the environment, biodiversity and the ecosystem.
3. Utilize green development practices, including green streets. Community design and infrastructure plans should enhance the natural hydrologic system as a fundamental part of managing stormwater and water quality.
4. Create interpretive educational opportunities that allow residents to experience and understand the diverse ecosystem that they are a part of.
5. Preserve, restore and enhance natural resources in ways that help ensure its long-term economic, social and environmental benefits as Springwater urbanizes.
6. Consider wastewater management alternatives other than conveyance to and treatment at the City's existing wastewater treatment facility on Sandy Boulevard.
7. Develop a transportation system that promotes improved air quality and reduced energy consumption by providing alternatives to replace long vehicle trips with shorter trips or with transit or walking/biking trips.
8. Encourage the planting and preservation of trees.
9. Utilize land as efficiently as possible.
10. Encourage diverse economic activities within the context of industrial and industry-related activities and promote the integration of the Springwater economic development community into the greater Gresham and surrounding East Metro community.
11. Incorporate an integrated Pest Management Program for the entire Springwater Community.

Action Measures:

1. Develop regulations, incentives, and development standards that include measures to protect and augment the natural stream system with a vegetated buffer system along streams and wetlands that are critical to the ecological health of the watershed.
2. Develop regulations, incentives, and development standards for managing stormwater on-site through green development practices that rely on infiltration, bio-retention and evapotranspiration, or other processes that enhance the natural hydrologic system.
3. Incorporate green streets designs as described in Metro's handbook entitled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and as designed in the Pleasant Valley Plan District area.
4. Develop regulations, incentives, and development standards to provide for the planting and preservation of trees throughout the study area, including street rights-of-way, community open spaces, parking lots, and other landscaped areas. Include an enforcement program.

5. As industries begin to locate in Springwater, investigate wastewater discharge or non-potable water demands to assess the potential for a water reuse program.
6. Initiate discussions with the Oregon Department of Environmental Quality (DEQ) to investigate the regulatory precedence for or requirements associated with using treated effluent for environmental benefits such as streamflow augmentation and aquifer recharge.
7. Explore the use of chemical free maintenance in City-owned or maintained parks.

10.804 LIVABILITY

Background

The result of developing a complete, sustainable community in which the City's needs for economic development are balanced with natural resource protection and infrastructure development can be summarized in one word: *livability*. The CWG and the project team characterized the livability goal for Springwater as follows:

The Springwater community shall have a high quality of life. This will be accomplished through compact and sustainable development; a range of housing choices; walkable neighborhoods; access to natural resources and open spaces for employees in the community; preservation of natural resources; and a variety of transportation choices. The community will encompass a village center, or series of village centers, that provide needed services for employees and residents in an attractive human-scale environment. A range of housing choices will be provided within close proximity to services and/or employment areas. Overall, the community shall be a unique environment that creates a sense of place for both residents and businesses, and acts as an economic attractor.

In the scenario evaluation process, compliance with this goal was measured by miles of trails and greenway connectivity provided, acres of the Plan area allocated to parks and open spaces, park and open space accessibility (number of households within a 5- or 10-minute walk), net residential and job densities, and households in proximity to the Village Center.

Summary of Major Issues

Primary elements of the Plan that contribute to the livability of Springwater include the following:

Planning a community- and pedestrian-friendly Village Center. Two sets of park blocks are planned for the Village Center – one along a north/south axis bordered by high-density residential housing, and one along an east/west axis bordered by mixed and commercial uses. These park blocks will intersect in a Village Center park and plaza that will help create the identity of the Village Center and provide a community gathering place. These spaces will produce a pedestrian way through the heart of the Village Center. The Village Center and housing areas are located such that over 75% of the residents of Springwater will be located within a quarter mile walk of the Village Center.

Developing a trail network that provides access to natural resources and employment areas throughout Springwater. Two trail loops are proposed: a Village Center loop offering views of the riparian areas on the west side of Johnson Creek, and an Employee loop trail offering access to industrial and employment areas on the east side of Johnson Creek. These trails will connect with each other and with existing trails in the region, supporting multimodal transportation.

Offering a range of housing options to meet a variety of needs. With a modest number of new households in Springwater, a variety of housing options will be available to meet a range of needs. A portion of the property in Springwater has been designated for large-lot " housing. This area has views of Mt. Hood and/or abuts natural resource areas and will provide opportunities for employees to locate near prospective industrial development sites. A range of townhomes, mixed-use, and single family homes will also provide housing for potential Springwater employees.

Providing parks that build on the area’s natural features and provide appropriate amenities. Two parks with different uses and amenities are proposed for Springwater. The nature-oriented Springwater Community Park is envisioned to be located along the Johnson Creek Corridor and adjacent to the residential districts. It will provide two youth sports fields, and a regionally significant natural park area, providing interpretive educational opportunities. The athletic facility-oriented East Springwater Park will be located east of US. 26, and will provide two to three adult sports fields for employee recreational opportunities as well as for the adjacent neighborhood to the north.

Goals

1. The Springwater Community shall have a high quality of life provided through compact and sustainable development; a range of housing choices in close proximity to services and/or employment areas; walkable neighborhoods; access to natural resource areas, parks, and greenways for employees in the community; preservation of natural resources; and a variety of transportation choices.
2. The park, trail, and open space network shall provide a variety of recreational opportunities for residents, employees, and neighbors of Springwater.
3. The community shall be a unique environment that creates a sense of place both for residences and businesses, and acts as economic attractor.

Policy Statements

1. Provide a variety of high-quality housing choices to include opportunities for large-lot housing within compact and walkable neighborhoods.
2. Promote a high standard for development practices. Promote developments and buildings that are pedestrian friendly.
3. Create a sense of place with respect to the community’s cultural and natural history. Incorporate the natural environment into the design of the community.
4. Create a Village Center that serves local residents, businesses and employees. The design of the streets and buildings of the Village Center should emphasize a pedestrian-oriented character where people feel safe.
5. Create a walkable community with an urban form that increases walking, biking and transit options. Access and connections to the Springwater Corridor Trail shall be emphasized as a unique characteristic of the Springwater Community.
6. Locate parks and open spaces throughout the community. Neighborhood parks, small green spaces and open spaces shall be within a short walk of all homes.
7. The park and trail system shall be connected to the Springwater Corridor Trail and connect to other regional trail systems where feasible.
8. The Village Center shall include a plaza, pocket park or other forms or combinations of parks to provide identify and form to the center as well as assembly space.

9. Identify opportunities and needs for civic uses and work with the Gresham/Barlow School District and Mt. Hood Community College to identify the area's education needs.
10. Build upon Springwater's unique characteristics and location, such as its proximity to and views of Mt. Hood.

Action Measures:

1. Modify System Development Charges for Springwater to allow acquisition and development of the proposed park areas.
2. Implement design standards for the Village Center that emphasize a human-scale and pedestrian-friendly environment.
3. Seek opportunities for synergies between other city agencies, such as shared park/school sites, regional stormwater management facilities, and trail corridors along transportation routes.
4. Expand on recommended park facility programs to meet the needs of the future residents by holding community workshops and planning days to involve the community in the design process.
5. Look for state and federal funding assistance to help preserve natural resources beyond that open space which will be purchased through Parks fees.

10.805 TRANSPORTATION

Background

A well-planned transportation system is critical to both attracting economic development to Springwater and to achieving the area's goals for livability and sustainable development. The team developed the following goal for transportation:

The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking, and bicycling. Good design can avoid the effects of heavy traffic on neighborhood safety and the natural environment. A well-connected transportation system using trails, bicycle routes and a variety of street types reinforces a sense of community and provides adequate routes for travel. The site should provide good connections to and from the employment areas and the surrounding community, as well as regional freight and transportation centers.

The transportation plan for Springwater was developed in compliance with transportation plans adopted by the State of Oregon, Metro, Multnomah County and the City of Gresham. Guidelines from these entities were used as a primary resource to develop the policy framework for the mobility standards and street spacing set forth in the Springwater Transportation System Plan (TSP). Review of the Gresham and Multnomah County Transportation System Plans also revealed the current street functional class designations for existing streets and highways, any planned pathways or trails, and any planned transportation improvements within or close to the Springwater area that should be included in the basic framework of the new planning area.

Key features of the Transportation element of the Plan are:

- Create a network of arterials, collectors, community streets, and local streets that accommodates travel demands and provides multiple routes for travel. Key new street extensions and connections include:
 - Two new east-west arterial connections from 242nd Avenue to Telford Road between Rugg Road and 252nd Avenue.
 - A new grade-separated interchange at US 26 in the Springwater Area.
 - A new street connection to Orient Drive around the east side of the existing Gresham neighborhoods.
- Upgrade existing streets and design all new streets to accommodate biking and walking, with special pedestrian amenities on transit streets. Upgrade intersections with safety issues identified as part of the inventory work.
- Provide regional and community transit service on key roads in Springwater, with direct connections to Gresham, Sandy, Clackamas regional center, Damascus, the Columbia Corridor, and downtown Portland. Planned transit streets include 242nd Avenue, Orient Drive, and US 26.
- Provide a logical and connected street system that connects directly to community destinations while also avoiding the ESRA where possible. Mitigate where not possible. Plan for a local street system that complements the arterial and collector street system and meets regional connectivity requirements within the residential and mixed use areas of the plan.

- Provide for direct and convenient access to employment centers that lead to regional facilities, and reduce the possibility of traffic intrusions into neighborhood and rural areas.
- Use Green Street designs that are an integral part of the stormwater management system and provide walkable, tree lined streets.
- Plan for a long-term arterial connection from Hogan Road to US 26 north of the Springwater Corridor Trail, to serve long-term regional mobility needs.

Summary of Major Issues

Major issues faced in the transportation planning for Springwater are described below.

Develop a network of arterial and collector streets adequate to serve future growth in Springwater, while protecting environmentally sensitive areas and adjacent neighborhoods and rural areas from the effects of urbanization.

Traffic analysis conducted as part of the update to the Regional Transportation Plan (RTP) demonstrated that future growth in Springwater would likely have widespread effects on the regional transportation system, despite significant improvements to the primary routes serving the area. Springwater's transportation plan must support the land use goals of the community, protect the natural features that define the area, and improve community access by all modes of travel by providing a variety of travel choices.

The availability of alternative arterials and highways leading away from Springwater are limited.

The rural Springwater community today, in general, is adequately served by US 26, and several city and county two-lane arterial roadways. Recurring congestion occurs during peak periods at major intersections along Burnside Road, Hogan Drive and Powell Boulevard just north of Springwater inside city limits, but delays are within acceptable levels according to city and state standards.

The planned job growth in will create much higher demand for regional travel to I-84, I-205 and the future Sunrise Corridor. A long-time need for freight traffic on US 26 has been more direct and reliable routes connecting to Interstate 84 and Interstate 205. The current adopted plan that provides this type of facility and service expansion is 242nd Avenue and a new connection to I-84 (the 242nd Avenue connector). On-going work by the City of Gresham and East Multnomah County communities on a parallel study to the Springwater Master Plan is reconsidering the North-South Corridor issue. A separate study is also being conducted to examine options for access to US 26 within Springwater. Gresham's ongoing participation in these studies is critical to coordinate the studies' evaluations and outcomes with needs for Springwater.

The existing street system is not adequate to serve future growth. Connect Springwater to major streets in Gresham, Pleasant Valley, and Damascus/Boring in a manner that provides alternatives to US 26 while protecting existing neighborhoods from traffic infiltration.

Additional connections and improvements to existing streets are needed to increase access from Springwater to other parts of the region. However, evaluation of appropriate north/south

street connections needs to address the potential impact of traffic generated in Springwater area on adjacent neighborhoods. The Transportation System Plan must balance the need to provide appropriate connectivity between Springwater and the surrounding neighborhoods while minimizing “through” traffic from Springwater to residential Gresham neighborhoods and maintaining a “hard urban edge” at the eastern boundary of the community as required by Gresham’s intergovernmental agreement with Multnomah County.

Goal

The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking and bicycling. The road and trail network will provide good connectivity within Springwater, with existing neighborhoods, and with the regional trail network.

Policy Statements

1. Incorporate the North/South Transportation Study into the implementation of the Springwater Plan to identify better connections between Springwater and I-84 and I-205.
2. Incorporate green streets designs as described in Metro’s handbook entitled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and as designed in the Pleasant Valley Plan District area.
3. Provide trail and pedestrian connections between residential and employment centers in the district.
4. Design road crossings of the Springwater Corridor Trail to minimize the impact to the greatest practical extent.
5. Develop transportation corridors and associated right-of-way widths for Green Street swales that efficiently convey developed stormwater runoff to the stream system.
6. Create streets for people as well as cars.
7. Encourage alternative modes of transportation within the Springwater community.
8. Provide good connectivity and access to practical destinations.
9. Provide safe and convenient access to and from employment areas, including freight access.
10. Incorporate adequate public safety access.
11. Provide for public transit options, such as bus, streetcar and/or light rail within the Springwater community and for east/west and north/south connections to the greater region.
12. Consider traffic impacts on surrounding rural areas and existing City of Gresham neighborhoods.
13. Manage and preserve the function of rural roads for rural traffic access and circulation by directing new urban industrial and residential traffic away from the rural area.

14. Provide pedestrian and bicycle connections within the Springwater community and to the greater region.
15. Plan roads to accommodate the movement of goods and services (truck traffic).
16. Consider environmental barriers and constraints.
17. Address existing transportation safety issues.
18. Identify and promote the quality and level of telecommunication services needed to serve industrial and other uses in the Springwater Community.
19. Identify improvements to Highway 26 that enhance access and mobility to and through the Springwater Community plan area to support industrial and employment development. Design elements are to be compatible and supportive of the Springwater Community Plan.
20. Create a transportation system that enhances mobility, reliability, and convenient connections to regional destinations.

Action Measures:

1. Coordinate Springwater development with future recommendations for improved North/South access between I-84 and the Sunrise Corridor in Damascus.
2. Implement recommended changes to the City's Transportation System Plan, and plan for funding requirements associated with transportation improvements and maintenance.
3. Coordinate Springwater development with the recommendations of the US 26 Access Study, and provide an implementation strategy that maximizes industrial development opportunities in Springwater.
4. Adopt a future street plan and street connectivity standards that meet regional and local connectivity requirements.
5. Work with TriMet to develop a plan for Springwater that provides connection to local regional centers, with service through the industrial areas and Village Center.
6. Future CIP Joint Study with Multnomah County to evaluate Access Management Control along 282nd to lessen the impacts on this facility and retain its rural character.
7. Identify all Arterial and Collector projects that are not currently in the RTP and submit a project list for inclusion in a RTP amendment.

10.806 NATURAL RESOURCES

Background

The Springwater Plan area has an extensive natural resource system that includes a two-mile section of mainstem Johnson Creek, four miles of major tributaries, and other unique habitat such as the steep slopes of Hogan Butte. The Johnson Creek Watershed Council has characterized one reach of Johnson Creek (JC16) that flows through Springwater as one of the watershed's highest quality reaches.

To comply with Title 11 of Metro's Urban Growth Management Functional Plan in bringing the Springwater area into the UGB, Gresham's planning for this area must include:

Identification, mapping, and a funding strategy for protecting areas from development due to fish and wildlife habitat protection, water quality enhancement and mitigation, and natural hazards mitigation. A natural resource protection plan to protect fish and wildlife habitat, water quality enhancement areas and natural hazard areas shall be completed as part of the comprehensive plan and zoning for lands added to the Urban Growth Boundary prior to urban development. The plan shall include preliminary cost estimates and funding strategies, including likely financing approaches for options such as mitigation, site acquisition, restoration, enhancement, or easement dedication to ensure that all significant natural resources are protected.

The Natural Resources Plan must also comply with Metro Ordinance 02-969B, Exhibit M regarding the inclusion of the project area in the UGB, and an Intergovernmental Agreement (IGA) between the City of Gresham and Multnomah County establishing guidance for Springwater development planning. Specifically, the IGA states that the Springwater Plan shall:

Establish a consistent and comprehensive plan for urban and rural watershed management of stormwater, stream corridors and confluences, and riparian areas for the Upper Johnson Creek Basin (upstream of the 2002 Gresham city limits). Utilize the City's Johnson Creek Master Plan, Metro Goal 5 requirements (which consider the Endangered Species Act, Clean Water Act, and Statewide Goal 5 planning provisions), and habitat protection measures that are at least equivalent in the level of protection to the County's West of Sandy River Rural Area Plan in development of the watershed plan.

Early in the Springwater Community Plan development, a Community Working Group (CWG) was convened to provide input through the planning effort. Together, the CWG and the project team developed a set of goals and policies that were ultimately adopted by the CWG. The purpose of the goals and policies was to identify the City of Gresham's intent to accomplish certain results through the Springwater Community Plan. The following goal was adopted for natural resources:

The plan will preserve, protect, and enhance natural resources. It will define, protect, restore and enhance significant natural resources, including stream corridors, wetlands, and forested areas. Resource areas will provide the basis for identifying development constraints as well as serving as open space amenities for the Springwater Community. Resource protection and enhancement will be a shared responsibility of property owners, developers and governments.

The Natural Resource team used this goal as a basis for defining the Environmentally Sensitive Resource Areas (ESRAs). After a thorough inventory of resources in the study area, the work

team presented their findings through a series of inventory maps at public meetings. Local residents made additions and corrections to the maps. This information, combined with extensive field studies conducted by the project team, formed the basis for assigning significance levels to each resource in the study area. The final ESRA was determined through an Environmental, Social, Energy and Economic (ESEE) study to determine where urban development in resource areas should be allowed, limited, or prohibited.

Selected characteristics of the ESRA include:

- Wetlands, riparian habitat, and upland habitat offering both opportunities for protection of high value resources, and opportunities for enhancement of degraded resources.
- Habitat migration routes along the waterways and between the buttes.
- Buffers adjacent to the resources of up to 200 feet, depending on the type of resource.
- Implementation strategies including planning-level project cost, funding strategies, regulatory and incentive options, and restoration priorities.

Summary of Major Issues

Major issues associated with natural resource planning and enhancement in Springwater are related to the existing rural development and agricultural practices in the area. MacDonald Creek (Badger) has been modified by Telford Road, and urban development at the headwaters of Botefuhr Creek has changed the flow regime of the creek channel. A Himalayan blackberry monoculture has been established in the area west of Hogan Road, and an incised channel has minimized the channel's connectivity to its floodplain. Open (ditched) stormwater systems and failing subsurface wastewater disposal systems contribute negatively to water quality in Johnson Creek and the other tributaries in the study area.

Some of the Springwater riparian reaches have relatively intact diverse, mature riparian growth, however many areas lack high-quality riparian vegetation. Areas that appear as wide canopy trees in aerial photography hide understory that has been cleared, with significant streambank erosion occurring.

Goal

The plan will preserve, protect and enhance natural resources.

Policy Statements

1. The Springwater Community Plan shall recognize the importance of the upper Johnson Creek system for Gresham, the Portland Metro region and the Willamette Valley.
2. Mitigation for any impacts of development in Springwater to stream corridor function shall be prioritized first on the same tributary within Springwater, secondly in Springwater on Johnson Creek or a tributary, or thirdly as close to the impact area as possible within the Johnson Creek basin.
3. The Plan will result in a green infrastructure that will provide regional natural amenities for future generations.

4. The plan will identify potential opportunities for “natural park” facilities that would enhance the sense of place for economic developments and that could be an attraction for residents and businesses.
5. Stream crossings will be minimized to the greatest extent feasible.
6. Road and pedestrian crossings of the natural resources areas shall be designed for the least impact practical.
7. The entire Johnson Creek Watershed and ecosystem will be considered.
8. To the extent practical, watershed functions and sensitive/natural species will be restored.
9. Barriers to wildlife habitat corridors, such as bridges and roads, shall be designed to provide proper opportunities for wildlife migration.
10. The urbanization of the Springwater Community shall be balanced with the protection of sensitive species and habitat, water quality, and groundwater resources.
11. The urbanization of the Springwater Community shall achieve, to the maximum extent practical, low levels of effective impervious surfaces, high levels of tree protection and reforestation, management of stormwater as close to the point of origin as possible, improved hydrology and flood protection, and removal of barriers to fish passages.
12. Urbanization of the Springwater Community shall provide appropriate erosion control and shall control sedimentation through the use of green development practices, context sensitive design, and appropriate construction management practices, re-vegetation of disturbed areas, and regular maintenance and monitoring.
13. Lands with slopes of 25 percent or above shall be protected.
14. The use of native plants shall be a priority for re-vegetation and Green Streets.
15. The development code for Springwater shall maintain fish and wildlife habitat protection measures that are at least as protective as those adopted by Multnomah County for the West of Sandy River Plan Area upon annexation.

Action Measures:

1. Add the Springwater Community Plan area to the Community Development Hillside Special Purpose District Map.
2. Examine habitat between Botefur Creek & Hogan Creek to identify a potential corridor that may be recommended for preservation for wildlife habitat.
3. Examine habitat between Sunshine Creek & buttes to south of Springwater to identify a potential that may be recommended for preservation for wildlife habitat.
4. Evaluate availability of grant funding to support recommendations in the Springwater restoration program.

5. Continue to evaluate long-term funding opportunities for natural resource preservation, enhancement, and maintenance.
6. Coordinate with stormwater and transportation project implementation to maximize benefits to the natural resources.
7. Coordinate with Multnomah County for adoption of Goal 5 resource map and local wetland inventory.
8. Continue to work with the City of Damascus and other stakeholders to coordinate resource preservation and enhancement efforts.
9. Identify funding sources for implementing Natural Resource goals and programs.

Springwater Community Plan



Springwater Public Facility Plan

September 20, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

SPRINGWATER COMMUNITY PLAN REPORT

PUBLIC FACILITIES PLANS

INTRODUCTION

The purpose of the Springwater Public Facilities Plan (PFP) is to establish a framework for how necessary urban services, water, wastewater, stormwater, and parks, will be developed and maintained as urbanization occurs within the Springwater Plan District.

The Springwater PFP is not intended to be a “stand-alone” PFP; it will amend Volume 2 – Policies Gresham Community Development Plan. After this introduction and a description of the goals, policies and action measures associated with the Springwater District, the following PFP amendments are proposed:

- 10.821 Public Facilities
- 10.822 Water System
- 10.823 Wastewater System
- 10.824 Stormwater Management System
- 10.825 Parks and Recreation System

Transportation infrastructure needs are identified in the Springwater Transportation System Plan, which will amend the citywide Gresham Transportation System Plan.

As required by Title 11 Metro Urban Growth Management Functional Plan, a conceptual level services plan for the provision of water, wastewater, stormwater and parks was developed as part of the *Concept Plan* for the project. Needed facilities for the planned new urban uses were identified, rough cost estimates and likely funding strategies were developed, and maps depicting the general location of public facilities were included.

Subsequent to the development of the *Concept Plan*, the PFP was developed. This document is consistent with the Oregon Administrative Rules, specifically OAR 660-011-0000. Key requirements of the Public Facility Planning Rule (OAR 660-011-0010) include:

660-011-0010

- (1) The public facility plan shall contain the following items:
 - (a) An inventory and general assessment of the condition of all the significant public facility systems which support the land uses designated in the acknowledged comprehensive plan
 - (b) A list of the significant public facility projects which are to support the land uses designated in the acknowledged comprehensive plan. Public facility project descriptions or specifications of these projects as necessary
 - (c) Rough cost estimates of each public facility project
 - (d) A map or written description of each public facility project's general location or service area
 - (e) Policy statement(s) or urban growth management agreement identifying the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated
 - (f) An estimate of when each facility project will be needed

- (g) A discussion of the provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each public facility project or system

There are no airport facilities or gas lines planned as part of the Springwater development (per OAR 660-012-0200(e)). There is one existing high-pressure gas line within the study area along the Hogan Drive – 242nd Avenue corridor.

The Public Facility Planning Rule is intended to implement Statewide Land Use Planning Goal 11 "...to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."

Specific goal requirements that are relevant to the Springwater urban area include:

- Cities or counties shall develop and adopt a public facility plan for areas within an urban growth boundary containing a population greater than 2,500 persons.
- A "timely, orderly and efficient arrangement" refers to a system or plan that coordinates the type, locations and delivery of public facilities and services in a manner that best supports the existing and proposed land uses.

For each of these urban services, the PFP provides an assessment of existing conditions, a summary of future needs, a financial plan discussion, and recommended goals and policies and action measures. A capital improvements list provides a detailed list of the projects necessary in Springwater to accommodate planned urban development over the next twenty years. Maps showing the locations of the capital improvement projects are also included. The PFP provides a planning-level estimate of facilities required to facilitate the development planned for Springwater. Additional refinement of facility needs, sizing, and anticipated capital cost will occur through the periodic Master Plan updates for each of utilities (water, stormwater, wastewater, and parks).

A key component of the successful implementation of the Public Facilities Plan is the coordination of the multiple government agencies involved in Springwater, most notably the City of Gresham and the City of Damascus. A portion of the Springwater area added to the Urban Growth Boundary in 2002 is located in Clackamas County, and is now part of the newly-incorporated City of Damascus. This area was included in the *Concept Plan* for analysis purposes, although a final decision on who will provide services to this area has not yet been determined.

Providing services in Springwater required developing and implementing capital improvement plans. Future needs are generally divided into short-term and long-term needs. Short-term priorities are established in approved capital improvement plans that usually cover a five-year horizon. The intent of these plans is to establish the phasing sequence for major projects over a five-year period, so that as Year 1 projects are completed, Year 2 projects move forward in the priority list.

Long-range capital improvement needs are determined through master plans that generally have a 20-year planning horizon. System master plans are long-range plans that generally include an analysis of existing conditions, including existing service deficiencies, and analysis of capital improvement needs based on forecast growth projections, and a financing strategy. Updated master plans have been prepared or are being prepared to include projects recommended in the PFP. In general, projects listed in a master plan go through several steps before construction begins, including detailed design and engineering. This work is usually

scheduled through the CIP process. While short-term CIPs are approved legislatively, they are non-binding. Annually, service providers approve funding for specific capital projects through the budget process.

The resources and methods used to build and operate the systems outlined in this PFP are a function of their finance structure. Water, wastewater and stormwater systems are enterprise functions, meaning these services need to be self-supporting. Costs and revenues associated with enterprise functions are dedicated to that service and may not be used for other government functions. The enterprise structure employed for these systems provides a relatively stable financial structure on which to plan and finance capital improvements.

Most capital improvements related to utility services (water, wastewater, stormwater) are financed using a combination of SDC fee revenue – especially for growth-related improvements – and retained earnings from utility operations (rate revenue). Developers can be required to oversize a public improvement to serve other development, but the City must reimburse the developer the portion of the benefit that accrues to the surrounding properties. In the past revenue bonds have been issued to build major improvements, such as new water reservoirs or improvements to the sewage treatment plant, and pledged repayment from these sources. Local improvement districts have also been used to capitalize bond issues for utility improvements.

Park and open space services are accounted for in the General Fund. General fund revenues are discretionary and, therefore, not specifically dedicated. System development charges are collected for capital improvement projects.

It is possible that funding for enhancement of natural resources in Springwater (both acquisition and maintenance) could be incorporated into existing or new SDC funding mechanisms. These could include a combination of stormwater funding for construction of regional detention and water quality facilities, transportation funding for green street swales, or creation of a new utility dedicated to natural resource facilities. Open space acquisition could also be targeted using funds provided through a bond measure that Metro plans to bring before the Region's voters in the fall of 2005.

10.821 PUBLIC FACILITIES

Background

This section addresses water, wastewater, stormwater and park public facilities. It is intended to amend the City's public facilities plans for each facility. Amendments to the Public Facility Plan for transportation are located in a separate amendment to the City's Transportation System Plan.

The Metro Council brought Springwater into the Urban Growth Boundary (UGB) in December 2002. When land is brought into the UGB, Title 11 of the Metro *Urban Growth Management Functional Plan* requires that the added territory be brought into a city's comprehensive plan prior to urbanization with the intent to promote the integration of the new land into existing communities.

Title 11 requires conceptual public facilities plans for each of these services that demonstrate how Springwater can be served. The conceptual plans are to include preliminary cost estimates and funding strategies, including likely financing approaches and maps that show general locations of the public facilities.

Conceptual public facility plans were developed for water, wastewater, stormwater, and parks during the *Concept Plan* phase of the project. The planning area used for development of public facility alternatives included four distinct areas, shown graphically on Figure 1:

- Approximately 1,152 acres of unincorporated Multnomah County which was included in the 2002 Urban Growth Boundary (UGB) expansion. This is the primary area referenced as the "Springwater Site".
- Approximately 140 acres of unincorporated Multnomah County located at the foot of the buttes west of Hogan Road. This area is within Gresham's UGB and its Urban Services Boundary, but planning for urban services has never been provided. This area is also included in the Springwater Site.
- The "Brickworks" site, which is 183 acres of land north of the Springwater area. It is zoned as Heavy Industrial (HI) and is currently within the City of Gresham. It is included in the Springwater Community Planning area to explore redevelopment opportunities in conjunction with the new annexation area.
- Approximately 139 acres located in Clackamas County. This area was also included in the 2002 UGB expansion, and is now part of the newly-incorporated City of Damascus.

The 2002 UGB expansion also included a "Springwater Phase 2" area, which is primarily the area encompassed by the new City of Damascus. Public facility planning conducted as part of this project considered likely service extensions to the Phase 2 area. Potential service provision for the Phase 2/Damascus area is discussed separately for each utility considered in the public facilities plan.

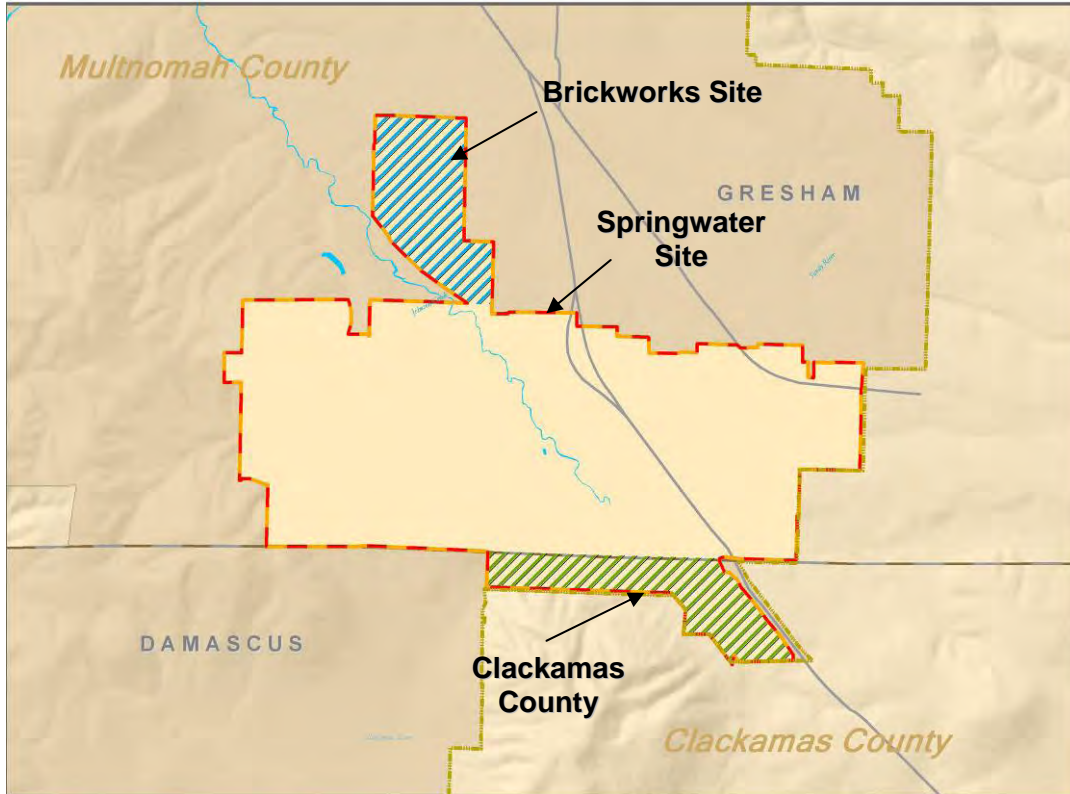


Figure 1. Springwater Planning Area Elements

The general steps in generating the conceptual public facilities plans were:

- Developing an inventory of the existing system
- Performing a needs analysis based on planned future uses
- Developing a conceptual system layout for each planning scenario, including facility needs and cost estimates
- Evaluating each conceptual public facility system with respect to project evaluation criteria
- Creating a preferred public facility alternative based on the preferred land use, transportation, and natural resource concepts and the scenario evaluation results
- Refining facility needs, cost estimates, and funding strategies for the recommended plan

The *Concept Plan* also included the Community Working Group’s adoption of plan goals. No specific goals were developed for water, wastewater, stormwater, or parks public facilities. However, evaluation measures associated with these public infrastructure areas were incorporated into evaluation measures for the broader community goals (i.e., create a community, livability, sustainability, etc.).

The *Concept Plan* work was the basis for the Public Facilities Plans that are included in this document. These Public Facilities Plans describe the elements necessary to comply with Statewide Planning Goal 11 and OAR 660-011-0000 necessary to amend the City’s Public Facility Plan for each of the public facilities:

660-011-0010

(1) The public facility plan shall contain the following items:

- (a) An inventory and general assessment of the condition of all the significant public facility systems which support the land uses designated in the acknowledged comprehensive plan;
- (b) A list of the significant public facility projects which are to support the land uses designated in the acknowledged comprehensive plan. Public facility project descriptions or specifications of these projects as necessary;
- (c) Rough cost estimates of each public facility project;
- (d) A map or written description of each public facility project's general location or service area;
- (e) Policy statement(s) or urban growth management agreement identifying the provider of each public facility system. If there is more than one provider with the authority to provide the system within the area covered by the public facility plan, then the provider of each project shall be designated;
- (f) An estimate of when each facility project will be needed; and
- (g) A discussion of the provider's existing funding mechanisms and the ability of these and possible new mechanisms to fund the development of each public facility project or system.

Service Delivery Overview

Like most rural development in the area, most residents of Springwater are largely responsible for their own water supply, wastewater treatment, and stormwater systems. Water is currently accessed via underground wells and wastewater is primarily treated in subsurface disposal systems. Stormwater runoff is conveyed to natural drainage areas or to drainage ditches adjacent to local roads. There are no public parks in Springwater. A portion of the Springwater Trail – a multi-use regional trail developed as part of Metro's Greenspaces program – runs through the study area adjacent to Johnson Creek.

Future Public Facilities Provider Overview

The Springwater area that was added to the UGB in 2002 lies primarily in unincorporated Multnomah County. The southern portion of Springwater is located in the newly-formed City of Damascus in Clackamas County. The City of Gresham will be responsible for the provision of urban services for areas annexed into Gresham. The portion of Springwater in Clackamas County was included in the Public Facility Plan development for planning purposes, although the ultimate service provider for this area has not been determined.

As part of the 2002 UGB expansion, Metro also added land known as "Springwater Phase 2" that is located entirely within Clackamas County. It is assumed that water service for this area would not be provided by the City of Gresham, as it is unlikely that the Gresham would annex the area. However, the natural drainage of the region slopes toward Gresham, and therefore it may be logical for Gresham to provide wastewater conveyance and treatment for a portion of the Phase 2 area as it currently does for the Cities of Fairview and Wood Village. The portion of the Phase 2 area that drains by gravity to Gresham is known as "Sunshine Valley." The Public Facility Plan for wastewater identifies the infrastructure requirements associated with this scenario as a basis for further intergovernmental discussions regarding logical service providers for the Phase 2 area. It is also assumed that stormwater service for this area would most likely not be provided by the City of Gresham. Because of the natural drainage, however, planning for the area downstream of the Sunshine Valley has utilized the assumption that no additional flow and pollutant will be discharged. A set of planning assumptions has been transmitted to Clackamas County and the City of Damascus. The success of stormwater facilities within the

Gresham boundary will depend directly on whether planning efforts for the Sunshine Valley area adhere to these or more restrictive assumptions.

10.822 WATER SYSTEM

System Description/Condition Assessment

Existing Conditions. The Springwater area is currently rural in nature, with some residential development and limited commercial development. Currently, water supplies in the area are served through individual wells that tap into the groundwater aquifer beneath the Springwater area. In addition, there is no domestic water distribution system in place in Springwater. As the area is developed to the level of urban development proposed in the Concept Plan, Gresham's water distribution system will need to expand to provide service to this area.

The City of Gresham provides water to its customers through a wholesale water supply agreement with the City of Portland Water Bureau (PWB) and an intergovernmental agreement with the Rockwood Water People's Utility District (RWPUD). Water is provided through seven metered connections by the PWB and one metered connection from the RWPUD. In addition to the purchased water, the City plans to use groundwater to supplement the current water supply sources. It is anticipated that the Sunrise Water Authority will serve that portion of Springwater located within Clackamas County.

Water Distribution. The Springwater water distribution system will be an extension of the City's current distribution system and add to the existing network of pipes, valves, pump stations, and reservoirs. Currently the City is divided into seven service levels that provide water to the various parts of the City. The service levels are supplied either by direct gravity from PWB and RWPUD connections, or through pump stations pumping directly from the PWB conduits or booster pump stations located in the system.

The Springwater planning area abuts three of the City's Service Levels: South Hills, Intermediate, and Lusted. These three service levels will be expanded into the Springwater area. The South Hills Service Level currently comprises of about 533 acres and includes the South Hill Reservoir. This reservoir has a capacity of 2.6 million gallons (MG). Water is supplied to this service level through the Regner Road Pump Station #8 with a current capacity of 2,200 gallons per minute (gpm).

The Intermediate Service Level currently covers approximately 2,977 acres and includes two reservoirs: the Butler Road Reservoir (4.0 MG) and the Regner Reservoir (6.0 MG). This service level is supplied by connections to PWB conduits through the Division Street Pump Station from Conduit #4 with a current capacity of 4,000 gpm and the Main Street Pump Station from Conduit #3 with a current capacity of 3,800 gpm.

The Lusted Service Level is currently about 1,112 acres and is served by the Wheeler Road Reservoir (3.2 MG) and the Lusted Tank (1.2 MG). This service level is supplied through the Powell & Barnes Road Pump Station from Conduit #3 with a current capacity of 1,600 gpm. The Salquist Pump Station has a current capacity of 3,825 gpm and pumps water from the Intermediate Service Level into the Lusted Service Level. The Salquist Pump Station has been constructed with a provision for connecting to a future Conduit #5.

System Analysis

Water demand from the proposed development was generated by applying an estimated demand per acre of new developable land based on the *1998 Water System Master Plan*. The demands for each service level from the *1998 Water System Master Plan* were projected over a 20-year planning horizon. These projected demands were divided by the current service level

acres to obtain a demand per acre for each service level. This value was then used with the new service level areas to estimate the Springwater demand. The area of each new service level did not include land use designated as wildlife preserve, open space, or environmentally-sensitive areas.

Based on the demands projected from the *1998 Water System Master Plan*, the anticipated average day demand generated from the Springwater development totals 1.0 million gallons per day. Table 2 shows the results of this analysis for the three service levels.

Table 2: Projected Springwater demand based on projected flows in existing service levels.

Service Level	Existing Area (acres)	Projected 2025 Average Day Demand (mgd)	Projected 2025 Average Day Demand per Acre (mgd/acre)	New Springwater Area (acres)	Projected Springwater Average Day Demand (mgd)
Lusted	1,112	0.88	0.000795	212	0.17
Intermediate	2,977	3.01	0.001167	535	0.62
South Hills	533	0.91	0.001167	177	0.21
TOTAL	4,622	4.80		924	1.00

Maximum day demands were estimated from the projected average day demands by using a peaking factor of 2.3, the same as the one used in the *1998 Water System Master Plan*.

A new master planning effort is currently underway. Associated with this effort, demand projections are being revised. The Springwater demand projections should be revised based on this new analysis once the information is available.

One difference between Springwater and the existing City is the level of industry anticipated. Industrial customers can have a wide range of water demands and wastewater generation rates. Water demands from large industrial developments can have a significant impact on water infrastructure needs. In addition, industrial customers typically have a higher demand for fire protection. For the Springwater development, fire flow demands for each broad land use type were assumed to be:

- 3,500 gpm for Commercial and Industrial customers
- 1,750 gpm for Medium Density Residential customers
- 2,500 gpm for High Density Residential customers
- 1,750 gpm for Low Density Residential customers with homes larger than 3,600 square feet
- 1,000 gpm for Low Density Residential customers with homes at or less than 3,600 square feet

The following process was used to evaluate water demands associated with Springwater:

- Establish new service level boundaries within the planning area to determine the area to be added to the existing South Hills, Intermediate, and Lusted Service Levels. The shape of the new service levels was determined based on area topography and location to the existing service levels.

- Define pipe networks and projected flows for the land use concepts developed during planning. The networks were designed to provide as much system looping as possible, and to locate mains in existing or proposed road right-of-way to the greatest extent possible.
- Determine the pipe size for the distribution network in Springwater.
- Evaluate the system to determine whether adequate fire protection is available.
- Evaluate the system to determine whether adequate storage is available.

Based on these assumptions, Table 3 below shows the general system components required for the Springwater area. These are also shown in Figure 2.

Table 3: Springwater water system facilities

<u>New Facilities</u>	
Total Length of New Pipe (LF)	
12-inch diameter (LF)	39,100
16-inch diameter (LF)	47,036
18-inch diameter (LF)	19,858
New Pressure Reducing Valves	3
New Wheeler Road Reservoir (MG)	3.2
New South Hills Reservoir (MG)	2.6
<u>Upgrades to Existing Facilities</u>	
Replace 8-inch with 12-inch diameter (LF)	290
Replace 12-inch with 16-inch diameter (LF)	1,330
New Pumps at Regner Pump Station	2 @ 1,100 gpm each

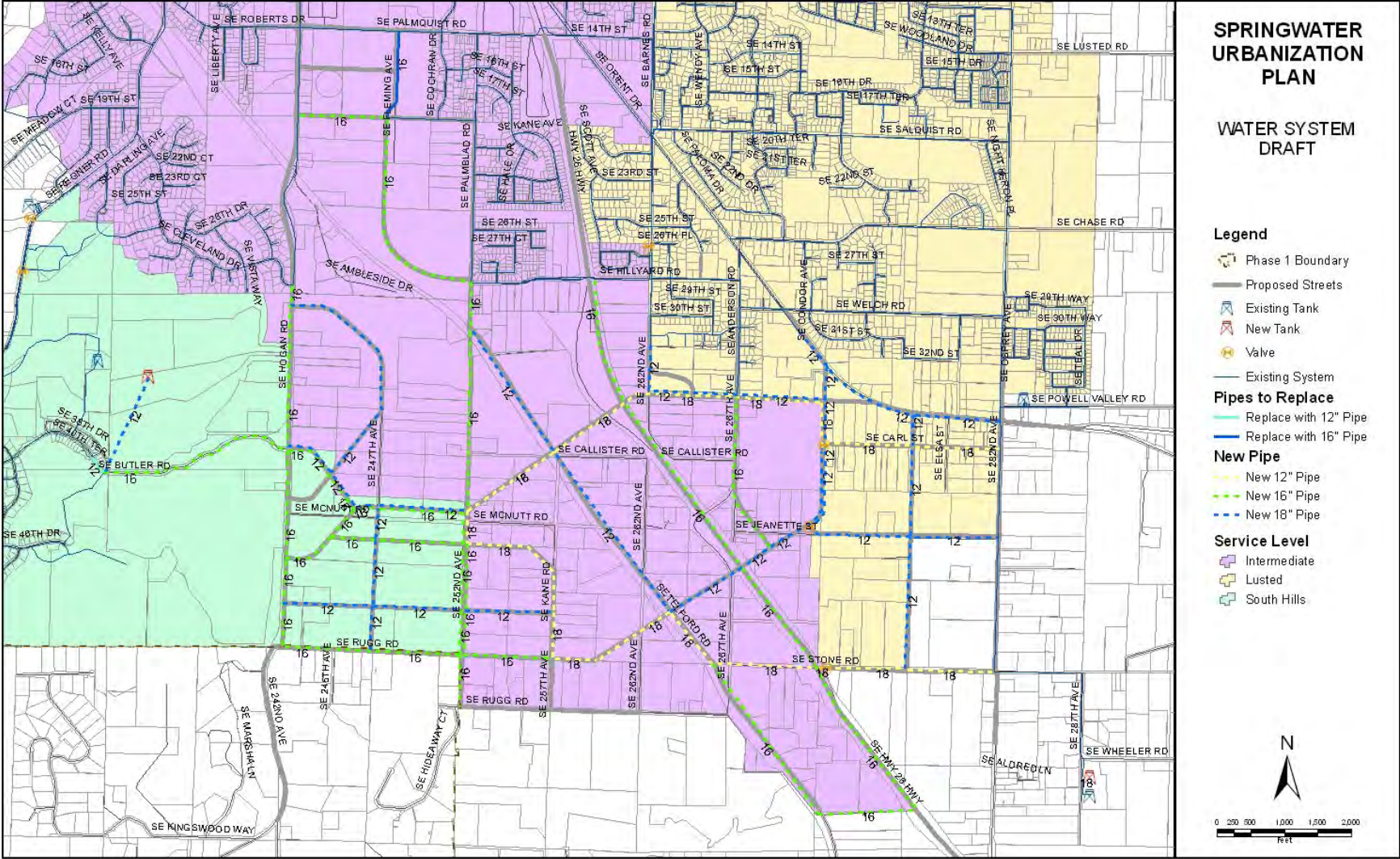


Figure 2 – Proposed Water System Improvements

Summary of Future Needs

Based on the analysis of the proposed water distribution system, recommendations for water system improvements were developed. These recommendations include a distribution network to serve the Springwater community, and improvements to existing infrastructure in the City to provide additional flow to Springwater from the City's current sources. To maintain consistency with the City's current practices, parallel piping is provided in areas adjacent to two pressure zones to minimize the use of pressure reducing valves (PRVs) where possible. Improvements are summarized below.

- The Springwater system is divided into three service levels – extensions of the South Hills, Intermediate, and Lusted service levels. Within each service level there is a network of distribution mains ranging in size from 12-inch to 18-inch. These mains are looped to the maximum extent possible.
- Existing 8-inch and 12-inch mains in two areas will need to be upsized to accommodate the demands anticipated in Springwater.
- Two new pumps will need to be added to Regner Pump Station. These pumps are to be of similar capacity to those existing at the pump station (1,100 gpm capacity).
- Two new reservoirs will be required. One will be located near and of a similar size as the existing South Hills Reservoir (2.6 MG) and the other will be located near and of the same size as the existing Wheeler Reservoir (3.2 MG). Controls at the Regner, Barnes, and Salquist Pump Stations will have to be modified to incorporate these new tanks.

No provisions are included in the recommended plan to serve the Phase 2 Springwater area. The City of Gresham is participating in ongoing discussions with Clackamas County, the City of Damascus, and the Sunrise Water Authority to determine the appropriate service provider for the Phase 2 area.

Recommended capital improvements and associated costs are shown in Table 4 on the following page. Costs are based on the annexation subareas described in the Summary Report.

Table 4. Projected Water System Costs

Annexation Subarea	Timing (Years)	Springwater Service Level	Length of Pipe (ft)	Storage (MG)	Other Facilities	Total Project Cost	Funding Source
1	0-5	Intermediate	5,966	0.0		\$ 1,061,000	SDC/Local
2	0-5	South Hills	4,806	2.6	2 New Pumps	\$ 7,545,700 ¹	SDC/Local
3a	0-5	Intermediate	2,402	0.0		\$ 427,200	SDC/Local
3b1	0-5	Intermediate	4,420	0.0		\$ 589,500	SDC/Local
3b2	6-20	Intermediate	9,453	0.0		\$ 1,515,500	SDC/Local
4a1	6-20	South Hills	8,885	0.0		\$ 1,559,200	SDC/Local
4a2	6-20	Intermediate	2,530	0.0		\$ 506,300	SDC/Local
4b	6-20	South Hills	9,882	0.0		\$ 1,566,800	SDC/Local
4c	6-20	Intermediate	6,898	0.0		\$ 1,227,400	SDC/Local
5a	0-5	Intermediate	3,179	0.0		\$ 593,200	SDC/Local
5b1	0-5	Lusted	3,296	0.0		\$ 439,600	SDC/Local
5b2	6-20	Lusted	6,102	0.0		\$ 1,166,900	SDC/Local
5c	6-20	Lusted	8,028	0.0	1 New PRV	\$ 1,279,100	SDC/Local
6a	6-20	Intermediate	5,918	0.0		\$ 922,100	SDC/Local
6b1	6-20	Intermediate	2,592	0.0		\$ 345,700	SDC/Local
6b2	6-20	Lusted	5,504	0.0	1 New PRV	\$ 817,100	SDC/Local
7a	6-20	Intermediate	5,824	0.0		\$ 1,039,800	SDC/Local
7b	6-20	Lusted	4,474	0.0	1 New PRV	\$ 846,500	SDC/Local
8a	6-20	Intermediate	762	0.0		\$ 135,500	SDC/Local
8b	6-20	Intermediate	6,694	0.0		\$ 1,190,400	SDC/Local
Wheeler Res	6-20	Lusted	380	3.2		\$ 7,615,000	
TOTAL PROJECT COST						\$32,389,500	

Costs based on ENR 20-City Construction Cost Index (CCI) of 7297

1. Includes land acquisition of 3 acres at \$150,000/acre, plus 14% administrative markup

Funding Plan

The following discussion presents the envisioned strategy for funding water service extensions in Springwater. Gresham relies on developer contributions, system development charges (SDCs) and retained earnings from the utility to finance expansion. In the past, Gresham has borrowed against future utility revenues to finance major improvements in storage and transmission facilities.

Depending on the location of initial development, it may be difficult for Gresham to finance water system improvements in the short-term. Funding needs will be minimized if the initial development all occurs within a single service area, and is close to an existing water storage tank. Over the long-term, assuming the City adopts adequate SDCs to cover the required capital improvement projects, SDCs should generate enough revenue from within Springwater to capitalize system improvements.

Gresham has recently undertaken a separate effort to evaluate water and wastewater SDCs. This project is examining options for both city-wide and area-specific SDCs, and will make recommendations regarding potential changes to the existing SDC methodology, especially in the improvement fee, to ensure that the fee is adequate to recover forecast capital improvement needs in Springwater.

Goals, Policies and Action Measures

Goals and Policies. Applicable goals and policies that relate to the provision of public facilities in the existing comprehensive plan for the City of Gresham also apply to the Springwater PFP.

Action Measures.

1. Implement recommendations of the Water and Wastewater SDC study being conducted concurrently with the completion of this PFP.
2. Update the SDC improvement project list to include relevant near-term projects.
3. Continue to coordinate with the Clackamas County, the City of Damascus, the Sunrise Water Authority, and other stakeholders to establish plan for providing water service for the Phase 2 area.
4. Review options to incorporate a “purple pipe” system where water reuse is encouraged and promoted.

10.823 WASTEWATER SYSTEM

System Description/Condition Assessment

Existing Conditions. The Springwater area is currently rural in nature, with some residential development and limited commercial development. Sanitary sewage generated in the Springwater area is currently treated by on-site subsurface disposal systems. When the area is developed to the level of urban development proposed in the Concept Plan, this type of treatment will not be adequate.

The City of Gresham owns and operates a wastewater treatment facility that treats wastewater for over 107,000 residents, businesses, and industries in the City, as well as the Cities of Fairview and Wood Village. Wastewater receives a high level of secondary treatment at the City's facility on NE Sandy Boulevard and is discharged to the Columbia River. Due to the topography of Springwater, all wastewater generated from the urban development would naturally drain by gravity to the existing wastewater treatment plant.

For planning purposes, it was assumed that all wastewater generated in Springwater would be conveyed to the City of Gresham's existing collection system and ultimately to the City's treatment plant. A portion of the Springwater study area is within the new City of Damascus and Clackamas County (as shown in Figure 1) and therefore could potentially be served by conveying wastewater to the County's treatment plant operated by Water Environment Services of Clackamas County. This option, however, would require pumping to lift wastewater into the County's existing collection system. The City of Damascus potentially could provide wastewater services via creation of a new wastewater utility. Final determination of the appropriate service provider for the Clackamas County portion of Springwater will be determined as the Damascus urban planning efforts are completed.

Sewage Collection. The proposed sewage collection system will be a network of pipes used to convey wastewater from the Springwater planning area to the City's existing system. In general, the most cost-effective and reliable method of conveying wastewater is to locate new pipes in existing or proposed road right-of-way, to use gravity conveyance of wastewater to the greatest extent possible, and to minimize the number of stream crossings.

The Springwater planning area abuts three sewage collection basins in the City of Gresham: Johnson Creek basin, East basin, and Kelly Creek basin. The Johnson Creek basin comprises 4,040 acres and includes the area roughly east of Powell Boulevard from the western City limits to 252nd on the east. This basin is served by a main interceptor (Johnson Creek interceptor) that follows the alignment of the Springwater trail. The interceptor ranges in size from 15- to 42-inches in diameter, and terminates at approximately the intersection of 252nd and Telford Road. Wastewater from this interceptor discharges to the Linneman Pump Station, which conveys the wastewater through a force main and into the main interceptors that deliver wastewater to the treatment plant. Because the Springwater area naturally drains to the Johnson Creek interceptor, and because the 2001 *Wastewater System Master Plan* showed significant capacity limitations in the upstream portions of interceptors in the East and Kelly Creek basins, alternatives involving routing flow from Springwater through these basins were not examined.

Analysis of in the 2001 *Wastewater System Master Plan* showed that upstream of Regner Road, the Johnson Creek interceptor has just adequate capacity to serve existing residents through build-out of the service area. Downstream of Regner Road the size of the interceptor increases significantly, ranging from 30 inches immediately downstream of Regner Road to 42

inches upstream of the Linneman Pump Station. Preliminary analysis in the Master Plan indicated that this portion of the interceptor can accept up to 10 cubic feet per second (cfs) of additional flow (from outside of the current service area) without exceeding the hydraulic capacity of the system. The Master Plan indicated that additional improvements would be required in the Linneman Pump Station and downstream force main and interceptors to the treatment plant to accommodate additional flows from outside of the current service area.

System Analysis

Sewage flows from the proposed development were generated by applying unit flow factors to various land use types, and adding infiltration and inflow (I/I) associated with the 1 in 5 year rainfall event. This “design storm” is established in the Oregon Administrative Rules (OAR) 340-041-120 sections 13 and 14 as the minimum condition under which the City must be able to convey and treat wastewater with no overflows. Unit flow factors and I/I assumptions were similar to the 2001 *Master Plan* and the 2004 *Pleasant Valley Master Plan*.

The primary difference between Springwater and the existing City is the level of industry anticipated. Industrial customers can have a wide range of water demands and wastewater generation rates. Wastewater discharges from large industrial developments can have a significant impact on wastewater infrastructure needs. However, these high discharges are often accompanied by high water and wastewater charges for industrial customers, and therefore many large industries employ on-site water conservation measures which reduce the volume of wastewater discharged.

A large discharger in Springwater would also present a potential opportunity for the City to implement a small-scale reuse program and provide reclaimed water to other industrial customers in Springwater; for example, public uses in and adjacent to Springwater (public parks, the Persimmon golf course, etc.), or agricultural uses in Damascus. Wastewater from such a large discharger (or several large dischargers in close proximity) could be treated in a small package treatment facility. With appropriate treatment to meet the State of Oregon’s requirements for reclaimed water quality, effluent from such a treatment plant could be used to offset local water demands through direct reuse, or possibly through aquifer storage and recovery (ASR). Solids from the treatment facility would enter the sewer system for conveyance to and treatment at the City’s existing wastewater treatment plant. Pursuing these opportunities, either through onsite conservation programs with individual industries or through a local reuse program, is consistent with the objective of providing a sustainable development in Springwater. Planned infrastructure was sized based on average industrial discharge rates. This assumption reflects a balance between high volume wastewater dischargers and ultimate implementation of some level of local greater recycling or small-scale effluent reuse.

The following process was used to evaluate wastewater needs associated with Springwater:

- Establish sewershed boundaries (sewer service sub-areas) within the planning area to define areas tributary to the model nodes (manholes). The shape of the sewersheds was determined based on projected future land use and area topography.
- Define pipe networks and projected flows for each of the three land use concepts developed during planning. The networks were designed to use gravity for conveyance to the greatest extent possible, and to locate sewers in existing or proposed road right-of-way to the greatest extent possible.

- Determine pipe size and slope for the three collection system networks associated with the three land use concepts.
- Compare alternatives based on evaluation criteria established in project goals and policies.
- Apply evaluation results to selected Concept Plan land use and transportation network to develop final recommendations for wastewater system improvements.

The three land use scenarios resulted in similar wastewater system needs and costs.

Summary of Future Needs

Based on the analysis of the three sewer system scenarios and the final Concept Plan map, recommendations for sewer system improvements were developed. These recommendations include a gravity collection system to serve the Springwater community, and improvements to existing infrastructure in the City to convey the additional flow from Springwater to the City's treatment plant. Improvements are summarized below and shown in Figure 3.

- The backbone of the Springwater collection system is the extension of the Johnson Creek interceptor along Telford road. The interceptor will extend from the terminus of the existing system at 252nd/Telford Road to approximately Stone Road/Telford Road. The interceptor size will range in diameter from 12 inches at Stone Road to 21 inches at the connection to the existing system.
- A series of 8-inch to 18-inch gravity sewers will convey wastewater from the development areas to the interceptor extension. These new sewers will be routed in existing or proposed roadways.
- Two new 8-inch collectors are required to facilitate proposed development on the Brickworks site.
- Several new sewers will discharge directly to the existing Johnson Creek interceptor. These include the collectors from the Village Center area, the residential neighborhood north of the Village Center.
- Downstream of discharges into the Johnson Creek interceptor, several existing pipes will need to be upsized from 15 inches to 21 inches in diameter. These upgrades include pipes 3655-4-001, 3654-4-160, 3654-4-150, 3554-4-220, 3554-4-160, 3554-4-150, and 3554-4-140.
- The capacity of the Linneman Pump Station will need to be increased by 7.2 cfs (4.7 mgd) to provide adequate capacity for flows from Springwater. This is in addition to the capacity increase at Linneman required due to growth within the city limits and the addition of Pleasant Valley.
- A second, parallel 18-inch force main will need to be added downstream of the Linneman Pump Station to maintain acceptable velocities when flows from Springwater and Pleasant Valley are added to the system.

Preliminary infrastructure improvements to serve Springwater Phase 2 (southwest of the current planning area) were developed. These improvements are based on the assumption that all of the area that drains by gravity from Springwater will be served by the City of Gresham. The topography in the Phase 2 area results in gravity wastewater flow being conveyed along Sunshine Creek. The location of the Sunshine Creek drainage area within Damascus/Springwater Phase 2 is shown in Figure 4. It is anticipated that flow from the Phase

2 area would enter the Springwater system at approximately the intersection of 252nd and Rugg Road. In order for the City of Gresham to provide service to this area, the main interceptor through Springwater would need to be upsized, and a new interceptor provided to route this flow from approximately the intersection of 252nd and Telford Road to the treatment plant. An alignment study for this new interceptor would need to be provided in the future to determine the optimal routing of such an interceptor.

Additional capacity at the City's wastewater treatment plant on NE Sandy Boulevard will also need to be allocated to flow generated in Springwater. Planning for future wastewater treatment improvements are addressed in the City's Wastewater Facility Plan.

Recommended capital improvements and associated costs are shown in Table 5. Pipe costs are based on the Tabula 1.0 Conveyance System Cost Estimation software made available by King County, Washington. Costs are based on an Engineering News Record (ENR) 20-City Construction Cost Index (CCI) of 7297.

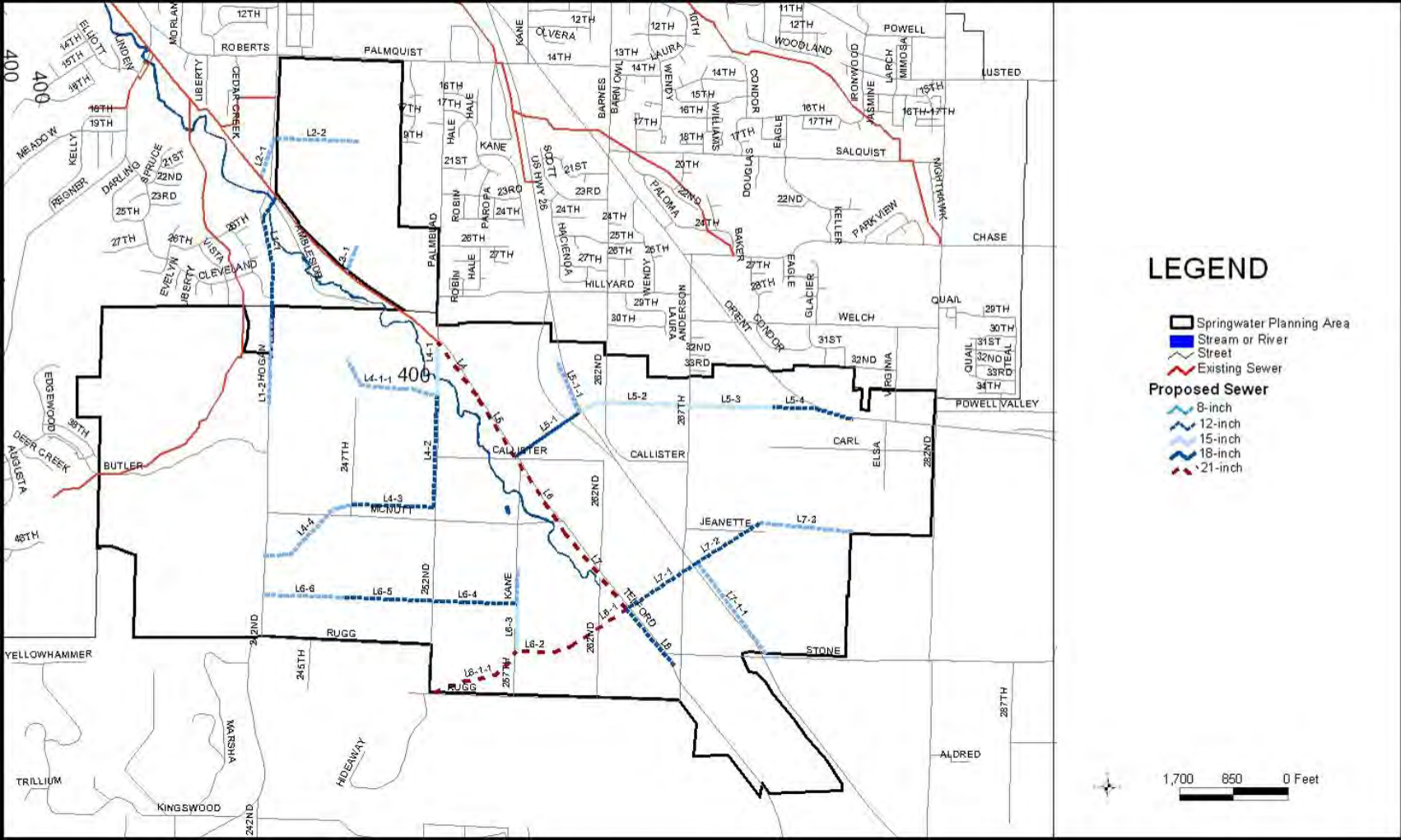


Figure 3 – Proposed Sewer System Improvements

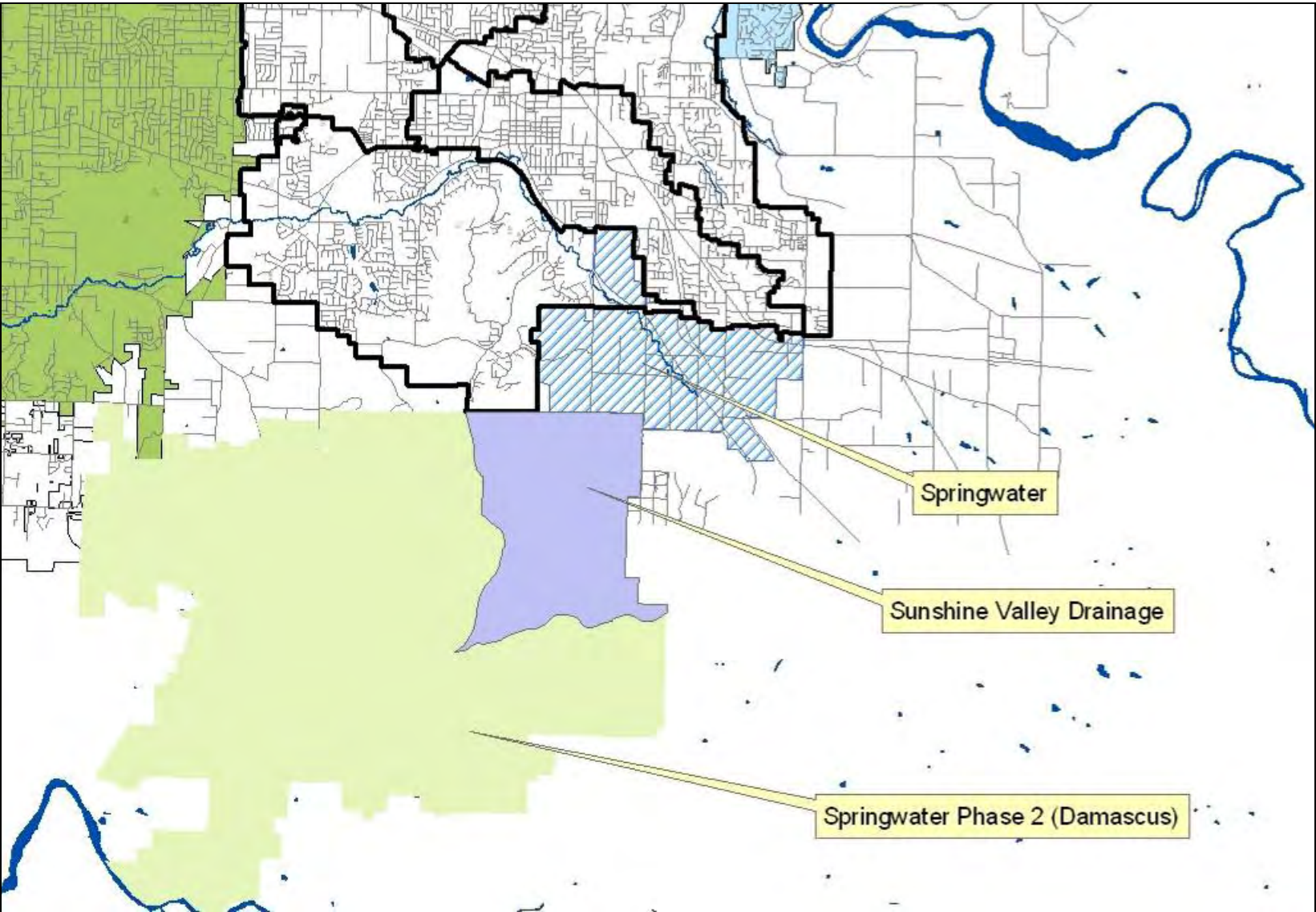


Figure 4 – Springwater Phase 2 and Sunshine Valley Drainage Area

Table 5. Capital Costs of Wastewater Collection and Conveyance Improvements¹

Pipe ID	Pipe Length (ft)	Pipe Size (in)	Timing (years)	Total Project Cost	Responsible Jurisdiction	Funding Source
New Pipes in Springwater						
L6-1-1	1525.5	21	6-20	\$ 1,325,100	Damascus	SDC/Local
L6-2	864	21	6-20	\$ 1,108,600	Gresham	SDC/Local
L6-3	738	15	6-20	\$ 582,300	Gresham	SDC/Local
L6-1	1,066	21	6-20	\$ 691,500	Gresham	SDC/Local
L8	1,178	12	6-20	\$ 671,500	Gresham	SDC/Local
L7	1,524	21	6-20	\$ 1,126,600	Gresham	SDC/Local
L7-1	1,337	12	6-20	\$ 756,200	Gresham	SDC/Local
L7-1-1	1,817	8	6-20	\$ 923,900	Gresham	SDC/Local
L7-3	1,490	8	6-20	\$ 582,800	Gresham	SDC/Local
L7-2	1,169	12	6-20	\$ 525,500	Gresham	SDC/Local
L5-4	1,294	12	6-20	\$ 581,600	Gresham	SDC/Local
L5-3	1,333	15	6-20	\$ 670,200	Gresham	SDC/Local
L5-2	1,777	15	6-20	\$ 893,200	Gresham	SDC/Local
L5-1	1,243	18	1-5	\$ 671,600	Gresham	SDC/Local
L6	1,467	21	1-5	\$ 868,400	Gresham	SDC/Local
L5	1,126	21	1-5	\$ 666,800	Gresham	SDC/Local
L4-4	1,712	8	6-20	\$ 669,700	Gresham	SDC/Local
L4-3	1,293	12	6-20	\$ 581,000	Gresham	SDC/Local
L6-6	1,261	8	6-20	\$ 493,400	Gresham	SDC/Local
L6-5	1,368	12	6-20	\$ 614,800	Gresham	SDC/Local
L6-4	1,363	12	6-20	\$ 528,600	Gresham	SDC/Local
L4-2	1,765	12	1-5	\$ 793,500	Gresham	SDC/Local
L4-1	893	15	1-5	\$ 583,500	Gresham	SDC/Local
L4	1,107	21	6-20	\$ 655,400	Gresham	SDC/Local
L4-1-1	1,681	8	6-20	\$ 657,600	Gresham	SDC/Local
L1-2	1,355	8	6-20	\$ 530,200	Gresham	SDC/Local
L1-1	2,175	12	6-20	\$ 977,700	Gresham	SDC/Local
L6-2-1	550	8	6-20	\$ 180,200	Gresham	SDC/Local
L5-1-1	865	8	6-20	\$ 338,500	Gresham	SDC/Local
New Pipes in Existing City Limits						
L3-1	458	8	6-20	\$ 232,900	Gresham	SDC/Local
L2-2	1,336	8	6-20	\$ 522,700	Gresham	SDC/Local
L2-1	693	8	6-20	\$ 352,700	Gresham	SDC/Local
Subtotal Springwater Planning Area				\$ 21,358,200		
Offsite Upgrades						
Linneman Pump Station Upgrade			6-20	\$ 2,033,500	Gresham	SDC/Local
Parallel Force Main			6-20	\$ 1,836,100	Gresham	SDC/Local
Upsize Existing Pipes			6-20	\$ 1,486,000	Gresham	SDC/Local
Subtotal Offsite Improvements				\$ 5,355,600		
Total Wastewater Improvements				\$ 26,713,800		

1. Does not include Wastewater Treatment Plan infrastructure required by Springwater.

Additional future needs include:

- Updating the City’s Master Plan to include both capital improvements within Springwater and capital improvements downstream in the City’s existing system required as a result of development in Springwater.
- Updating the City’s sewer SDC improvement fees to provide adequate funding for improvements resulting from development in Springwater.
- Determining the appropriate service provider for the portion of Springwater Phase 1 located in Clackamas County.
- Coordinating with the City of Damascus regarding wastewater system planning and design guidelines for the portion of the study area in Damascus (south of Rugg/Stone roads).
- Continuing to investigate the opportunity for wastewater reuse through satellite wastewater treatment systems in Springwater. Satellite wastewater treatment is becoming more cost-effective for onsite treatment of sanitary wastewater from large industrial sites. There could be multiple benefits of satellite treatment in Springwater, including:
 - Providing irrigation water for public parks or other public areas (schools, government facilities, etc.)
 - Providing flow augmentation in Johnson Creek
 - Providing irrigation water for nursery or agricultural land outside of the study area in exchange for water rights

In addition to these benefits, satellite treatment and effluent reuse is consistent with the desire to make Springwater a green development. Use of satellite or onsite treatment could even be incorporated in a public demonstration project in a highly visible area such as the Village Center to educate the public and further promote sustainable development in the community. The Master Plan should include provisions to allow the City to evaluate the viability of satellite treatment and effluent reuse associated with the unique needs and features of developments in Springwater.

Funding Plan

The following discussion presents the envisioned strategy for funding wastewater service extensions in Springwater. Gresham relies on developer contributions, system development charges (SDCs) and retained earnings from the utility to finance expansion. In the past, Gresham has borrowed against future utility revenues to finance major improvements in wastewater treatment capacity. This approach required wastewater rate increases for existing customers to finance these improvements. The City has not utilized this capital investment acquisition strategy to finance new pipelines or pipeline capacity projects.

Depending on the location of initial development, it may be difficult for Gresham to finance wastewater system improvements in the short term. There are no initial strategic investments that must occur prior to any wastewater system expansion in Springwater. However, since the closest connection to the existing gravity sewer system is in the northwest portion of the study area, parts of Springwater adjacent or close to this existing system would be the easiest to fund in the short term. Furthermore, the main interceptor through Springwater will be along Telford

road. If initial development occurs in the southeastern portion of the Plan District (away from the existing system) or toward the eastern or western boundaries of the Plan District (away from Telford), the cost of initial system improvements will increase and may be difficult for the City to fund in the short term. Over the long term, assuming the City adopts adequate SDCs to cover the required capital improvement projects, SDCs should generate enough revenue from within Springwater to capitalize system improvements.

Gresham has recently undertaken a separate effort to evaluate water and wastewater SDCs. This project is examining options for both city-wide and area-specific SDCs, and will make recommendations regarding potential changes to the existing SDC methodology, especially in the improvement fee, to ensure that the fee is adequate to recover forecast capital improvement needs in Springwater.

Goals, Policies and Action Measures

Goals and Policies. Applicable goals and policies that relate to the provision of public facilities in the existing comprehensive plan for the City of Gresham also apply to the Springwater PFP.

Action Measures.

1. Implement recommendations of the Wastewater SDC study being conducted concurrently with the completion of this PFP.
2. Continue to coordinate with the City of Damascus and/or Water Environment Services of Clackamas County to determine the appropriate service provider for Sunshine Valley.
3. If Gresham is to provide treatment for any portion of flow from the City of Damascus, participate with City of Damascus and/or Water Environment Services of Clackamas County on an alignment study to identify the appropriate alignment for a new interceptor to convey wastewater to Gresham's wastewater treatment plant.
4. Conclude Gresham and Clackamas County negotiations for service agreements for the portion of Springwater Phase 1 located in Clackamas County. Regardless of the solution, the agreement needs to comply with provisions of ORS 195 that relate to urban service providers.
5. Investigate wastewater discharge or non-potable water demands as industries begin to locate in Springwater to assess the potential for a water reuse program.
6. Initiate discussions with the Oregon Department of Environmental Quality (DEQ) to investigate the regulatory precedence for or requirements associated with using treated effluent for environmental benefits such as streamflow augmentation and aquifer recharge.

10.824 STORMWATER MANAGEMENT SYSTEM

System Description/Condition Assessment

Existing Conditions. Springwater is a rural area where stormwater is currently conveyed overland in ditches to natural drainages. Natural drainages include approximately 2.5 miles of Johnson Creek (ODFW reaches 16 through 19), and eight tributaries, four each on the northeast and southwest sides of the mainstem Johnson Creek. Drainage ditches next to public roadways convey runoff from road surfaces, and in some cases from adjacent private properties, to natural stream systems. Some stream channels are in good condition, although many are degraded. Predominant soils in the area include Cascade Silt Loam, Wolent Silt Loam, Powell Silt Loam, and Wapato Silt Loam. These are generally considered hydric soils with poor drainage characteristics. Many properties in Springwater have been tilled to drain the native wetland prairies for farming. Some riparian habitat has been removed, predominantly in flat areas where farming is prevalent.

Design Criteria. Regional stormwater management facilities (detention ponds) were designed to include adequate volume for water quality, flood control, and channel stability. The water quality volume is defined as 1/3 of the two-year storm. The flood control volume includes the additional volume of runoff under developed conditions from the 10-year nuisance storm (146-hour storm event). The channel stability volume includes additional volume required to limit release rates to less than the geomorphically significant flow (i.e., flow capable of moving sediment). In this case, the channel stability volume was 50% of the two-year storm under existing conditions. Swales, swale culverts, and drainage channels were designed to carry the 10-year nuisance storm. Stream crossings were designed to convey the 100-year storm for streets identified as arterials and collectors. All other stream crossings were designed to carry the 10-year nuisance storm.

Planned Improvements. Springwater is a rural area where historical drainage practices have resulted in a significantly altered watershed and have had a dramatic adverse impact on watershed health, especially in riparian areas. The recommended stormwater system for Springwater is intended to minimize the impact of development and maintain or restore watershed functionality using the goals and recommendations described below.

Stormwater management in Springwater is based on green practices that include both onsite stormwater management and public infrastructure facilities. Both components use techniques and processes that mimic natural hydrology to the greatest extent practical, reducing impacts of runoff to pre-development conditions, or improving over current conditions.

Rather than routing runoff to underground pipes for conveyance, runoff will be conveyed through green street swales and swale culverts, or through drainage channels in areas that do not drain to roadways. Vegetated swales located between the roadway and sidewalks and drainage channels located along environmentally sensitive resource areas (ESRAs) will slow the flow of runoff and also provide some infiltration, reducing the quantity of stormwater that must be managed in regional facilities. Figure 5 shows the proposed location of CIP swales, swale culverts, and drainage channels. These swales and drainage channels will generally have an 8-foot top width, 2-foot bottom width, and 4:1 side slope. In areas where the standard swale geometry does not provide adequate capacity, a 10-foot top width will be provided. Approximately 150,000 lineal feet of swale and drainage channel improvements are recommended.

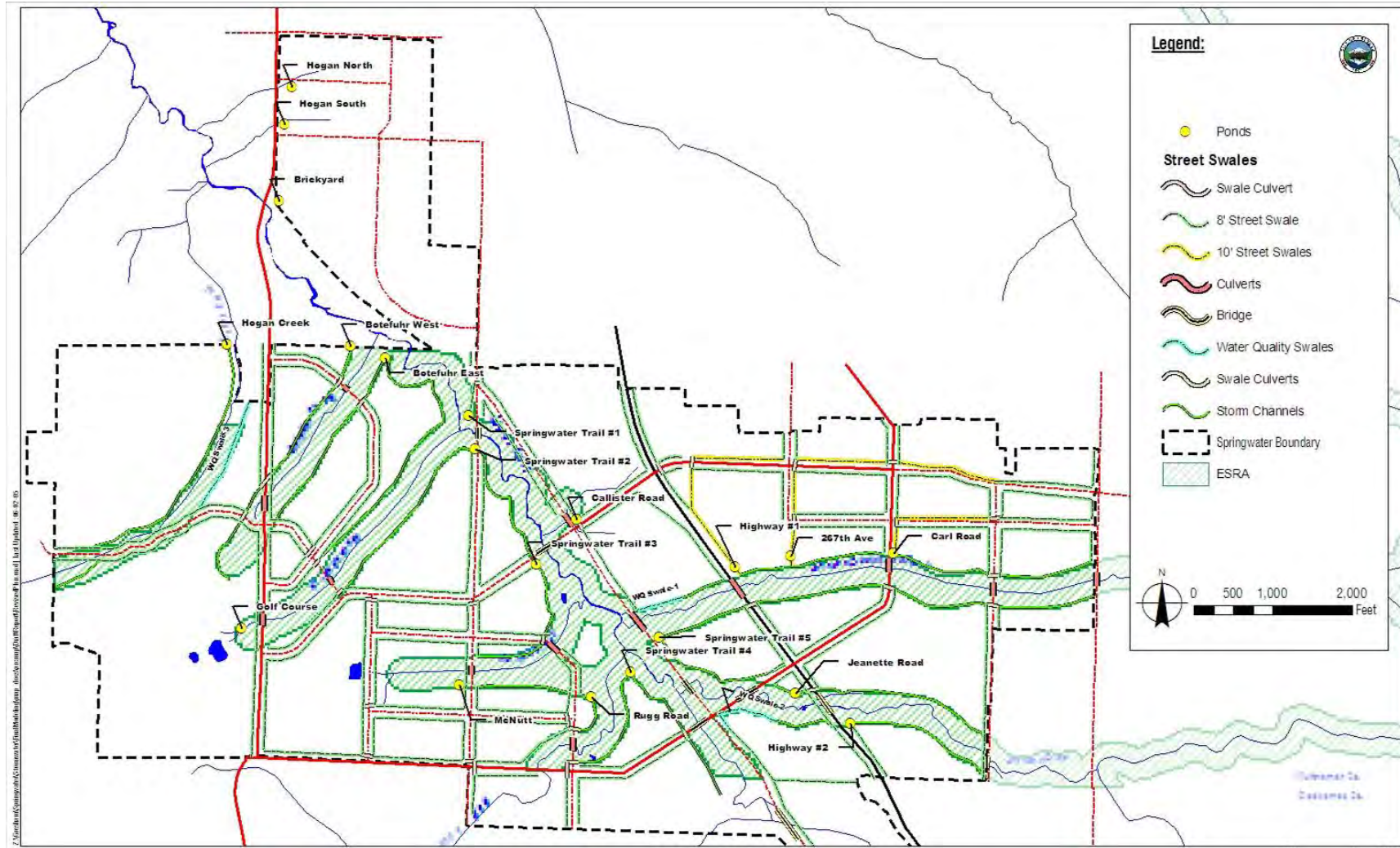


Figure 5. Proposed Stormwater Facilities

Twenty-one stream crossings have been identified. These crossings will be a combination of reinforced concrete box culverts, circular culverts, and bridges. All crossings were assumed to provide fish passage. Costs of the culverts or bridges have not been included in the stormwater CIP but will be included in the transportation CIP.

Regional facilities will control the flow of runoff back to the streams in order to regulate the rate and volume of flow entering the stream. In addition, vegetation in the facility will improve water quality by “polishing” the runoff to remove excessive sediment and pollutants¹. Twenty two new regional stormwater facilities have been identified for the Springwater planning area, as shown in Figure 5. Most (20) of the regional facilities are currently planned to be ponds, and two facilities (located on or adjacent to the mainstem of Johnson Creek) will be dedicated water quality treatment swales. The 22 new facilities includes two facilities in the Brickworks area in the existing City limits, one facility at the base of the Persimmon Country Club, and 19 facilities within the area added as part of the 2002 Urban Growth Boundary expansion. All of the proposed facilities are located in Multnomah County. The facilities range in size from 4 acre-feet to 22 acre-feet, providing volume for flood control, channel stability enhancement, and water quality enhancement.

Siting for the stormwater facilities is an important consideration; by optimizing the location of facilities, the City’s investment can be used to maximize public benefit. All of the facilities are located in proposed ESRAs, and acquisition of the property for these facilities will provide the additional benefit of promoting natural resource enhancement or restoration. For example, the ESRA in the vicinity of the Highway #1 regional facility and the drainage channel immediately upstream along the North Fork Johnson Creek has been identified for riparian rehabilitation, and the Highway #2 pond could be developed as part of the Johnson Creek/ Highway 26 wetland complex and floodplain reconnection project identified in the Natural Resource Management Plan. As specific stormwater projects are designed and implemented, the City should refine the stormwater conveyance, detention, and treatment facilities to maximize the opportunity to acquire ESRAs through the stormwater management program and to support implementation of the Natural Resource Management Plan. One of the facilities is located adjacent to a proposed Community Park location north of the Village Center, and could be used to promote public education regarding stormwater management and watershed protection issues. Two of the facilities (Springwater Trail #2 and #3) are located adjacent to the Village Center Loop Trail. Land acquisition costs for these facilities could be offset by Parks department purchase of the ESRA adjoining the trail.

With proper maintenance, the drainage channels will provide water quality treatment prior to discharge of stormwater to the regional facilities. However, if maintenance proves to be difficult due to the location of the drainage channels, appropriate treatment will be provided in the regional facilities. This allows for a wide variety of vegetation in the drainage channels, to ease the City’s ability to maintain the facilities.

Costs associated with the public stormwater infrastructure recommended in Springwater are shown in Tables 6 and 7 below. Costs are based on the annexation subareas described in the Summary Report. These costs were developed using the same unit cost assumptions as used in the Pleasant Valley Stormwater Master Plan, and are based on an ENR 20-City Construction Cost Index (CCI) of 7297. Land acquisition costs are included for the regional detention facilities, and vary depending on whether or not the facility is located in an ESRA. Costs

¹ Pleasant Valley Implementation Plan Report, December 2003.

associated with stream crossings (culverts and bridges shown on Figure 5) are included in transportation CIP costs². The total cost of recommend stormwater improvements in Springwater is \$27.7 million.

Table 6. Regional Stormwater Facility Cost Summary

Pond Name	Total Volume (CY)	Cost Estimate	Timing	Jurisdiction	Funding Source
267th Ave	30,336	\$ 2,418,400	6-20	Gresham	SDC/Local
Carl Road	17,041	\$ 1,368,000	6-20	Gresham	SDC/Local
Jeanette Road	20,946	\$ 1,676,600	6-20	Gresham	SDC/Local
Highway #2	6,804	\$ 558,400	6-20	Gresham	SDC/Local
Highway #1	25,601	\$ 2,044,300	6-20	Gresham	SDC/Local
Hogan South	14,868	\$ 1,196,300	6-20	Gresham	SDC/Local
McNutt	16,192	\$ 1,672,200	6-20	Gresham	SDC/Local
Springwater Trail #4	10,343	\$ 838,400	6-20	Gresham	SDC/Local
Golf Course	14,588	\$ 1,174,100	6-20	Gresham	SDC/Local
Springwater Trail #3	9,869	\$ 800,900	6-20	Gresham	SDC/Local
Hogan North	20,827	\$ 1,667,200	6-20	Gresham	SDC/Local
Callister Road	19,410	\$ 1,555,300	6-20	Gresham	SDC/Local
Rugg Road	19,955	\$ 1,598,300	6-20	Gresham	SDC/Local
Springwater Trail #2	8,468	\$ 690,100	0-5	Gresham	SDC/Local
Springwater Trail #1	18,226	\$ 1,461,600	0-5	Gresham	SDC/Local
Hogan Creek	7,641	\$ 624,600	6-20	Gresham	SDC/Local
Botefuhr West	10,878	\$ 880,700	0-5	Gresham	SDC/Local
Botefuhr East	5,904	\$ 487,200	0-5	Gresham	SDC/Local
Springwater Trail #5	16,508	\$ 1,325,900	6-20	Gresham	SDC/Local
Brickyard	14,071	\$ 1,133,200	6-20	Gresham	SDC/Local
	308,476	\$ 25,172,000			

² Costs were calculated for informational purposes, and are included in the Reference Documents.

Table 7. CIP Swale and Drainage Channel Cost Summary
8' Top Width Swale Cost Summary

Annex Area	Length	Total Cost (\$)	Timing (years)	Jurisdiction	Funding Source
1	179	\$ 3,000	6-20	Gresham	SDC/Local
2	8,249	\$ 136,500	6-20	Gresham	SDC/Local
3a	5,676	\$ 93,900	6-20	Gresham	SDC/Local
3b1	8,783	\$ 145,300	0-5	Gresham	SDC/Local
3b2	12,339	\$ 204,100	0-5	Gresham	SDC/Local
4a	4,385	\$ 72,500	6-20	Gresham	SDC/Local
4b	9,437	\$ 156,100	6-20	Gresham	SDC/Local
4c	7,332	\$ 121,300	6-20	Gresham	SDC/Local
5a	7,706	\$ 127,500	0-5	Gresham	SDC/Local
5b	9,041	\$ 149,500	0-5	Gresham	SDC/Local
5c	10,396	\$ 172,000	6-20	Gresham	SDC/Local
6a	2,930	\$ 48,500	6-20	Gresham	SDC/Local
6b	6,164	\$ 102,000	6-20	Gresham	SDC/Local
7a	3,489	\$ 57,700	6-20	Gresham	SDC/Local
8a	3,534	\$ 58,500	6-20	Damascus	SDC/Local
8b	1,354	\$ 22,400	6-20	Damascus	SDC/Local
		\$ 1,670,800			

10' Top Width Swale Cost Summary

Annex Area	Length	Total Cost (\$)	Timing (years)	Jurisdiction	Funding Source
5b	4,814	\$ 93,000	0-5	Gresham	SDC/Local
5c	2,815	\$ 54,400	6-20	Gresham	SDC/Local
6a	93	\$ 1,800	6-20	Gresham	SDC/Local
		\$ 149,200			

Drainage Channels

Annex Area	Length	Total Cost (\$)	Timing (years)	Jurisdiction	Funding Source
2	4,125	\$ 74,600	6-20	Gresham	SDC/Local
3a	4,080	\$ 73,800	6-20	Gresham	SDC/Local
3b1	6,644	\$ 120,100	0-5	Gresham	SDC/Local
3b2	3,380	\$ 61,100	0-5	Gresham	SDC/Local
4a	1,702	\$ 30,800	6-20	Gresham	SDC/Local
4c	3,839	\$ 69,400	6-20	Gresham	SDC/Local
5b	1,451	\$ 26,300	0-5	Gresham	SDC/Local
5c	2,258	\$ 40,800	6-20	Gresham	SDC/Local
6a	3,485	\$ 63,000	6-20	Gresham	SDC/Local
6b	3,811	\$ 68,900	6-20	Gresham	SDC/Local
7a	2,575	\$ 46,600	6-20	Gresham	SDC/Local
7b	3,449	\$ 62,400	6-20	Gresham	SDC/Local
		\$ 737,808			

Onsite Practices. Onsite stormwater management in Springwater requires green development practices. Green development practices are a set of techniques that mimic and incorporate the predevelopment hydrology of a site into future development. Green development practices

include site management techniques that minimize (1) disturbance to existing soils, tree canopy, and other sensitive natural resource features and (2) impervious surfaces, to reduce the production of surface runoff. They also manage runoff through techniques that use natural areas and landscaping to treat, retain, attenuate, and infiltrate stormwater within each development site instead of using traditional piped collection and conveyance systems. Stormwater management plans relying on green development practices accommodate onsite facilities using the hydrology processes of infiltration to soil and evapotranspiration to atmosphere.³

An approved Stormwater Management Plan will be required under the new Springwater code. Stormwater management plans provide a mechanism for the City to review how development proposals for stormwater facilities meet the requirements for onsite stormwater management practices. The intention is that the stormwater management plans be submitted and approved along with site plan or preliminary development plat approval. Stormwater management considerations should be included in the City's business recruitment program for Springwater.

Summary of Future Needs

- Coordination is needed between Gresham and the new City of Damascus regarding stormwater system planning and design guidelines for the portion of the study area in Damascus (south of Rugg/Stone roads). A consistent approach regarding stormwater conveyance standards, development setbacks, allowed uses in ESRAs, and other issues related to stormwater management should be identified in an intergovernmental agreement.
- Modification of the SDC improvement fee may be necessary to fund required improvements in Springwater.
- Purchase of properties required for regional stormwater management facilities should transpire as soon as the Master Plan is completed, adequate funding is secured, and successful acquisition negotiations completed.
- The City of Gresham will not be responsible for NPDES and TMDL compliance for Springwater until areas are annexed to the City. Prior to annexation, regulatory permitting requirements need to be addressed.

Funding Plan

The following discussion presents the envisioned strategy for funding stormwater service extensions in Springwater. Gresham relies on developer contributions, system development charges (SDCs) and retained earnings from the utility to finance expansion. In the past, Gresham has borrowed against future utility revenues to finance major improvements in stormwater facilities needs.

Depending on the location of initial development, it may be difficult for Gresham to finance stormwater system improvements in the short term. There are no initial strategic investments that must occur prior to any stormwater system development in Springwater. However, since the likely initial annexation areas are located to the east and west of Johnson Creek adjacent to the existing City limits, the City may want to prioritize the Springwater Trail Ponds #1 and #2 for early funding. Likewise, CIP swales located along 252nd should be prioritized for early funding to support the potential annexation of these areas.

³ Pleasant Valley Stormwater Master Plan, CH2M Hill, July 2004.

Goals, Policies, and Action Measures

Goal: The City of Gresham shall manage stormwater to minimize impacts on localized and downstream flooding and protect water quality and aquatic habitat.

Policies: The following policies are made part of this plan:

1. Manage stormwater through green development practices that rely on infiltration, bio-retention and evapotranspiration or other processes that enhance the natural hydrologic system.
2. Incorporate green streets designs as described in Metro's handbook entitled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and as designed in the Pleasant Valley Plan District area.
3. Design culvert improvements for existing and proposed stream crossings to eliminate barriers to fish passage.
4. Ensure that the quantity of stormwater after development will be equal to or less than the quantity of stormwater before development, wherever practicable.
5. Ensure that the quality of stormwater after development will be equal to or better than the quality of stormwater before development, wherever practicable.
6. Design public stormwater facilities using approaches that integrate stormwater vegetation such as swales, trees, vegetated planters and wetlands.
7. Prohibit the encroachment of structures and other permanent improvements over public and private stormwater facilities and within public stormwater easements, drainage ways, creeks, streams, seasonal waterways, seeps and springs.
8. Develop equitable funding mechanisms to implement a CIP for the stormwater management system and provide adequate funding for stormwater management facility maintenance.

Action Measures:

1. Implement an SDC policy to provide adequate funding for stormwater facilities in Springwater.
2. Review stormwater utility rates and modify as appropriate to support maintenance of facilities in Springwater.
3. Coordinate with the Parks Division to ensure that development of the Village Center Loop trail is adequately protective of natural resources.
4. Look for opportunities to enhance natural resource areas through the construction and maintenance of stormwater facilities.
5. Update the City's onsite stormwater management program to address land use types in Springwater.
6. Coordinate with the Parks Division to investigate the option of combining drainage channels and multi-use trails if the Employee Loop trail is located along stream corridors.

10.805 PARKS, OPEN SPACE AND TRAILS SYSTEM

System Description/Condition Assessment

There are currently no parks in Springwater. There is one trail – the Springwater Trail – which bisects the planning area. Both regional and site conditions directly affect the potential of parks, open space, and trails in Springwater. These regional and site conditions are described below.

Regional Connections. The expansion of the Urban Growth Boundary places Springwater at the southeast gateway into the Portland metro area, within a short drive of over 1.5 million residents. Major population centers include: Downtown Portland (14 miles to the west), downtown Gresham (2 miles to the north), and downtown Sandy (9 miles to the southeast). Primary regional access routes include US Highway 26, Hogan Road running north-south through Springwater, and Butler Road which is planned to connect Springwater to Pleasant Valley.

Regional Natural Connections. The buttes and Johnson Creek create a very diverse landscape throughout the region. Intertwined with the natural features are several regional trails that have been outlined by Metro's Trails Master Plan. Their pattern, along with the open space that has been assembled, is directly correlated to the creeks and buttes in the region. Listed below are several of the regional trails that will potentially link to Springwater's local trail system. Major trails include the following:

- **Springwater Trail**, the nation's 499th rail to trails conversion, is one of the most significant trails in the state connecting west from the study area to Milwaukie, OR. It is planned to extend east beyond the study area to Estacada and the Mt. Hood National Forest to connect to the Pacific Coast Trail.
- **40 Mile Loop Trail**, which was part of the original Olmsted Brothers Master Plan, will be located less than a mile to the northeast of the study area along Beaver Creek creating a 160 mile continuous trail.
- The proposed **East Buttes Loop Trail**, which will be located directly to the west of the study area, will connect the Springwater Trail to the **Scouter Mountain Trail** and will loop back to the Springwater. Unlike the Springwater Trail, both of these trails travel along butte peaks offering more intensive hiking.

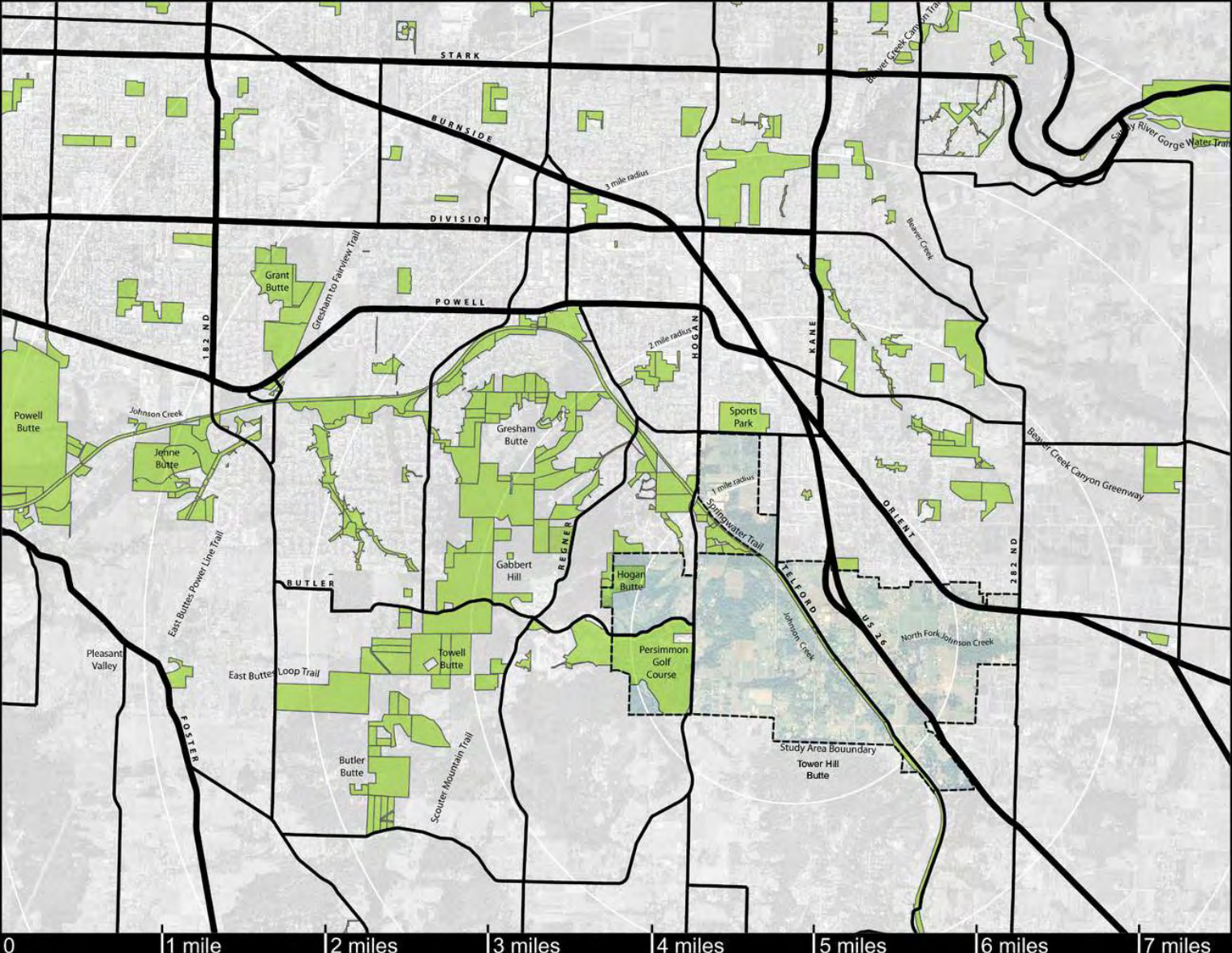


Figure 7. Regional Access and Open Space Diagram

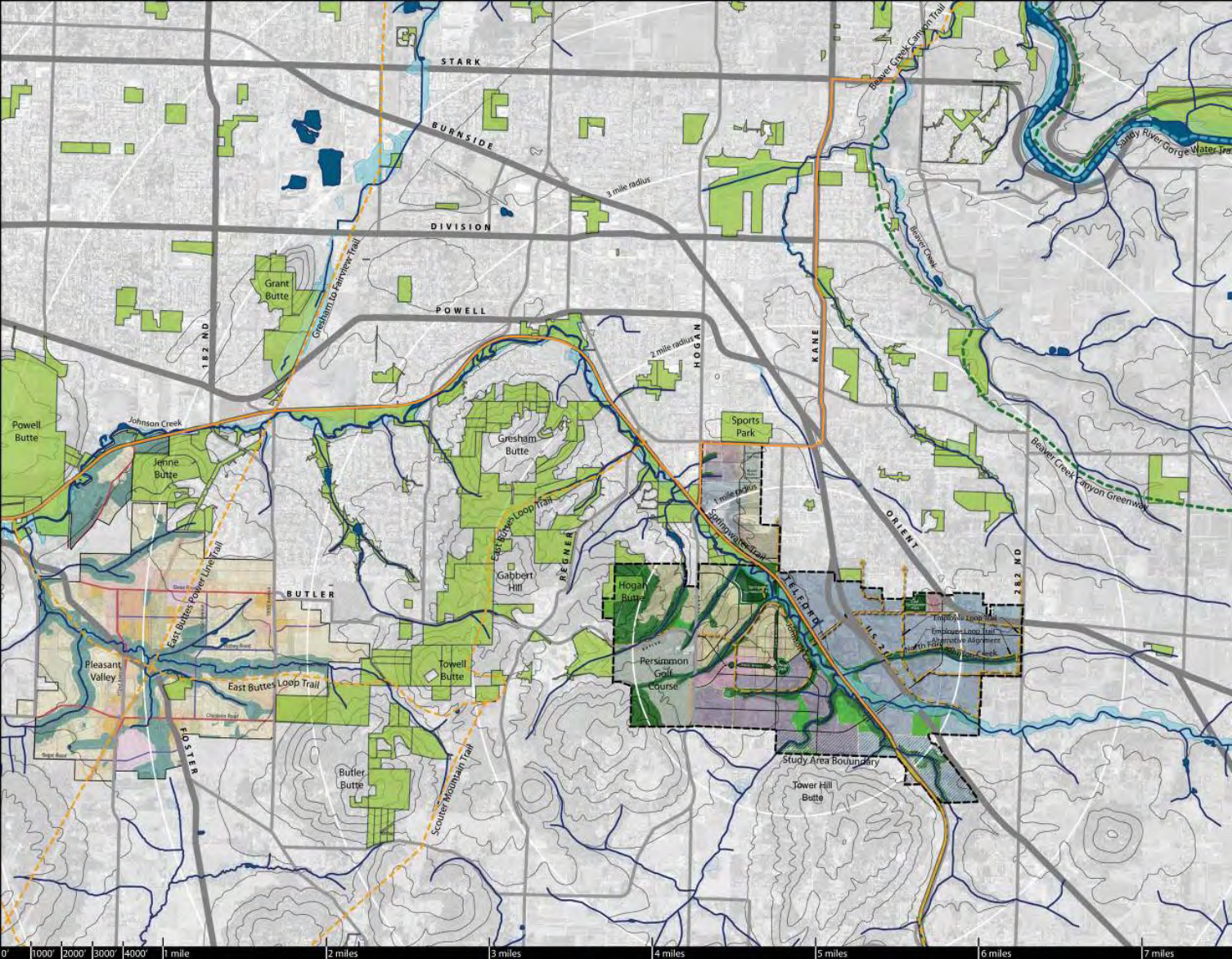


Figure 8. Regional Natural Connections and Trails Diagram

Natural Features. The physical features of the site can easily be seen in the topographic map below. Johnson Creek is the lowest elevation in Springwater, with the east and west portions of the site sloping down toward it. The best views in the area are from the high points between tributaries of the buttes surrounding the site. Looking into the site the best views are from the buttes to the west and south. In addition to these long views, incidental views into the creeks occur frequently along corridors. Specific natural features in the study area include:

- **Buttes** – Hogan Butte is the only butte actually in the study area. Along with the two other buttes to the south it forms an impressive backdrop for views out of Springwater and creates the potential for trails and view points into the study area from their summits.
- **Johnson Creek and Tributaries** – The corridors define the low points on the map below. It is easy to see how the creek corridors have divided the districts into several smaller parcels, especially Johnson Creek and the east-west division it creates.
- **Forested Areas** – The most significant forested areas are along the creek corridors. However there are several forest stands that are important to habitat, recreational activities and educational opportunities outside the creek corridors that should be considered for possible open space acquisition. The graphic below shows the five most significant stands outside the creek corridors. See the Springwater Natural Resources Report for more information.

Parks and Open Space. There are several parks and open space areas adjacent to Springwater. These are described below.

- **Sports Community Park** is a 33.35 acre youth recreation facility within a 30-minute walk of most future residents of Springwater and will help meet future active recreation needs for the district.
- **Southeast Neighborhood Park** is an undeveloped 6.15 acre neighborhood park located directly north of the project boundary adjacent to US 26.
- **Southeast Community Park** is an undeveloped 10 acre community park that may be developed in conjunction with a proposed school adjacent to the site.
- There is a large amount of **open space along the Springwater Corridor** directly to the northwest of the study area, which will play into the overall open space system for Springwater. Most of this land is owned by the City of Gresham and Metro.
- **Persimmon Golf Course**, while privately owned, offers a visual amenity as well as a recreational opportunity not serviced by the City. Connections to it from adjacent neighborhoods could expand the open space system beyond the public parks open space and trail system.

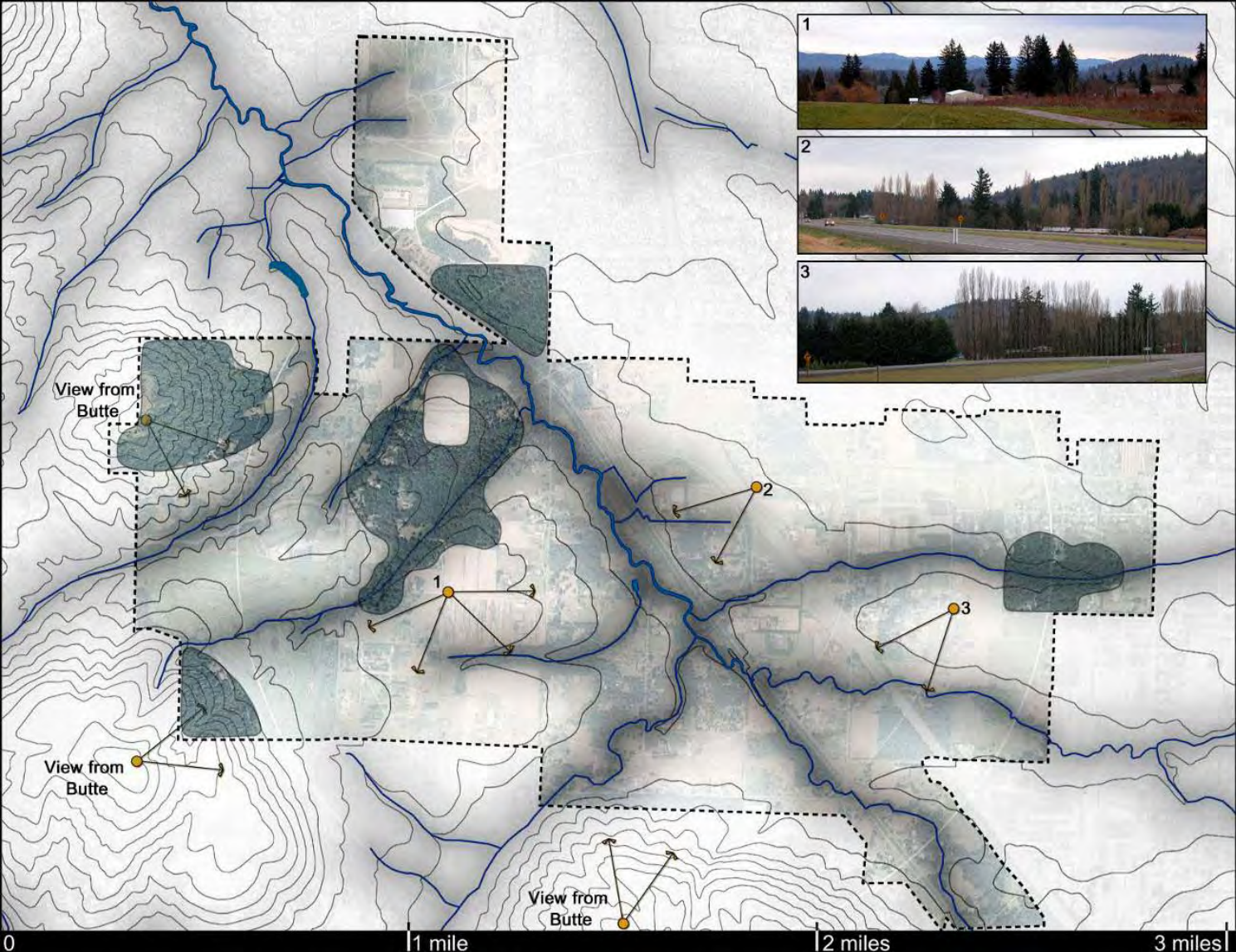


Figure 9. Natural Features and View Corridors Diagram

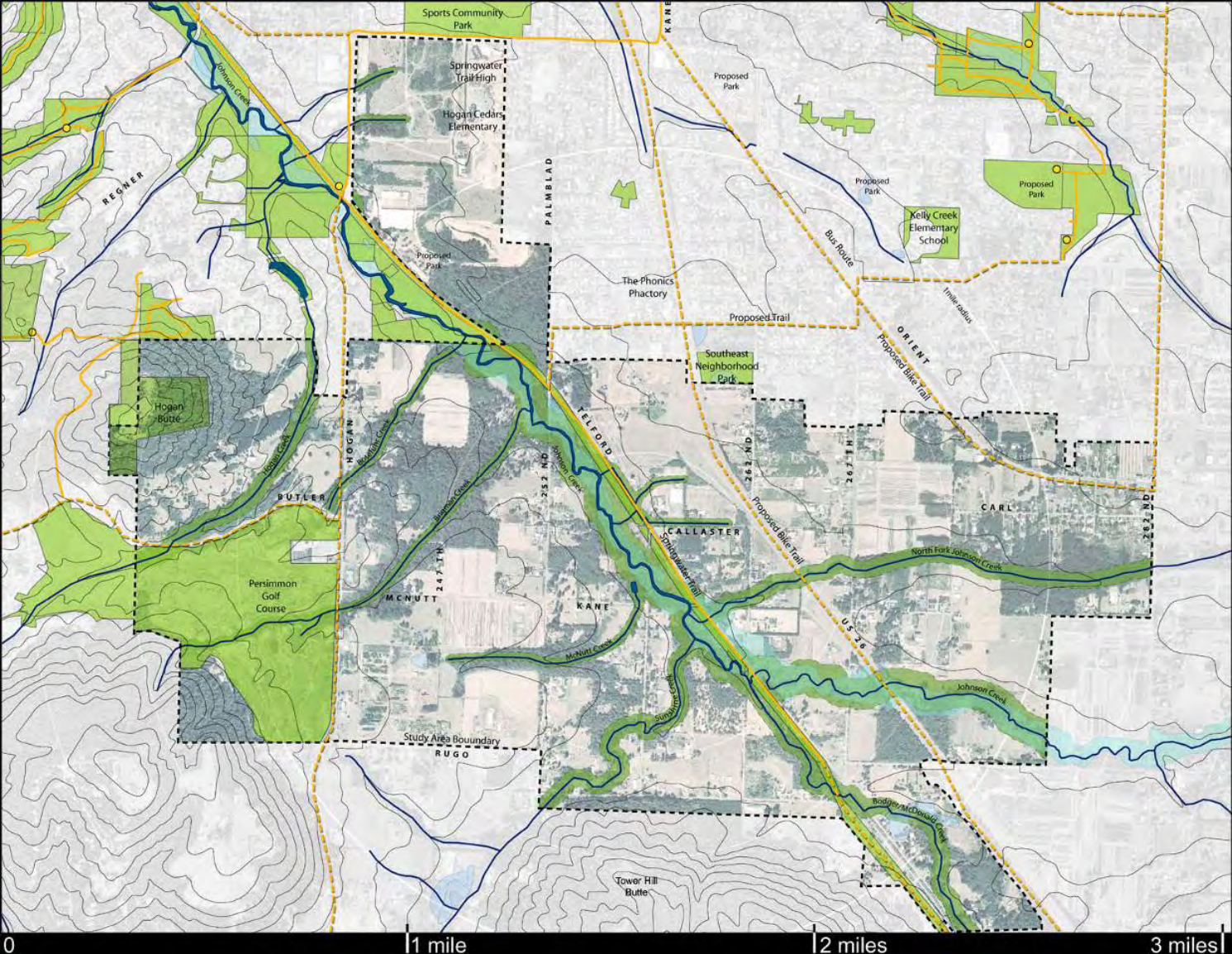


Figure 10. Local Parks, Open Space and Trail Connections Diagram

System Analysis

Springwater Levels of Service

Parks, open space and trails standards are intended to facilitate the creation of public amenities for the enjoyment of passive and active recreational activities by the residents and employees of a particular area. This plan has made recommendations for the level at which each type of amenity is offered based on comparisons to national standards and benchmarks created by the National Recreation and Park Association, and Gresham's previous master planning documents.

Level of Service or LOS is the tool by which the amount of a particular park type is measured to meet the needs of the community. It is calculated by dividing the area, number or length of an amenity by the number of residents in the same district. LOS is usually calculated as a total (usually acres) per 1000 residents.

Springwater Standards

The following LOS recommendations and resulting amenity totals have created the framework by which parks and open space have been allocated in the Springwater district. Park placement and sizing has been considered in reference to the total acres or miles of amenities listed below. Because there has been a range of housing population proposed for Springwater the resulting park amenities has also been listed as a range. These totals are a reference point based on the land use planning process's best estimate for an eventual total build-out for the district. As Springwater develops, the parks department will have to balance funding resources with existing and future demands to implement the master plan as closely as possible.

The following table is based on the City of Gresham's adopted list of park types, open spaces and trails, but has been modified for the needs and conditions of Springwater. The totals are based on estimated population ranges of 2,500 to 3,500 households and 17,000 employees at final build-out.⁴

Table 8. Springwater Parks, Open Space, and Trails Level of Service

Facility	Size/Placement	Benchmark	Total Acres/Miles
Neighborhood Park	.25 to 13 acres, within ¼ mile of residents being served.	1.3 acres/ 1000 residents	8.80 - 12.30 acres
Community Park	5 to 50 acres for active recreation, but may be smaller for alternative functions.	2 acres/ 1000 residents including employees equaling .32 residents.	24.40 – 29.80 acres
Open Space	Varies	10 acres/ 1000 residents including employees equaling .32 residents.	121.90 – 148.90 acres
Trails and Connectors	Connections from neighborhoods and employment centers to all major green space and civic amenities.	Based on 1/2 mile walk radius from neighborhoods and employment centers.	Estimated 6.2 miles

Modifications to Springwater's Standards from Gresham's Adopted Standards

The following items have been modified or added from the City of Gresham's Standards because of the unique development conditions of Springwater.

⁴ To calculate total residents, households are multiplied by 2.7 residents per household.

- **Removal of Urban Plazas** – Gresham’s standards define urban plazas as a separate category without a specific LOS assigned to it. Because of the low densities in Springwater the category was removed. However, in the Village Center, a plaza and park block will be considered a neighborhood park and the size allocated for each will be removed from the overall neighborhood parkland available.
- **LOS Calculation for Community Park** – Based on the population range being proposed in Springwater, an LOS of 2 acres per 1000 residents would create 13.5- 18.0 acres of community park. A park this size would not support many of the land intensive activities usually associated with community parks, nor would it allow for any facilities to support the 17,000 employees expected to be working in the district. By including employees in the LOS calculation as being equivalent to 0.32 residents, the available area of community park land increases to a size able to support a nature-oriented community park and an employee-focused adult sports park.
- **LOS Calculation for Open Space** –Much like the community park calculation, the area of land available for protection of natural resources and for trail connectivity is limited using the existing residential LOS calculation. By including employees in the LOS calculation as being equivalent to 0.32 residents, open space will be able to be preserved in residential and employee districts to provide trail connections and natural resource protection. The comparison to Pleasant Valley, provided as an appendix, illustrates the need for including employees in the calculation. By using the 0.32 resident equivalents for employees, the total acreage for open space in Springwater is comparable to the total acreage that will be provided for the primarily residential Pleasant Valley district.

Neighborhood parks

General Description

The purpose of neighborhood parks is to provide access to basic recreation opportunities for nearby residents of all ages and contribute to neighborhood identity. They should be located within biking and walking distance of all users. Neighborhood parks may be urban plazas in denser areas to provide space for community events. Neighborhood parks include the following general characteristics:

- Size and Location: 0.25 - 13 acres, within ¼ mile of residents being served.
- May include: a children’s play area, a multi-purpose paved area, non-organized sports facilities, seating, picnic areas, paths, public art, permanent restrooms, and community gardens.
- Typically would not include off-street parking.

Plan Recommendations

Use the available neighborhood park area to create a unique identity for the Village Center. Two park blocks are proposed along the north-south and east-west axis of the Village Center. These will connect to a Village Center Park and Plaza that will serve as the primary public park for the district.

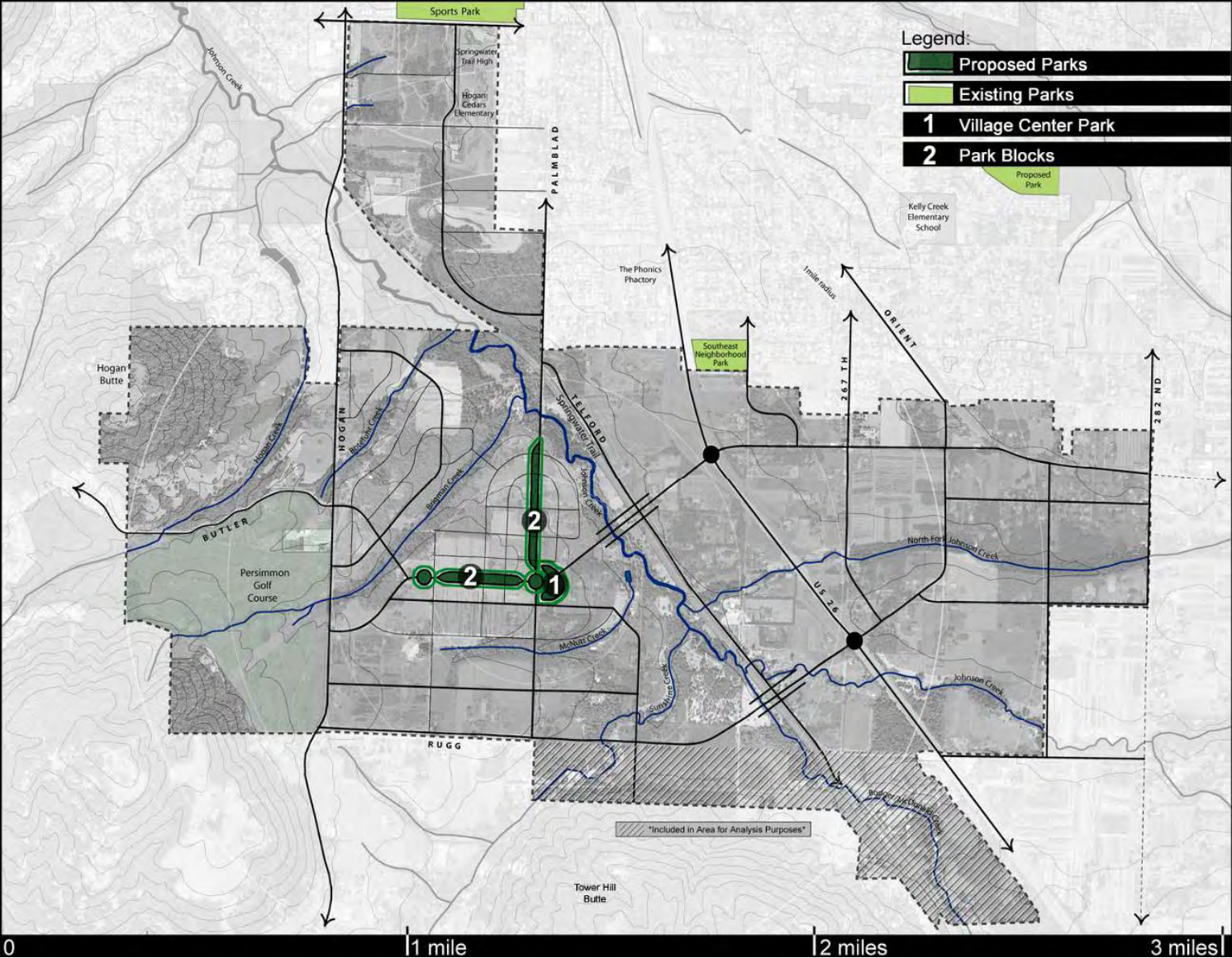


Figure 11. Proposed Neighborhood Parks Diagram

Park Blocks

The west end of the east-west park block is located at the highest point in the Village Center. From this point there is an unobstructed view of Mt. Hood across the project area. Through selective planting, it is envisioned that this view is preserved along the length of the park blocks. The east-west park blocks will be surrounded by mixed-use and commercial uses, in contrast to the north-south park blocks, which will be bordered primarily by dense residential housing. These blocks will define a linear center for the Village Center and a pedestrian way through the heart of the district.



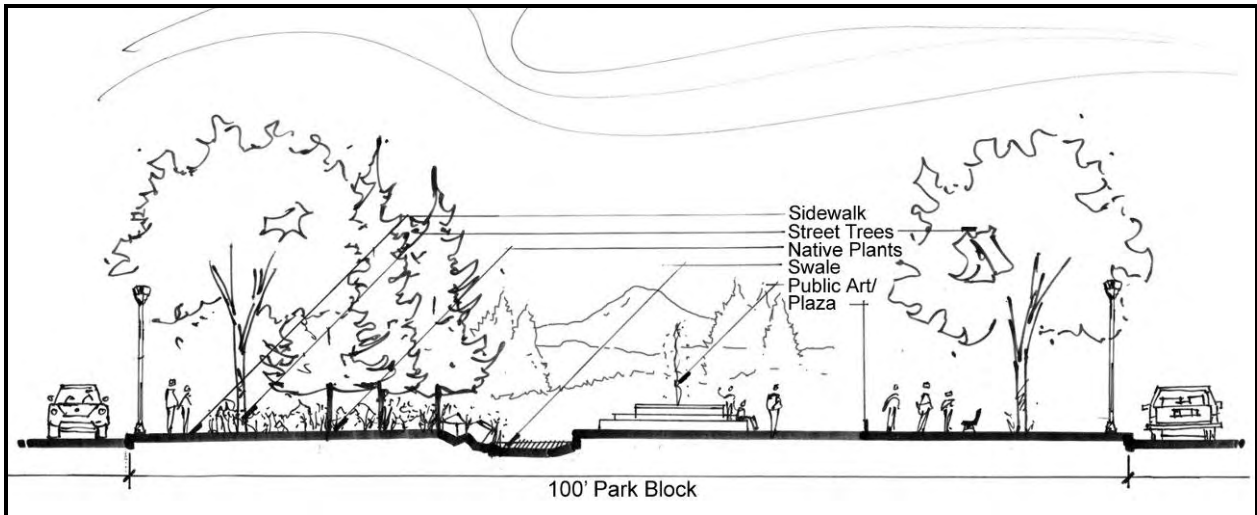
South Park Blocks, Portland

Size: approximately 100' curb to curb.

Program Elements: seating, small performance space, public art, pedestrian walks, children's play equipment, and small-scale sports facilities such as basketball and bocce ball.

Potential Synergies:

- Stormwater Management – look for opportunities to incorporate best management practices into the park blocks.
- Transportation – bicycle transportation may be incorporated into the park blocks.



Typical Park Block Section

Village Center Park and Plaza

It is proposed that the Village Center Park and Plaza will be located at the intersection of the north-south and east-west park blocks. They will help to create the identity for the Village Center and should be named accordingly. The plaza should be located adjacent to the densest development in the Village Center creating a transition into the larger neighborhood park site.



View to Mt. Hood from proposed Village Center Park site

Size: 3-5 acres plus a ½ acre plaza.

Program Elements: multi-use plaza, seating, public art, pedestrian walks, permanent restrooms, children’s play equipment, and non-organized sports facilities.

Potential Synergies:

- Stormwater Management – look for potential regional detention facilities to be located adjacent or inside the park site.
- School Sites – if an elementary school is located in the Springwater district, locating it adjacent to the park could eliminate the need for another play area adjacent to the school.



Village Center Park Character Sketch

Community Parks

General Description

The purpose of a community park is to provide active and passive recreational opportunities for all city residents and employees. Community parks accommodate larger group activities, provide a variety of accessible recreation opportunities for all age groups, offer environmental education opportunities, serve the recreational needs of families, and create opportunities for community social activities. Characteristics of community parks include:

- Size: 5 to 50 acres in size
- May include: children's play area, competitive sports facilities, off-street parking, permanent restrooms, public art, group picnic areas, natural areas, paths, botanical gardens, community centers, amphitheaters, festival space, swimming pools, and interpretive facilities

Plan Recommendations

Create two new community parks, located adjacent to natural resources and/or in areas with good vehicular accessibility. The nature-oriented Springwater Community Park is envisioned to be located along the Johnson Creek Corridor and adjacent to the residential districts. It will provide two youth sports fields, and a regionally-significant natural park area, providing interpretive educational opportunities. The athletic facility-oriented East Springwater Park will be located east of US. 26, and will provide two to three adult sports fields for employee recreational opportunities as well as facilities for the adjacent neighborhood to the north.

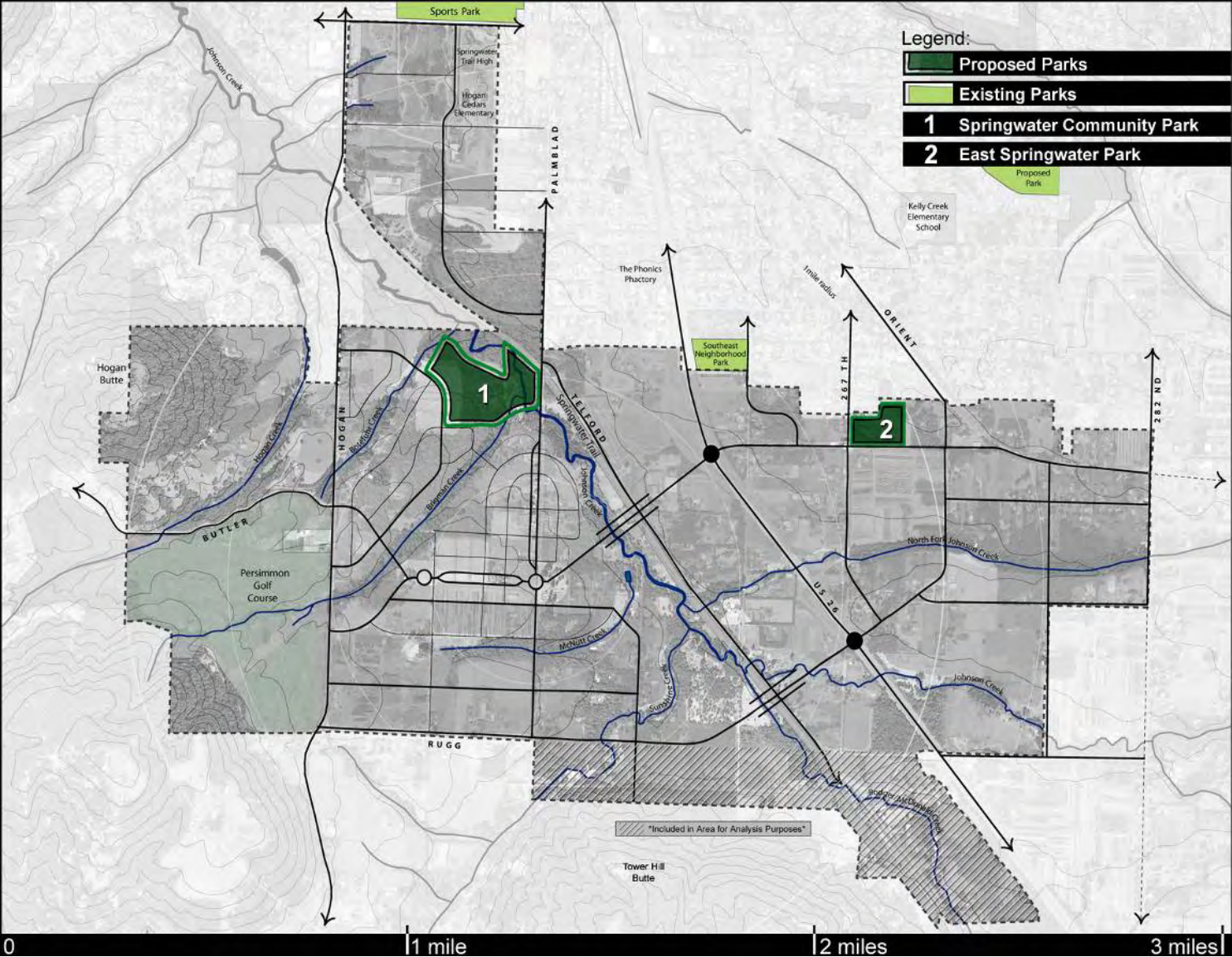


Figure 12. Proposed Community Parks Diagram

Springwater Community Park

The proposed Springwater Community Park is intended to tie together open space, trails, and interpretive opportunities into a respectful and educational encounter with the natural environment. By locating the park along the Johnson Creek and Springwater Trail corridor, visitors would be able to enjoy the natural features of the district and become informed of the challenges facing the overall watershed. It is envisioned that this park become the identity of the district. The larger district goals of sustainability should be expressed in the design and implementation of the park.



Fairview Community Park, Fairview

Size: 20-25 acres

Program Elements: Two youth sports fields in the upland area of the park, children's play area, off-street parking, permanent restrooms, public art, group picnic areas, interpretive trails, nature center, and amphitheater

Potential Synergies:

- Stormwater Management - look for potential regional detention facilities to be located adjacent or inside the park site.
- School Sites – if an elementary school is located in the Springwater district, locating it adjacent to the park would eliminate the need for another play area adjacent to the school.

East Springwater Park

A new community park on the east side of US 26 will serve the existing neighborhood to the north of the project boundary and the future employee population to be concentrated to the south of the proposed park location. The park is intended to be a community-wide resource with organized sports fields for adults and youth, and therefore be accessible by pedestrians, bicyclists and motorists.



East Delta Park, Portland

Size: 5-10 acres

Program Elements: Two to three adult/youth sports fields, off-street parking, permanent restrooms, seating, pedestrian walks, and children’s play equipment

Open Space

General Description

The purpose of open space, greenways and corridors is for the protection and restoration of natural and scenic resources, and the creation of nature-oriented outdoor recreation and trail-oriented activities. It provides opportunities for rest and relaxation, protects valuable natural resources, protects wildlife, and contributes to the environmental health of the community. By preserving and providing access to open space the surrounding property becomes more valuable because of the amenities and views that are created.

Characteristics of open space are as follows:

- Large enough to protect resources and support recreational activities.
- May include trails, trailhead amenities (bicycle racks, picnic areas, portable restrooms, and trash enclosures), benches, and interpretive signs.

Plan Recommendations

There will be 121.90 – 148.90 acres of Parks funded open space available for purchase based on the LOS recommendations discussed earlier in this section. While this does not limit the total amount of open space that could be acquired in the district, it does give a reasonable goal to be achieved through various funding strategies. Some of this open space will have to be used for the creation of trail corridors. The natural resource assessment has also identified 383 acres of Environmental Resource Area and additional wildlife corridors and natural areas. Realistically,



not all of this land will be able to be acquired. The following guidelines have been developed to determine which areas have the highest priority for acquisition when funds become available:

1. Acquire land that contributes to the recreational goals of the district.
2. Acquire land that has the highest natural resource significance that is outside of regulation, including areas with high restoration potential and proposed habitat connections.
3. Acquire land that has the highest natural resource significance that is inside of regulation, including creek corridors, wetlands, upland forests and buttes.

Potential Synergies:

- Stormwater Management - look for potential regional detention facilities to be located adjacent to or in open space.
- Identity – the open space which surrounds the entrance of US. 26 into the urban growth boundary could be enhanced to create a gateway feature into the larger metro area.

The following map and following list have been developed as an outline for open space acquisition and are based on the guidelines discussed on the previous page. The blue line on the map highlights the area that is the focus of open space acquisition for recreational opportunities and includes a large portion of the most valuable natural resources in the district. The list below describes the acquisition hierarchy for the entire district based on recreational and natural resource value. Consult the Springwater Natural Resources Report for further descriptions of natural resource value and potential when making acquisition decisions.

1. Areas along the Johnson Creek and Springwater Trail Corridor, which have the highest resource significance and are part of the trail corridor.
2. The McNutt and Brigman Creek Corridors, which will have the Village Center Loop Trail paralleling them.
3. Wildlife corridors and other natural resources that also have recreational or identity value for the district.
4. The connection from Botefuhr to Hogan Creek, which will provide lowland to upland habitat connectivity and serve as a trail link along Butler.
5. The wetland and forested area along US 26, which will serve as a gateway and identity to the larger metro region, as well as being an important wetland habitat along the Johnson Creek Corridor.
6. All other wildlife connections and natural resources that fall outside of regulation.
7. All other creek corridors, concentrating on those with the highest natural resources value.
8. Upland forests and Buttes with steep slopes.

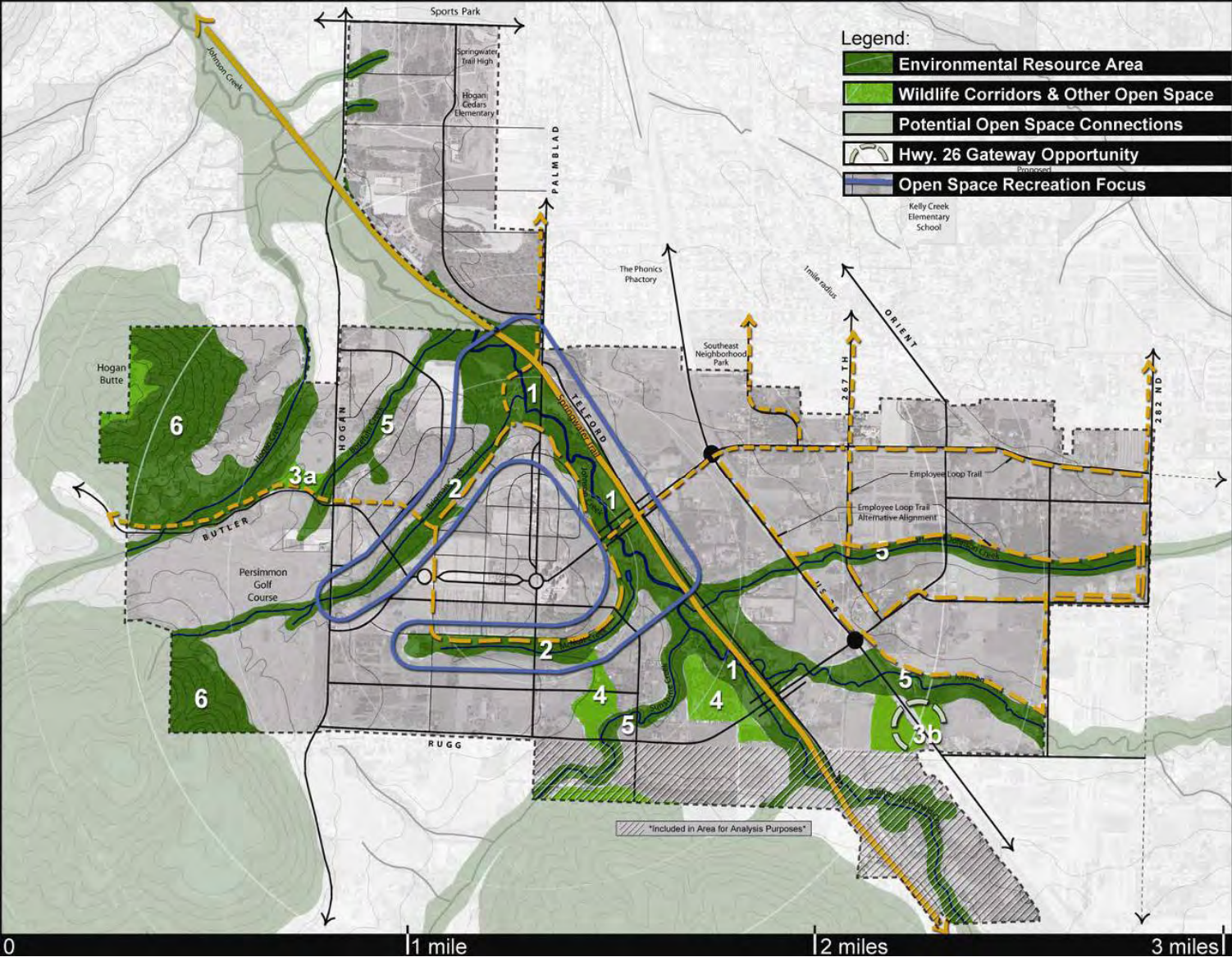


Figure 13. Proposed Open Space and Acquisition Hierarchy Diagram

Trails System

General Description

The purpose of the trail system is to interconnect parks and open spaces; to maximize access to programs and facilities; to promote physical fitness and health for a variety of users; to encourage social interaction and community pride; and to provide opportunities for rest and relaxation within natural settings through trail-related recreation. These trails also serve to reduce auto-dependency and enhance connections to transit facilities; to link open space amenities with homes, workplaces and other community facilities; and to provide outdoor classroom opportunities for environmental education. Trail characteristics are described below.

- Multi-purpose trails are intended for a broad range of non-motorized uses such as bicycles, wheelchairs, strollers and horseback riding as well as pedestrian uses such as walking, hiking and running. Multi-purpose trails are 10-12 feet wide with 2-foot wide shoulders.
- Walking/hiking trails are intended for specific activities. Some of these trails may be single-use trails restricted to pedestrian use only due to steep slopes, erosive soils, or other sensitive environmental considerations. Walking/hiking trails are 4-6 feet wide with 2-foot wide shoulders
- To the extent possible, trail construction will comply with Metro's Green Trails handbook.



Noble Woods Park – Hillsboro, OR

Plan Recommendations

Create a Village Center Loop Trail to the west of US. 26 which will follow creek corridors at an appropriate distance to maximize pedestrian experience. This trail should work in conjunction with the vehicular network where roads parallel creek corridors, and be located inside of purchased open space.

Create an Employee Loop Trail to the east of US. 26 which either follows the road network or runs parallel to stream corridors.

Create connections:

- East Buttes Loop Trail to the west along Butler Road
- The existing schools and Sports Park to the north of the Springwater Community either along Palmbled or through the proposed development west of Palmbled.
- The existing neighborhoods to the north of the Springwater Community.
- Beaver Creek Trail to the North East along 282nd.
- The Village Center and Employee Loops by crossing US. 26.

The trail system could also include a connection from Butler Road to the Cedar Lake subdivision along the Hogan Creek corridor, however this option would be pursued through private development rather than as a part of the City of Gresham's capital improvement program.

Potential Synergies:

- Wastewater Management – Look for potential pedestrian bridge crossings that could be combined with wastewater and other utilities. Specifically, a combined bridge crossing over Johnson Creek between the Hogan Cedars and Springwater Community Park may be needed.
- Stormwater Management – If the Employee Loop Trail is constructed adjacent to streams, investigate opportunities for combining stormwater conveyance and management with the multi-use trail.

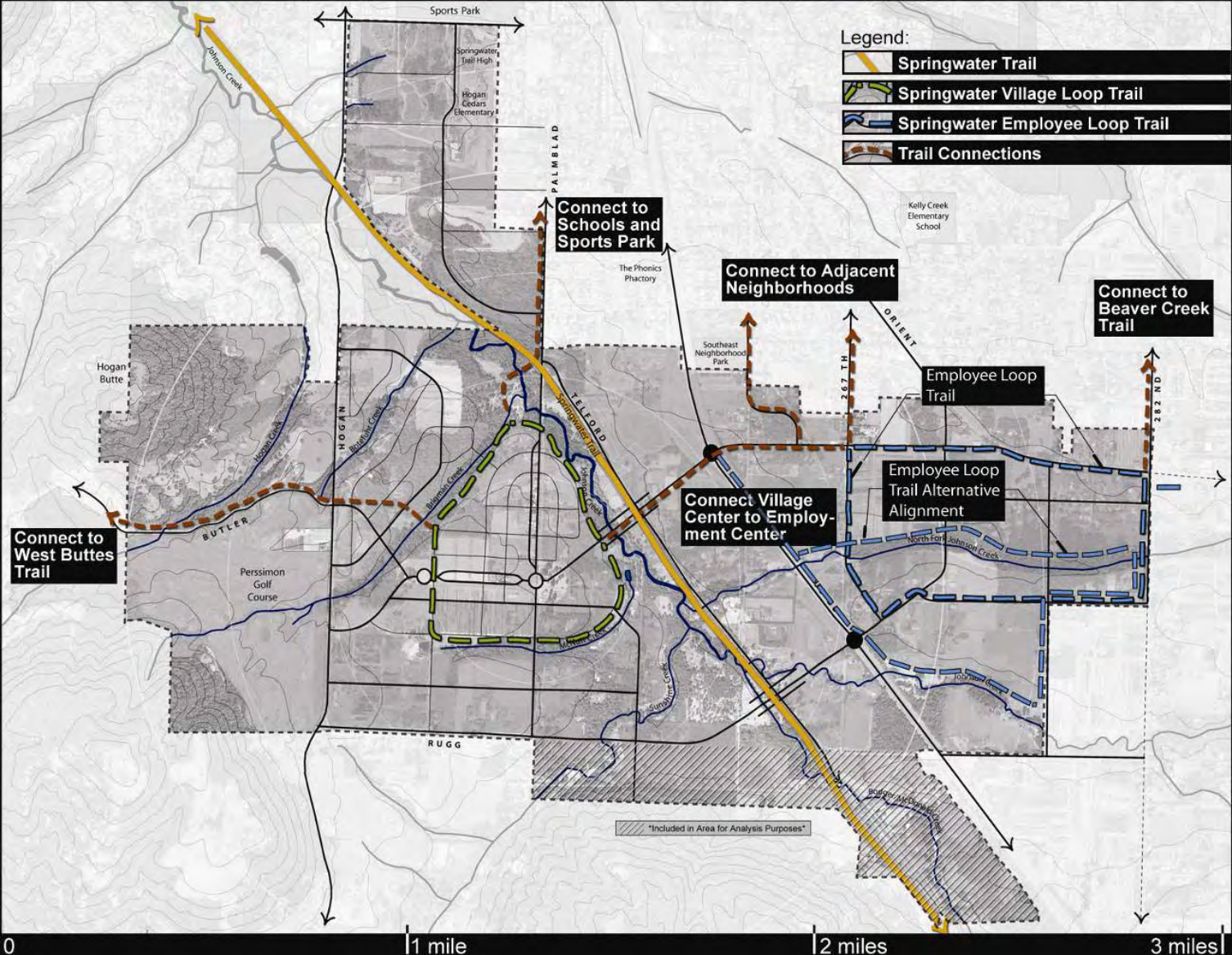
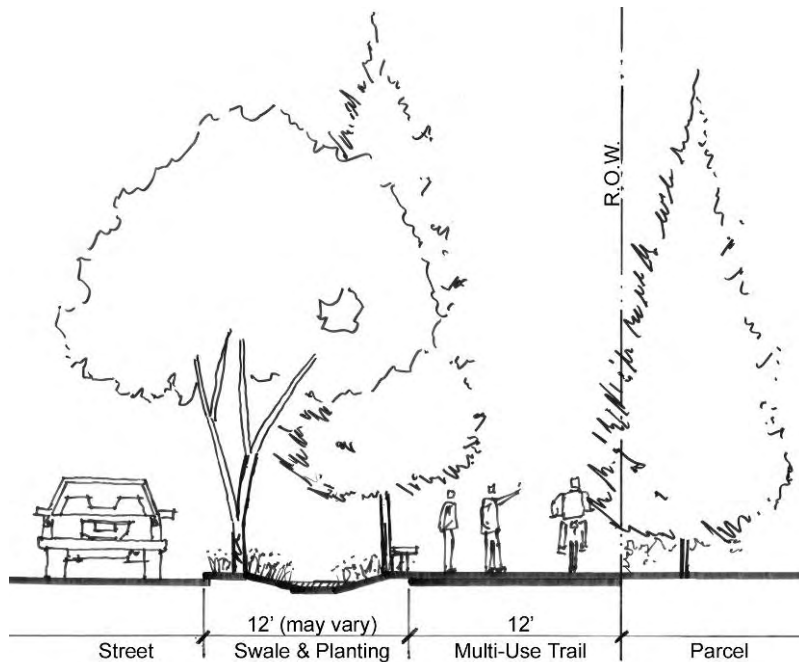


Figure 14. Proposed Trails Diagram

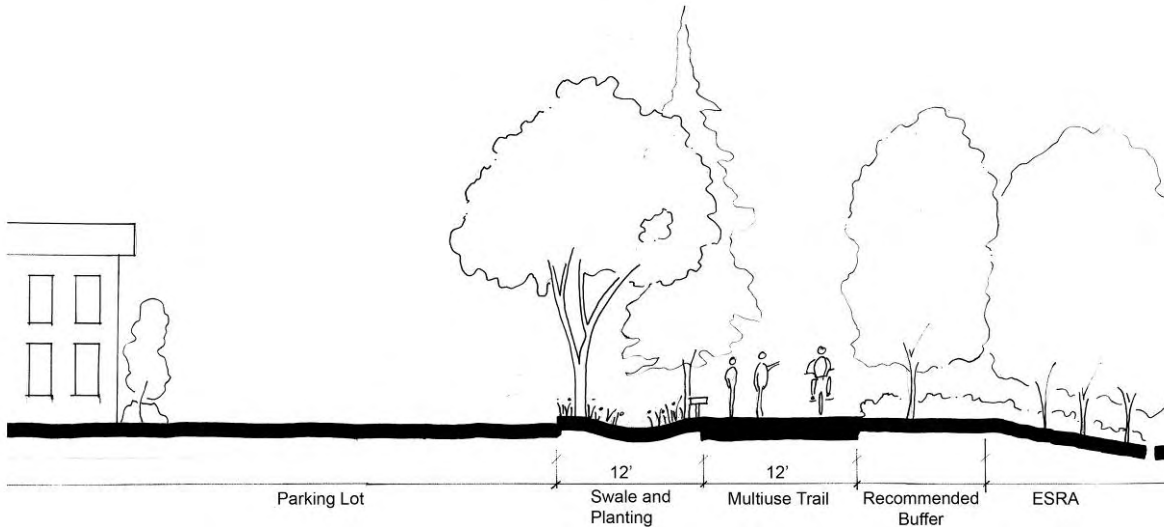
Employee Loop Trail

Two options are under consideration for the trail system east of US. 26. For one the trail system would exclusively follow the road network, the other would abut the ESRA areas parallel to the stream corridors along the north fork and main stem of Johnson Creek and along the road network as necessary for connectivity. The first graphic below illustrates the conceptual implementation of the trail in relationship to the road and swale in the road network option. The swale corridor will be increased by 4 feet to allow for a more informal planting palette of native species, distinguishing the street edge as a special corridor. The trail itself will be a 12-foot wide multi-use corridor adjacent to the swale and property line. Property owners along the corridor should be encouraged to enhance the trail with native plantings in the setback area adjacent to the trail. In areas with few driveways, the on-street bicycle network can be consolidated into the multi-use trail to reduce the amount of R.O.W. needed.

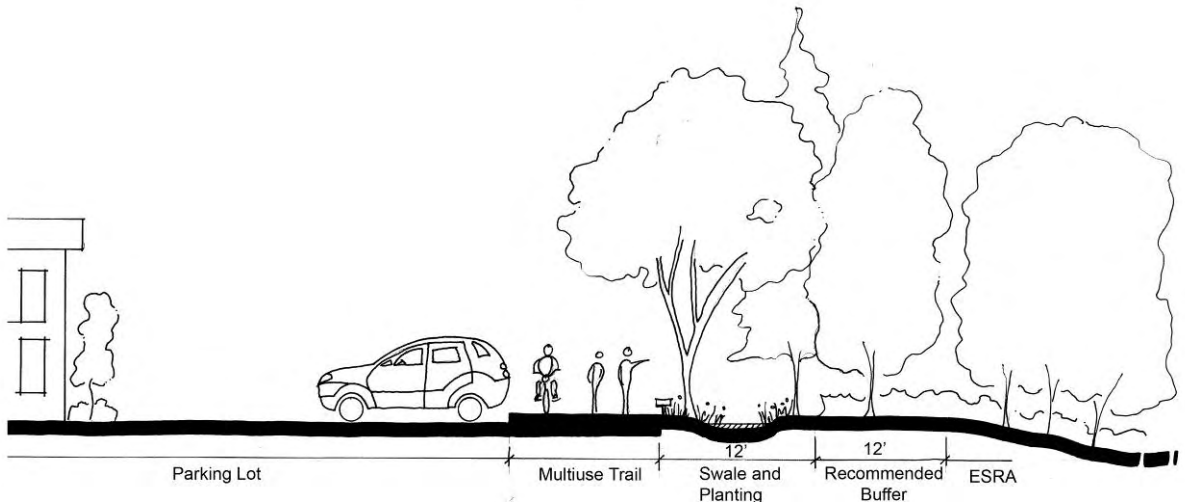


Conceptual Section of Employee Loop Trail Adjacent to Road

The following two graphics both illustrate the trail cross section in the second optional alignment adjacent to Johnson Creek or the North Fork of Johnson Creek. The first section illustrates a stormwater swale and landscaped area between private development and the proposed trail location. The second section shows the trail immediately adjacent to private development with the stormwater swale adjacent to the stream and potential stream buffers. The first section allows for easier stormwater conveyance to the swales, while the second option could allow the swale to function as a buffer between the trail and the adjacent ESRA. It is possible that the stormwater conveyance/treatment channel could be constructed under the trail in a form of subgrade filtration facility, however for planning purposes the swale and trail remain separate in both options shown below.



Conceptual Section of Employee Loop Trail Adjacent to ESRA – Option 1



Conceptual Section of Employee Loop Trail Adjacent to ESRA – Option 2

The Employee Loop Trail alignment options(Roadside and Streamside) are under continuing investigation. The following considerations will be weighed in selection of the final location of the Employee Loop Trail:

- Maintenance:** The selection of the roadside vs. streamside alignment option has potential implications for on-going maintenance responsibilities and practices. The roadside option could result in shared maintenance responsibilities between parks and transportation divisions within the City, while the streamside option and its more complex natural area maintenance requirements requires specialized expertise that could be developed in the Parks and Recreation Division. The approach to maintenance practices in the roadside option are pathway litter patrol and conventional landscape maintenance. The streamside option would require litter patrol and a carefully-considered vegetation management plan for habitat preservation and enhancement goals.

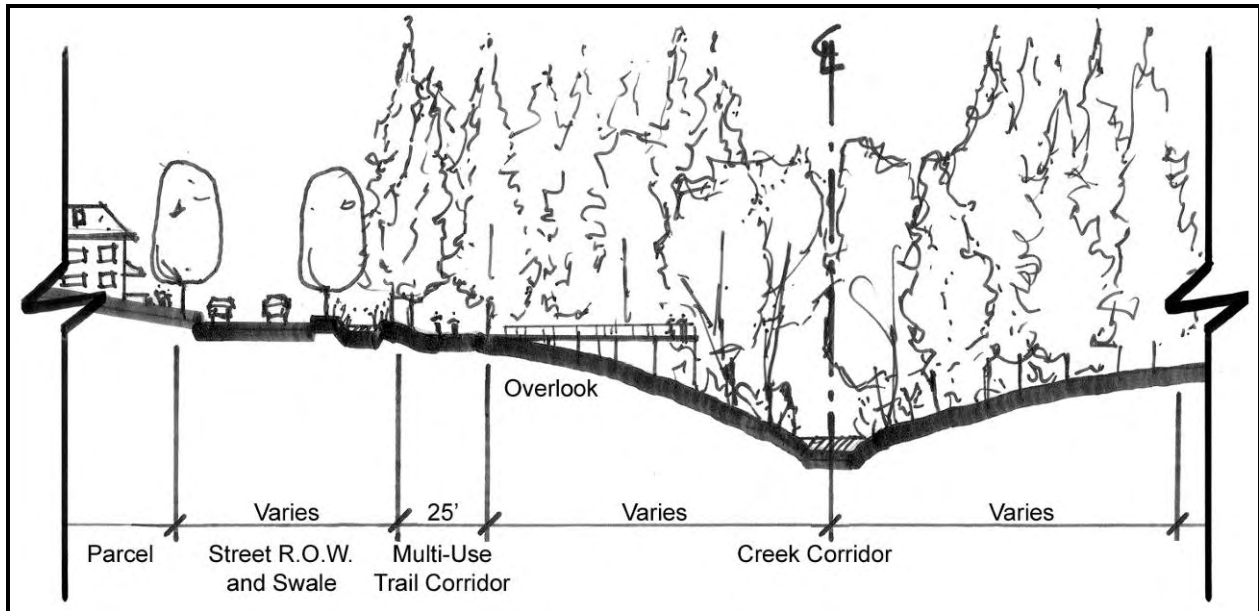
- **Trail R.O.W. Acquisition:** The evaluation of the acquisition costs for trail ROW alignment options is on-going. The roadside trail has the advantage of being incorporated in the Street ROW acquisition effort, while the streamside option would require a separate negotiation.
- **Implementation Cost:** Trails along creeks are potentially more costly to implement because of environmental restrictions and access limitations.
- **Connectivity:** Both the roadside and streamside trail alignment options offer similar connections to surrounding neighborhoods and the broader Gresham community. The primary difference in this evaluation is that the streamside option greatly enhances trail users connections to the natural environment over the roadside alignment.

Village Center Loop Trail

To the west of US. 26 the trail system will follow creek corridors to create a roughly 1 mile trail loop. The following graphic illustrates the trail between a protected creek corridor and the street ROW.

As conceived, the Village Center Loop Trail and the vehicular road network will be an integrated plan with a single-loaded road fronting most of the loop trail as shown in the Conceptual Trail Section Adjacent to ROW below. The trail corridor in both sections is a linear 25-foot corridor in which a 12-foot wide multi-use trail will meander through. The width of the corridor may have to be increased in special conditions to maintain a 5% longitudinal slope along the trail. At special points along the trail an overlook can be provided to allow better views into the protected corridor. Creation of the overlook should create the least impact possible.

Integrating trails with environmentally sensitive resource areas requires striking a balance between public recreational access and preserving the integrity of the resource. When implementing the trails, designers should reference the Springwater Natural Resources Plan and the Metro Green Trails Handbook for characteristics of protected areas to be considered during trail design.



Conceptual Trail Section Adjacent to ROW

Implementation**Parks and Open Space Acquisition, Development, and Maintenance Costs**

The following cost estimate provides recommended capital improvement plan-level budget estimates for the recommended park, trail, and open space facilities. These are based on current planning level acquisition costs used by the City of Gresham, and on ultimate development of Springwater to accommodate 17,000 employees and 3,500 households. The funding source for all projects will be SDC's.

Table 9. Capital Improvement Costs of Park, Open Space, and Trail Facilities

Facility	Quantity	Acquisition Cost	Development Cost	Total Cost	Responsible Jurisdiction	Timing (Years)
Village Center Park and Park Blocks (12.3 Ac.)						
Village Center Park and Plaza	4.4 Ac.	\$880,000	\$1,188,000	\$2,068,000	Gresham	0-5
North-South Park Blocks	3.75 Ac.	\$750,000	\$1,012,500	\$1,762,500	Gresham	0-5
East-West Park Blocks	4.15 Ac.	\$830,000	\$1,120,500	\$1,950,500	Gresham	0-5
Community Parks (29.8 Ac.)						
Springwater Community Park	20.0 Ac.	\$4,000,000	\$11,200,000	\$15,200,000	Gresham	6-20
East Springwater Park	9.8 Ac.	\$1,960,000	\$5,488,000	\$7,448,000	Gresham	6-20
Open Space (148.9 Ac.)						
Johnson Creek	66.0 Ac.	\$2,640,000	\$660,000	\$3,300,000	Gresham	6-20
Brigman Creek	11.0 Ac.	\$440,000	\$110,000	\$550,000	Gresham	6-20
McNutt Creek	12.9 Ac.	\$516,000	\$129,000	\$645,000	Gresham	6-20
Hogan Creek	6.5 Ac.	\$260,000	\$65,000	\$325,000	Gresham	6-20
Botefuhr Creek	5.0 Ac.	\$200,000	\$50,000	\$250,000	Gresham	6-20
Sunshine Creek	7.0 Ac.	\$280,000	\$70,000	\$350,000	Gresham	6-20
North Fork Johnson Creek	10.5 Ac.	\$420,000	\$105,000	\$525,000	Gresham	6-20
Bodger/McDonald Creek	12.0 Ac.	\$480,000	\$120,000	\$600,000	Gresham	6-20
Hogan Butte	18.0 Ac.	\$720,000	\$180,000	\$900,000	Gresham	6-20
Multi-Use Trails (6.2 Mi.)						
Village Center Loop Trail	1.65 Mi.	\$495,000	\$742,500	\$1,237,500	Gresham	6-20
Employee Loop Trail	2.2 Mi.	\$660,000	\$990,000	\$1,650,000	Gresham	6-20
Butler Trail	0.75 Mi.	\$225,000	\$337,500	\$562,500	Gresham	6-20
Palmsblad North	0.5 Mi.	\$150,000	\$225,000	\$375,000	Gresham	6-20
Village Loop to E. Springwater Pk.	0.65 Mi.	\$195,000	\$292,500	\$487,500	Gresham	6-20
Barnes Road North	0.25 Mi.	\$75,000	\$112,500	\$187,500	Gresham	6-20
267 th North	0.1 Mi.	\$30,000	\$45,000	\$75,000	Gresham	6-20
282 nd North	0.1 Mi.	\$30,000	\$45,000	\$75,000	Gresham	6-20
Pedestrian/Bicycle Bridges (3)						
Butler Trail (Brigman Creek)	1	N/A	\$250,000	\$250,000	Gresham	6-20

Exhibit B2 – Amendment to Volume 2 – Policies

Palmblad North (Brigman Creek)	1	N/A	\$250,000	\$250,000	Gresham	6-20
Palmblad North (Johnson Creek)	1	N/A	\$250,000	\$250,000	Gresham	6-20
Total		\$16,236,000	\$25,038,000	\$41,274,000		

These costs are based on the unit acquisition costs listed below. Annual maintenance costs are also given.

Unit Acquisition Costs

Facility	Acquisition	Development
Neighborhood Park:	\$200,000/Ac.	\$270,000/Ac.
Community Park:	\$200,000/Ac.	\$560,000/Ac.
Open Space:	\$40,000/Ac.	\$10,000/Ac.
Multi-Use Trail:	\$300,000/Mi.	\$450,000/Mi.
Ped/Bicycle Bridge:	N/A (Located in Open Space)	\$250,000 Average

Annual Maintenance Costs

Neighborhood Park	\$5,360/Ac.
Community Parks	\$7,146/Ac.
Open Space	\$715/Ac.
Multi-Use Trails	\$8,933/Mi.
Pedestrian/Bicycle Bridges	\$600/Br.

Neighborhood Park	\$65,928
Community Parks	\$212,951
Open Space	\$106,464
Multi-Use Trails	\$55,385
Pedestrian/Bicycle Bridges	\$1,800
Total Maintenance Cost	\$442,528

Summary of Future Needs

Parks, trails and open space will be an integral part of the Springwater community design; serving to enhance economic growth, strengthen community bonds and protect natural resources. Three new parks will be created to serve residents and employees in Springwater. A neighborhood park, located adjacent to the highest residential populations, will be integrated into the Village Center and will consist of a plaza, park blocks, and central park. Two new community parks located adjacent to natural resources and/or in areas with good vehicular accessibility are also included in the plan. The first community park, located along the Johnson Creek Corridor and adjacent to the residential developments, will provide two youth sports fields and a regionally significant natural park area, providing interpretive educational opportunities. The second, east of US 26, will provide two to three adult sports fields for employee recreation. Trails have also been identified to provide pedestrian recreational opportunities and access to features inside and outside of the study area including existing neighborhoods and regional trails to the north and west. Acquisition of 121.90 – 148.90 acres of open space will be based on recreation need and environmental resource criteria, and will be used to preserve natural resources and create pedestrian and wildlife connectivity throughout the district.

Funding Strategies

There will be several options for the funding of the Springwater parks, open space and trails system. Traditional methods such as system development charges, grants and land dedication should be considered in concert with a variety of alternative funding strategies to purchase as well as maintain the system. All capital improvement projects should consider future

maintenance strategies before they are implemented to ensure a high level of quality and safety for park users.

The following approaches have been summarized as possible funding strategies for implementing the parks, open space and trails recommendations outlined in this document:

- Continue to use System Development Charges (SDCs) for land acquisition and construction, and adjust them as necessary to fully fund park development. Residential and employment districts should be explored because the park LOS for Springwater has been adjusted to provide land for both user groups.
- Grants and donations should continue to be used whenever possible. Numerous programs exist at the state and federal level to assist with natural resource related planning efforts, especially if those planning efforts are related to natural hazard mitigation strategies. In addition to opportunities to obtain funding for the protection and restoration of habitats, opportunities to obtain public open space as part of a hazard mitigation/prevention strategy are available.
- In lieu of charging SDCs, require Turn Key Development of park facilities by developers to eliminate the city's financial burden of constructing the facility. Developers would construct facilities to City specifications, and then turn over to the City as a completed neighborhood park; trail segment or urban plaza after the development is completed.
- In the event that property tax revenues anticipated from annexation are not sufficient to cover the increased cost of parks maintenance associated with the parks, trails, and open space proposed for Springwater, the option of a park maintenance fee or operating levy could be considered as a condition of annexation.
- Consider establishing a Landscape Assessment District (LAD) overlay zone to provide maintenance and construction budgets for the proposed parks in the districts. This district or districts will provide parks funds for Springwater without taxing the rest of the city to implement the new district.

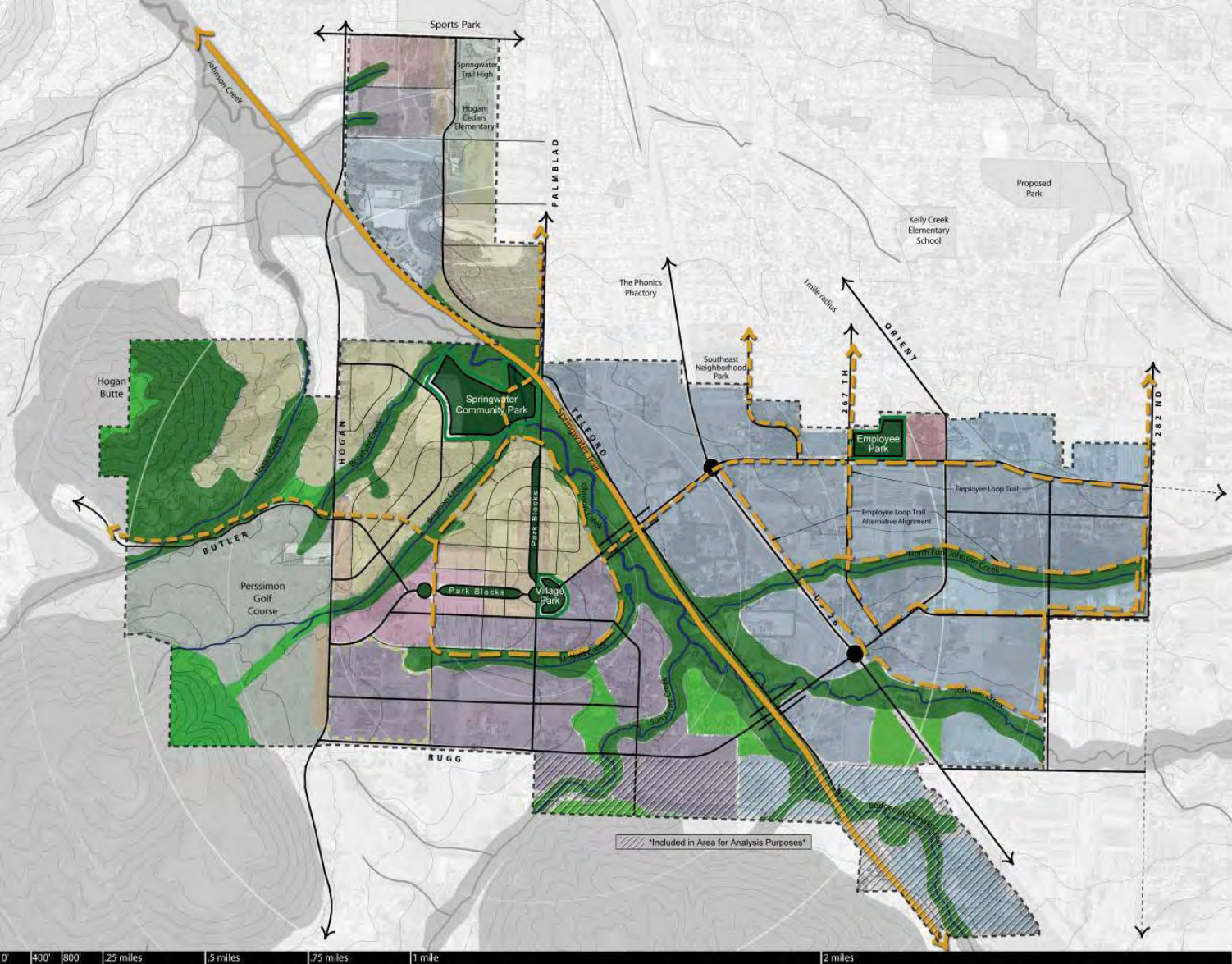


Figure 15. Parks, Open Space and Trails Plan

- On a smaller scale, a homeowner’s association model could be implemented around neighborhood parks for the maintenance of the park as well as the neighborhood landscape including medians and parkways.
- On all trails, parks and open space projects look **for synergies** with other government agencies to share in funding facilities. Possible partnerships could be made on stormwater management, transportation, and school projects.
- User fees could help support more specialized recreational facilities such as interpretive trails or centers located within the Springwater Community Park.
- As a maintenance alternative, businesses should be encouraged to participate in an adopt-a-trail or similar sponsorship programs for parks and trails in the district.
- A non-profit trust is a specialized model which would work as a public/private partnership to raise funds for parks maintenance and development in the district.
- The acquisition of park and open space in the district could be tied to a city-wide General Obligation Bond Measure. This would be most appropriate for open space and natural resources which are regionally significant, such as the Johnson Creek Corridor.

Goal, Policies and Action Measures

Goal: An interconnected system of parks, trails, and open space shall be an integral part of the community design, serving to enhance economic growth, strengthen community bonds and protect natural resources.

Policies: The following policies are made part of this plan:

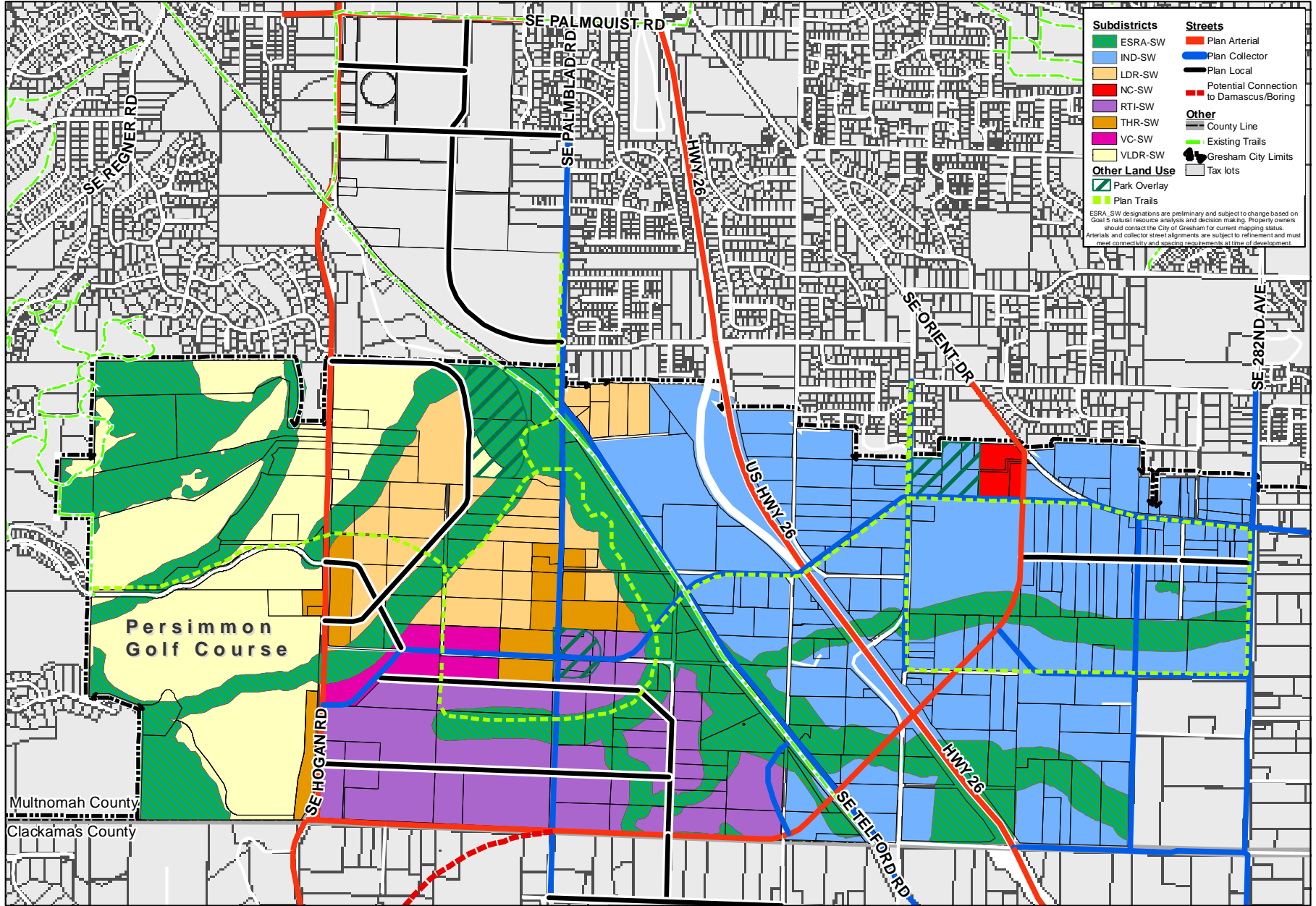
1. Parks, open space and trails shall be implemented to help promote a sense of place with respect to the community’s cultural and natural history by building upon Springwater’s unique characteristics and location, such as the Johnson Creek corridor and views to Mt. Hood.
2. Parks, open space and trails implementation shall recognize the importance of the upper Johnson Creek system for Gresham, the Portland Metro region and the Willamette Valley.
3. The parks, open space and trails system shall work with other civic improvements such as schools, transportation and stormwater management to consolidate budgets, maintenance and implementation of facilities.
4. The parks, trails and open spaces system shall create interpretive educational opportunities that allow residents to experience and understand the diverse ecosystem that they are a part of.
5. The maintenance and implementation of parks, open space and trails shall encourage the planting and preservation of native plant and tree species.
6. Parks and trails shall be implemented to enhance and protect natural resources.

7. Trails and corridors shall create connections to the Springwater and other regional trail systems as well as links between residential, employment and civic destinations inside and outside of the district.
8. Parks and trails shall be located within a ½ mile of their users, and shall help to create an identity for the neighborhood, which they serve, including dense neighborhoods.
9. Open space shall preserve, restore and enhance natural resources as well as support the other parks and recreation objectives of the community.

Action Measures: The following actions should be taken to implement this plan:

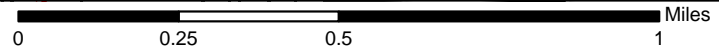
1. When implementing any recommendation, reference all other master plans created as part of the Springwater planning study and look for opportunities for synergies between other city agencies, such as shared park/school sites, regional stormwater management facilities, and trail corridors along transportation routes.
2. Expand on recommended park facilities programs to meet the needs of the future residents by holding community workshops and planning days to involve the community in the design process.
3. Look for state and federal funding strategies to help preserve natural resources beyond that open space which will be purchased through Parks fees.
4. Implement park facility recommendations concurrent with residential and industrial development to meet the needs of the users as they arrive.
5. Review and select from the two alignment options for the employee loop trail east of Highway 26, and modify Transportation System Plan to reflect recommended trail alignment.

SPRINGWATER PLAN DISTRICT MAP



ESRA, SW designations are preliminary and subject to change based on Goal 5 natural resource analysis and decision making. Property owners should contact the City of Gresham for current mapping status. Arterial and collector street alignments are subject to refinement and must meet connectivity and spacing requirements at time of development.

Springwater Plan District Effective 12/01/2005



This map is based on digital databases from the City of Gresham. The City cannot accept any responsibility for errors, omissions, or positional accuracy. There are no warranties, expressed or implied.



May 22, 2006

Springwater Community Plan



Springwater Transportation System Plan

November 1, 2005

City of Gresham

Community & Economic Development Department

– New Communities and Annexation

Department of Environmental Services

Transportation System Plan

INTRODUCTION

The purpose of the Springwater Transportation System Plan (TSP) is to address the transportation needs for new urban community development within the Springwater Plan District. This TSP will be amended to Volume 4 – Transportation System Plan in the Gresham Community Development Plan. Consequently, it is important that this plan works within the framework established by other related state, regional, and local plans. The TSP includes the following sections:

- Planning Framework
- Policies and Action Measures
- System Inventory and Assessment
- Transportation System Alternatives Analysis
- Recommended Transportation System Plan
 - Motor Vehicle Plan
 - Transit Plan
 - Bicycle and Pedestrian Plan
 - Freight Master Plan
 - Other Travel Modes
- Implementation Plan
 - Functional Class changes
 - Street cross-sections
 - Amendments to Street Project List
 - Local Street Connectivity Map
 - Funding needs

Plans for new urban areas must follow the requirements and guidelines of Title 11 of Metro's Urban Growth Management Functional Plan. Title 11 requires the following concerning transportation:

A conceptual transportation plan consistent with the applicable provisions of the Regional Transportation Plan, Title 6.4 of the Regional Transportation Plan [replaced Title 6 of the Urban Growth Management Functional Plan], and that is also consistent with the protection of natural resources either identified in acknowledged comprehensive plan inventories or as required by Title 3 of the Urban Growth Management Functional Plan. The plan shall, consistent with OAR Chapter 660 Division 11, include preliminary cost estimates and funding strategies, with likely financing approaches.

The TSP shall also include an urban growth diagram...showing...general locations of arterial, collector, and essential streets.

A conceptual facilities and services plan for transportation was developed as part of the *Concept Plan* effort. This effort identified the needed transportation facilities for the new urban district, and developed rough cost estimates and likely funding strategies. The plan also included a map depicting the general location of arterial, collector, and connecting streets and identified functional classifications for streets, a connectivity plan, and a transit plan. A bicycle and trail plan was developed in conjunction with Parks planners, and is presented in the Parks and Open Space component of the Springwater Public Facilities Plan.

PLANNING FRAMEWORK

Background

The Metro Council brought Springwater into the Urban Growth Boundary (UGB) in December 2002. When land is brought into the UGB, Title 11 of the Metro *Urban Growth Management Functional Plan* requires that the added territory be brought into a city's comprehensive plan prior to urbanization with the intent to promote the integration of the new land into existing communities.

Title 11 requires a series of comprehensive plan amendments including maps that address provisions for annexation; housing, commercial, and industrial development; transportation; natural resource protection and enhancement; public facilities and services including parks and open spaces; and schools. The intent of the current planning effort is to prepare Springwater for urbanization and annexation to the City of Gresham.

Planning Context for Transportation

The transportation plan for the Springwater Community Plan was developed in compliance with transportation plans adopted by the State of Oregon, Metro, Multnomah County and the City of Gresham. Specifically, the 2004 Metro Regional Transportation Plan (RTP) established guidelines for spacing between streets, stream crossings, pathways and minimum mobility standards for regional transportation. These guidelines were used as a primary resource to develop the policy framework for the mobility standards and street spacing set forth in the Springwater TSP. For most regions the RTP also provided information about existing and planned transit services, but the RTP did not address transit services in the Springwater region.

In addition to compliance with the RTP, any street connections to US 26 (Mt. Hood Highway) needed to follow the regulations and standards within the 1999 Oregon Department of Transportation (ODOT) Oregon Highway Plan (OHP). The OHP provided performance criteria for any roadways, intersections or grade-separated connections to US 26, and it established the appropriate separation from highway intersection to the nearest local street intersections. Furthermore, review of the Gresham and Multnomah County Transportation System Plans revealed the current street functional class designations for existing streets and highways, any planned pathways or trails, and any planned transportation improvements within or close to the Springwater area that should be included in the basic framework of the new planning area.

Finally, the Plan was guided by citizen input provided through public meetings and open houses held during the planning process, and by the goals and policies developed jointly by the project team and the Springwater Community Working Group (CWG). These goals and policies were adopted by the CWG early in the planning process. The transportation goal is given below. Policies and action measures associated with the transportation element of the Springwater plan are described in the following section.

The Springwater Community will encompass a well-planned transportation system that supports the Springwater Community Plan, while promoting transit, walking and bicycling. Good design can also avoid the effects of heavy traffic on neighborhood safety and the natural environment. A well-connected transportation system using trails, bicycle routes, sidewalks and a variety of street types reinforces a sense of community and provides adequate routes for travel. The site should provide good connections to and from the employment areas and the surrounding community, as well as regional freight and transportation centers.

Other goals that guided the Springwater planning process included the following:

Create a Community. *The Springwater Community shall be an economically and environmentally sustainable community.* The primary focus of the plan will be on providing a high number of industrial and industrial related jobs that enhance the economic viability of Gresham, the greater East County region and its citizens. Industrial and employment lands will be complemented with a village center and housing support and will be carefully integrated with the upper Johnson Creek system. Sustainable “green” building and development practices will enhance the community’s unique character, while supporting the protection and restoration of the area’s natural resources.

Sustainability. *The Springwater Community shall foster sustainability through encouraging businesses, industries and homes that are built with and practice good environmental stewardship.* This shall be accomplished through “green” practices that provide for energy-efficiency, water conservation, reduced pollution, and avoid environmentally harmful materials and processes. The Springwater Community shall strive to be a model for successful sustainable industrial development. Development shall also preserve, restore and enhance natural resources by meeting or exceeding local and regional standards. Land uses, transportation systems and natural resources shall be carefully integrated and balanced.

Economic Development. *The Springwater Community shall provide industrial land that will generate a variety of family wage job opportunities.* Job creation will focus on correcting the imbalance between the number of households and the number of jobs in the East Metro region and increasing the City’s economic strength. The plan will actively encourage businesses with an interest in sustainability and protecting the community’s rich natural resources. Springwater will include a village center that can serve residents, employees and businesses.

Livability. *The Springwater Community shall have a high quality of life.* This will be accomplished through compact and sustainable development; a range of housing choices; walkable neighborhoods; access to natural resource areas and open spaces for employees in the community; preservation of natural resources; and a variety of transportation choices. The community will encompass a village center, or series of village centers that provide needed services for employees and residents in an attractive and human-scale environment. A range of housing choices will be provided within close proximity to services and/or employment areas. Overall, the community will be a unique environment that creates a sense of place both for residences and businesses, and acts as economic attractor.

Natural Resources. *The plan will preserve, protect and enhance natural resources.* It will define, protect, restore and enhance significant natural resources, including stream corridors, wetlands, and forested areas. Resource areas will provide the basis for identifying development constraints as well as serving as open space amenities for the Springwater Community. Resource protection and enhancement will be a shared responsibility of property owners, developers and governments.

Rural Route Impacts. *The plan will support and maintain transportation system primarily served by urban or regional facilities that seeks to minimize potential impacts on rural roads east of 282nd Avenue.* As directed by a joint resolution with Multnomah County, the city’s new plan for the Springwater Community will identify appropriate land use and transportation elements that seek to keep the new travel demands generated within Springwater from intruding onto county maintained rural highways and roads east of 282nd Avenue. Specifically, this principle applies primarily to commute traffic and other types of trips that do not have origins or destinations within the rural areas. The plan will strive to serve regional trips via regional routes, including US Highway 26.

POLICIES AND ACTION MEASURES

The goal for the Springwater transportation system was developed through a collaborative process involving the project team members, community working group, and other project stakeholders. The overall goal of providing “...**a well-planned transportation system that supports the Springwater community while promoting transit, walking, and bicycling**” was described in the previous section. Along with this goal, several policy statements and action measures were developed.

Policies

1. Identify improvements to Highway 26 that enhance access and mobility to and through the Springwater Community plan area to support industrial and employment development. Design elements are to be compatible and supportive of the Springwater Community Plan.
2. Incorporate the North/South Transportation Study recommendations to identify better connections between Springwater and I-84 and I-205.
3. Incorporate Green Street designs as described in Metro’s handbook entitled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and as designed in the Pleasant Valley Plan District area.
4. Develop transportation corridors and associated right-of-way widths for Green Street swales.
5. Create streets for people as well as cars.
6. Encourage alternative modes of transportation within the Springwater community.
7. Provide good connectivity and access to practical destinations.
8. Provide safe and convenient access to and from employment areas, including freight access.
9. Incorporate adequate public safety access.
10. Provide public transit options, such as bus, van, streetcar and/or light rail within the Springwater community and for east/west and north/south connections to the greater region.
11. Consider traffic impacts on surrounding rural areas and existing City of Gresham neighborhoods.
12. Provide pedestrian and bicycle connections within the Springwater community and to the greater region.
13. Plan roads to accommodate the movement of goods and services (truck traffic).
14. Consider environmental barriers and constraints.
15. Address existing transportation safety issues.
16. Identify and promote the quality and level of telecommunication services needed to serve the industrial and other uses in the Springwater Community.

17. Create a transportation system that enhances mobility, reliability, and convenient connections to regional destinations.

Action Measures

1. Continue to work with other regional stakeholders to identify and implement improved North/South connections which would provide access from Springwater to I-84 and I-205.
2. Implement recommended changes to the City’s Transportation System Plan, and plan for funding requirements associated with transportation improvements.
3. Coordinate Springwater development with recommendations from the US 26 Access Study, and provide an implementation strategy that maximizes industrial development opportunities in Springwater.
4. Adopt a future street plan and street connectivity standards that meet regional and local connectivity requirements.
5. Work with TriMet to develop a plan for Springwater that provides connection to local regional centers, with service through the industrial areas and Village Center.
6. Complete a future CIP Joint Study with Multnomah County to evaluate Access Management Control along 282nd to lessen the impacts on this facility and retain its rural character.
7. Identify all arterial and collector projects that are not currently in the RTP and submit a project list for inclusion in a RTP amendment.

SYSTEM INVENTORY AND ASSESSMENT

Transportation Facility Identification and Classification

The study area for the Springwater transportation system extends beyond the boundary of the plan area by approximately one-half mile to include key arterial and collector streets within the current City of Gresham. This allows for consideration of changes to local street performance, and a more appropriate design of the interface between the new urban area and the existing city neighborhoods. The Reference Documents for the Springwater Community Plan include a detailed inventory of the Springwater transportation system.

The existing roadway network within the study area has mostly rural characteristics. The arterials are generally fast moving with most intersections either having no traffic control or two-way stop sign control. Based on current development patterns, the majority of trips from the study area will travel to the north and to the west. Highway 26 is the only major facility that traverses the study area. This highway connects Gresham with both Portland (to the west) and Sandy (to the southeast). The nearest major freeway facility in the area is Interstate 84, which travels east-west about 5 miles north of the study area.

The City’s street functional classifications coordinate with classifications adopted by Multnomah County, Metro, and ODOT. Table 1 lists the functional classification definitions for the City. The Gresham Transportation System Plan contains additional detail regarding the functional street classifications. Based on this classification system, a number of facilities within or near the study area qualify as either arterials or principal arterials.

Table 1 – Street Functional Parameter Classification Definitions

<i>Street Classification</i>	<i>Volume</i>	<i>Design Speed</i>	<i>Travel Lanes</i>
Principal Arterial	35,000 to 60,000	45 to 55	4 to 6
Arterial	15,000 to 40,000	35 to 45	4
Boulevard	15,000 to 40,000	25 to 35	4
Collector	10,000 to 20,000	25 to 35	2
Community Street	3,500 to 10,000	25 to 35	2

Source: City of Gresham Transportation System Plan, 2002

Within the study area, Highway 26 carries high volumes of traffic at high speeds with two travel lanes in either direction. ODOT classifies the roadway as a Principal Arterial and Expressway with minimal side street access. To the north of the study area, Highway 26 slows as it enters the urban portion of Gresham, where it changes to a principal arterial facility through Gresham and into Portland with more frequent direct land access. At the north end of the study area, Highway 26 changes names and continues westward as Powell Boulevard. This facility (Powell Boulevard) has been transferred to the city. Metro classifies Highway 26 as a Rural Arterial south of Gresham City limits and as a Major Arterial within the City limits.

Table 2 presents ODOT historical traffic volume data on Highway 26 southeast of Powell Valley Road. This table shows a steady increase in traffic volumes along Highway 26 in the past ten years. Overall, a twenty percent increase exists in traffic volumes between 1993 and 2003, or about two percent per year on average.

Table 2 – Historical Traffic Volumes on Hwy 26, Southeast of Powell Valley Road

Year	Average Daily Traffic	Percent of ADT			Percent Annual Growth
		Max Day	Max Hour	30 th Hour	
1993	32,408	124%	10.5%	9.7%	N/A
1994	33,641	122%	10.6%	9.7%	3.8
1995	34,413	123%	10.2%	9.6%	2.3
1996	35,755	121%	10.1%	9.5%	3.8
1997	36,258	124%	10.3%	9.6%	1.4
1998	36,275	124%	10.2%	9.5%	0.5
1999	36,677	125%	10.1%	9.5%	1.1
2000	37,168	124%	9.9%	9.4%	1.3
2001	37,504	125%	10.1%	9.3%	1.0
2002	38,790	125%	9.8%	9.2%	3.4

In addition to average daily traffic by year, ODOT has also provided average weekday traffic by month. Table 3 presents this information and illustrates that the summer months of June, July and August experience the highest average weekday traffic volumes. During the winter, only the month of December has slightly higher than average traffic volumes. The Springwater Transportation study uses traffic counts taken in November 2003, which is very close to the average month for the year.

Table 3 –Traffic Volumes (2002) by Month on Hwy 26, Southeast of Powell Valley Road

Month	Average Weekday Traffic	Percent of ADT
January	36,043	93
February	38,260	99
March	37,949	98
April	38,533	99
May	39,463	102
June	41,265	106
July	41,398	107
August	41,625	107
September	40,388	104
October	39,344	101
November	38,314	99
December	39,786	103

While Highway 26 is the only state facility within the study area, there are other important facilities that run either through or near the study area. The roles that each of these facilities play in providing access to and from the study area is described below.

Burnside Road runs generally from the northwest to the southeast within the City of Gresham. To the west of Gresham, Burnside Road continues all the way to Portland. At Powell Boulevard near the north end of the study area, Burnside Road changes names to Highway 26. Gresham classifies Burnside as a Principal Arterial and Metro classifies it as a Major Arterial. Daily volumes range from 27,000 west of Hogan Road to 38,000 within the study area (2000 data). Burnside Road is designated as a National Highway System (NHS) freight route between US 26 and I-84.

Hogan Drive/242nd Avenue is a two to five lane roadway through the study area. To the north, Hogan Drive provides access to I-84 through Wood Village. Within the study area, it is classified as a Rural Arterial by Multnomah County. It is classified by Gresham as an Arterial in the study area and by Metro as a Minor Arterial (south of Palmquist Road). North of Palmquist Road Metro classifies it as a Principal Arterial and south of the study area it is classified as a Rural Arterial. Daily traffic volumes range from 28,000 north of Division Street to 12,000 south of Powell Boulevard (2000 data).

Orient Drive generally runs parallel to Highway 26 through the study area. It is classified by Multnomah County as a Major Arterial west of Elsa Street and as a Rural Arterial to the east. Gresham classifies it as an Arterial just north of the study area and Metro classifies it as a Rural Arterial in the study area. Daily volumes near US 26 observed at 11,000 vehicles in 2000. It also can service over-sized freight vehicles that cannot travel on US 26.

257th Drive/Kane Road runs north-south. The south end of the roadway begins near the study area and continues north through Troutdale to Interstate 84. Gresham classifies it as an Arterial and Metro classifies it as a Major Arterial. There is also a disconnected section of Kane Road in the study area classified as a Rural Collector by Multnomah County (described below).

282nd Avenue runs north-south in the study area as a Rural Collector. This roadway connects to the north to Troutdale. It is classified as a Community Street by Gresham and is not classified by Metro.

Palmsblad Road/252nd runs north-south through the study area as a Rural Collector. It is classified as a Community Street by Gresham and is not classified by Metro.

Palmquist Road runs east-west along the very north edge of the study area, but is not classified by Multnomah County west of US 26. East of US 26, the newly constructed segment up to Orient Drive is designated by the county as a major arterial. It provides access between Powell Boulevard to the northwest and US 26 to the east. It is classified by Gresham as a Collector west of US 26 and as a Community Street east of US 26. Metro classifies it as a Collector of Regional Significance (between Regner Road and US 26).

Butler Road runs east-west in the west end of the study area as a Neighborhood Collector. The roadway provides access between Hogan Drive and 190th Avenue to the west into Pleasant Valley. It is classified by Gresham as a Collector and by Metro as a Collector of Regional Significance.

McNutt Road is a Rural Collector connecting 252nd Avenue with Kane Road. It is not classified by Gresham or Metro.

Kane Road is a Rural Collector that starts at McNutt Road and ends at the county line. It is not classified by Gresham or Metro.

Telford Road is a Rural Collector that runs from northwest to southeast through the study area. It is not classified by either Gresham or Metro, but will likely serve as a key route in the development of the Springwater area.

262nd Avenue is disconnected in the study area. The north portion (north of Highway 26) is a Rural Collector and becomes a Collector in Gresham (Barnes Road) and the south portion is a Rural Local. Within the study area, neither portion is classified by either Gresham or Metro.

267th Avenue is also disconnected in the study area, however, both portions are Rural Collectors. The north portion (north of Highway 26) becomes a Collector in Gresham, but neither portion is classified by either Gresham or Metro within the study area.

In understanding the classification and assessment of traffic facilities in the study area, it is important to note that the State of Oregon has different performance standards for the arterial networks than the City of Gresham. The State bases their standards on the volume-to-capacity ratio for the facility, while the City bases their standard on an intersection analysis, with LOS D being identified as the minimum preferred condition. For example, the intersection of Powell Boulevard/Burnside is approaching the city's minimum Level of Service (LOS) standard. The maximum volume-to-capacity ratio on Highway 26 for the study area ranges from 0.90 to 0.99.

Traffic Safety

Information on the crash history at intersections near the study area was provided by the City of Gresham. When taken as a whole, the total crashes at the study intersections increased from 171 in 2000 to 222 in 2002, while the number of injuries remained at approximately 125. Although there were no fatalities in either 2000 or 2002, the year 2001 saw two fatalities.

The collision rate analysis within the study area identified one intersection as a potential safety concern. The Orient Drive/257th Avenue/Palmquist Road intersection historically had higher than average crash rates. The recently completed street improvements for these intersections should reduce the propensity for crashes in the future. The only other location with a notable crash rate was at 242nd Avenue and Rugg

Road with 0.5 crashes per million entering vehicles. The crashes at this unsignalized, three-leg intersection are presumed to occur as vehicles make a left from a slow moving Rugg Road onto the fast moving 242nd Avenue.

Intersection Analysis

The intersection performance was evaluated at study area intersections that had known operational issues, or were expected to be key gateways for the community. The analysis followed the 2000 Highway Capacity Manual (HCM) methods for determining the Level of Service thresholds, and the volume-to-capacity ratios for each location. The LOS thresholds as defined in the 2000 HCM are listed in Table 4.

Table 4 – 2000 Highway Capacity Manual Thresholds

Level of Service	Control Delay per Vehicle (seconds)	
	Unsignalized	Signalized
A	<10	<10
B	>10 and <15	>10 and <20
C	>15 and <25	>20 and <35
D	>25 and <35	>35 and <55
E	>35 and <50	>55 and <80
F	>50	>80

Currently, all of the signalized intersections in the study area operate at an acceptable level of service (LOS D or better). This threshold is consistent with the City of Gresham and Multnomah County’s minimum accepted conditions during peak hours. The afternoon/evening peak hour condition at the Burnside Road intersection at Powell Boulevard is approaching the minimum acceptable threshold. Further growth within the study area or the general East Multnomah County region is likely to exceed the planned capacity at this location in the near future.

Three locations controlled by two-way stop signs operate at poor levels of service (LOS E or LOS F) for the minor street approaches. These locations are: Highway 26 at Stone Road, Highway 26 at 267th Avenue, and Orient Drive at 14th Street.

Freight Routes

In the vicinity of the study area, 242nd Avenue (to just south of Palmquist Road) and Orient Drive are classified by Metro as Road Connectors and Highway 26 is classified as a Main Roadway Route. There is also a proposed Road Connector linking 242nd Avenue to Highway 26 just north of the existing Gresham City limits. ODOT classifies only Highway 26 as a Statewide Highway in the study area. The current NHS freight route includes Highway 26, Burnside Road, and 181st Avenue to I-84. A secondary freight route is shown on 242nd Avenue between Burnside Road and Glisan Street, then heading west to 207th Avenue and then north to I-84.

ODOT has an automatic traffic recorder (ATR) station on Highway 26 just south of Powell Valley Road. Trucks account for 4.5 percent of the total average daily vehicle volume at that location, where trucks are defined as any vehicle greater than two axles or four wheels.

Bicycle and Pedestrian Network

Within the study area, there is one regional multi-use path (Springwater Trail) and one major roadway with a dedicated bicycle lane (on Highway 26) for both directions of travel. The Springwater Trail is paved and open to both bicyclists and pedestrians. Within the study area, the trail generally parallels Telford Road and provides a north-south connection between the county line and the City of Gresham. The dedicated bicycle lane runs through the study area along Highway 26 from the City of Sandy to the City of Gresham.

The combination of the multi-use bicycle and pedestrian path and dedicated bicycle lanes provides north-south access to and from the study area. However, the study area is lacking sufficient east-west connections. Two roads, Rugg Road and Stone Road, travel the length of the study area in the east-west direction. While Stone Road provides acceptable conditions for an experienced bicyclist, Rugg road is narrow with no striping, and therefore, it does not provide adequate safety for most bicyclists. Very few, if any of the roadways within the study area provide continuous sidewalks.

Transit Network

In the study area, there are few existing transit facilities. The Gresham Central transit center (located north of the study area) serves as the main transit center for the study area, at present. Only one TriMet route (Route 84) operates within the Springwater study area. It only briefly enters the northeast corner of the study area near the intersection of SE 282nd Avenue and Orient Drive. Route 84 operates between the Gresham Transit Center and the communities of Boring and Kelso.

The Gresham Central transit station has several additional fixed-route bus services and a light rail station. The bus routes that are most relevant to the study area include:

- Route 9, approximately 15-minute peak-hour headways between the Gresham Transit Center and Portland City Center
- Route 80, approximately 40-minute peak-hour headways between the Gresham Transit Center and Troutdale
- Route 81, approximately 40-minute peak-hour headways between the Gresham Transit Center and Troutdale
- Route 82, approximately 60-minute peak-hour headways between the Gresham Transit Center and the Rockwood Transit Center.

In addition, Sandy Area Metro (SAM) runs a bus with a 30-minute peak-hour headway and a 60-minute off-peak headway along Highway 26 between Sandy and the Gresham Transit Center. However, this service does not currently stop in the Springwater study area.

TRANSPORTATION SYSTEM ALTERNATIVES ANALYSIS

Transportation networks were developed for the three land use alternatives developed during the concept planning process¹. The peak hour trips generated with full development of the Springwater area were estimated to range from 9,200 for Alternative A up to 10,800 vehicle trips for Alternative C. These estimates assumed nominal transit services for this area, and could be further reduced with improved transit services or travel demand management programs.

¹ The Concept Planning process and the three Concept Plan scenarios are described in more detail in the Springwater Community Plan Report Summary (Springwater Community Plan Volume I)

The general features of the initial circulation networks for the three scenarios included:

- Alternative A: A central grade-separated interchange on US 26, with two parallel highway overcrossings roughly collinear with Orient Drive-Butler Road and Rugg Road-Stone Road. The local street patterns maintained the north-south grid layout commonly observed in built neighborhoods to the north.
- Alternative B: Two at-grade connections on US 26, with one grade-separated overcrossing near Stone Road. The local street grid rotated 45 degrees to mirror the orientation of US 26.
- Alternative C: A northern grade-separated interchange on US 26, roughly collinear with Orient Drive, with a new connection along Telford Road to Hogan Drive. Two parallel highway overcrossings to US 26 were located further southeast.

These networks formed the basis for the model networks with the year 2025 travel forecasts. The nature of traffic controls for the at-grade intersection and ramp terminals was not specifically evaluated for each of the scenarios.

Future Traffic Forecasts

Metro's regional 2025 travel demand forecast model (recently used for the RTP update) was determined to be the most appropriate model for this project. The Financially Constrained model scenario was adjusted to reflect the mid-level land use alternative for Springwater (Alternative B), and then Metro modeling staff re-ran the trip distribution model to update new travel patterns in the Springwater area. In addition, the model was refined to provide a greater level of street network detail in the Springwater area for a future base condition as well as the three conceptual street networks (with their associated land use patterns). The land use assumptions applied in the travel demand forecasts for Springwater are summarized for households (HH), retail employment (RET) and other employment (OTH), as shown in Table 5.

Exhibit D – Amendment to Volume 4 – Transportation System Plan

Table 5: Springwater Land Use Assumptions for Travel Forecasts

Transportation Analysis Zone	Households	Retail Employment	Other Employment
542	81	0	9
662	19	0	0
663	19	0	144
690	0	0	1,870
691	0	0	608
1300	70	0	0
1301	175	0	0
1302	334	0	0
1303	386	128	1,669
1304	510	109	415
1305	144	0	681
1306	0	0	2,544
1307	0	0	324
1308	0	0	1,431
1309	0	0	376
1310	0	0	751
1311	0	0	233
1312	0	89	1,602
1313	0	0	1,385
1314	0	0	1,121
1315	5	0	374
1316	61	0	8
1317	272	69	897
1318	41	0	0
Totals	2,115	395	16,443

**SPRINGWATER MASTER
URBANIZATION PLAN**

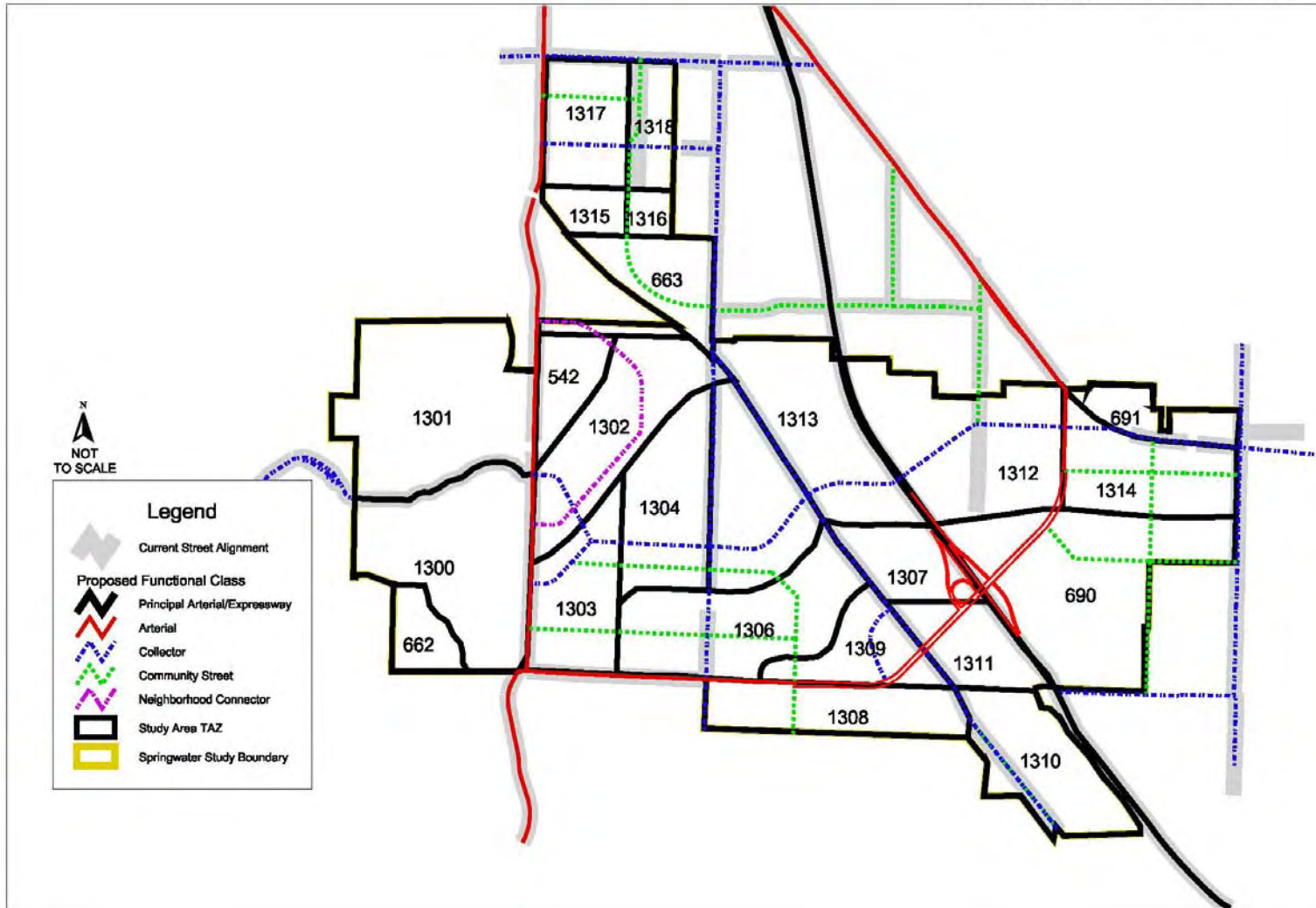


Figure 1. Springwater Transportation Analysis Zones (TAZ)

The 2025 travel forecasts showed significantly different travel patterns than is currently typical for this area of Gresham, primarily because of future employment centers in Springwater and in Damascus to the south in Clackamas County. The model analysis found a significant proportion (about two-thirds) of Springwater traffic traveling to and from areas south of the county line (including southeast and southwest) versus about one-third to and from the north. Model volumes were “post-processed” to develop intersection turn movement volumes for each of the alternatives.

Alternative Comparison

The three land use and circulation alternatives were compared based on expected vehicle trip generation, system capacity analysis, preliminary cost estimates for street improvements and general observations.

A further refinement was made in the estimation of trip generation to account for the effects of truck traffic within Springwater. Truck trips were determined using data obtained from studies conducted by Caltrans in the 1980’s. Truck trips were calculated as a percentage of total trips by ITE land use category. Truck activity ranged from a low of 1 percent for office uses up to 13 percent for warehousing and distribution centers. Table 6 summarizes the number of truck trips estimated for each scenario. While truck trips vary by up to 65 percent between scenarios, this represents a difference of less than 200 evening peak hour trips.

Table 6: Relative Peak Hour Vehicle Trip Comparison Between Scenarios

Scenario	Base Trips	Truck Trips	Length Adjusted Trips
A	9,254	466	9,496
B	9,950	399	10,180
C	10,723	279	10,954

Length adjusted trips are intended to account for the fact that trip length varies by land use type. For example, work related trips are typically longer than school and shopping trips. Trip length factors derived from the *National Personal Transportation Survey* were applied to estimated trip generation by land use category. Residential trips formed the baseline trip length, with work, shopping and other trips assigned factors relative to those trips. Length adjusted trips do not vary significantly, in relative proportion, to base trips. Therefore, this adjustment does little to clarify the differences between scenarios.

Intersection level of service was calculated at study intersections using Highway Capacity Manual methodology². In addition, the general system performance of the major arterials and highways were reviewed for each road segment within the study area. The cumulative effects of planned growth through East Multnomah and Clackamas County (including Springwater, Damascus, Boring, and Pleasant Valley) are reflected in the system impacts described below. Key highlights of the level of service analysis and system review include the following:

- The off-site intersections along Hogan Drive and Burnside Road between Division and Palmquist fail for all three alternatives. Major system improvements are needed in this area (corridor and/or intersection level) regardless of the alternative selected for Springwater.
- Several intersections fail along Hogan Drive between Division Street and the Springwater study area in each alternative. The intersection of Butler/Hogan is better (LOS E) in Alternative A than in the other alternatives.

² Highway Capacity Manual, 2000, Operations Method.

- Several intersections fail along US 26 (outside of the Springwater area) regardless of the alternative.
- Alternative B does not include an interchange with US 26 in the Springwater study area, but does include two at-grade intersections. Preliminary analysis indicates that these intersections would theoretically work acceptably, either as at-grade signalized intersections or as roundabouts, but only with three through travel lanes on US 26. Three-lane roundabouts are very rare (some can be found on the east coast and in Europe) and are not practical or feasible for this location. Additional turns lanes would also be required at both intersections, even with additional travel lanes on US 26.
- Hogan (as three lanes) operates over capacity within the study area for each of the alternatives. A five-lane section will be needed on Hogan Drive within the study area, possibly extending as far south as ORE 212. This type of improvement is already in the long-range plans adopted by the Gresham and Multnomah County. Further south, Clackamas County has programmed improvements three lanes for Hogan Drive, but, as part of the Damascus Community Plan development, is re-evaluating those needs, and they are expected to show need for a five-lane street section.
- US 26 operates the best under Alternative A within the study area. Under Alternative A US 26 does not exceed capacity for any link to the study area. Under Alternatives B and C, US 26 does exceed capacity on some links.
- All north-south routes, with the exception of 257th Avenue are approaching or exceeding their capacity between I-84 and Powell Boulevard for most or all of their southbound links.
- East-west routes generally operate within planned capacity throughout the Gresham/East County area.

Preliminary, planning level cost estimates were developed for each alternative for arterial and collector roadways within the study area. All arterials and collectors were assumed to be three-lanes wide with a 74 foot right-of-way, with the exception of Hogan Drive, which was assumed to be five-lanes wide with a 100 foot right-of-way. Subsequent to the alternatives analysis, the appropriate street cross-sections were determined to best service the plan area, and this included several arterial sections with more than three lanes. These right of way widths and associated roadway costs include Green Street swales where appropriate. Roadways within and along the periphery of the Springwater Study Area were included in the cost estimates. Table 7 summarizes the costs for each alternative.

Table 7: Preliminary Arterial/Collector Roadway Costs by Alternative (in Millions)

Functional Classification	Alternative A	Alternative B	Alternative C
Arterial	\$46.3	\$43.8	\$40.6
Collector	\$49.4	\$50.0	\$48.0
Interchange/Overcrossing/Roundabout	\$20.0	\$4.5	\$20.0
Total	\$115.7	\$98.3	\$108.6

Alternative B appeared to be the least expensive, but the cost differences were within the margin of error for typical planning-level costs. Alternative B is less expensive, primarily because no interchanges are included in that alternative and the costs of widening US 26 to three lanes are not included in these cost estimates. Also, additional considerations will need to be addressed including the need and/or desire to limit access to US 26 since Alternative B requires at-grade access.

Based on the previous analysis of the alternatives, it was determined that none of the alternatives was clearly superior in terms of the relative impacts to the regional transportation system, or the extents and

functionality of the on-site circulation system. Therefore, it was recommended that a hybrid circulation system be developed to support the preferred land use plan that incorporates the best parts of the circulation alternatives. Some general observations that were considered in formulating the preferred alternative circulation system include:

- Alternative A provides only one east-west arterial, while Alternatives B and C each provide two. Typically arterials are spaced at approximately one-mile intervals. The core portion of the Springwater study area is about one-mile in the north-south direction and about 2 ½ miles in the east-west direction. Either one or two east-west arterials could function adequately, given the density and location of development within Springwater.
- Alternative C locates the interchange with US 26 toward to the north end of Springwater, providing highway access closer to the urban area where demand is anticipated. Alternative A provides US 26 interchange access centrally located to Springwater, but does not functionally serve urban development further north.
- Alternative B does not include interchange access with US 26, thereby slowing traffic (e.g., roundabouts) or stopping traffic (e.g., traffic signals) on US 26 as it heads south out of the study area.
- Regardless of the alternative, additional capacity is needed for north-south travel through Gresham and East County, either in the form of widening existing facilities (i.e., US 26) or by providing additional capacity through access control and/or new routes.
- Since so much traffic is traveling to and from the south, additional inter-regional capacity is needed between Springwater and areas south (i.e. Damascus-Boring).

RECOMMENDED TRANSPORTATION SYSTEM PLAN

Motor Vehicle Plan

The motor vehicle plan for Springwater connects employment and residential neighborhoods to the regional arterial and highway facilities to provide safe and convenient access for future residents and workers. The existing arterial facilities such as Palmquist Road, Orient Drive, and 242nd Avenue form the framework for travel around and through this area. A new arterial is recommended to provide east-west circulation within the community, and to provide access to US 26.

The new arterial route begins along existing Orient Drive, then bends south to form a new four-way intersection within Springwater. This functional change will help to reduce travel speeds on Orient Drive to be more compatible with existing residential uses. A new arterial would continue south then southwesterly across US 26 to connect to Rugg Road and 242nd Avenue. This new arterial route is expected to be the primary link for employment circulation within Springwater, and it is also expected to serve regional traffic for connections to and from US 26. The other new arterial crosses US 26 to the north, and connects to Telford Road and the middle of the Village Center area west of 252nd Avenue.

The new residential neighborhoods east of 242nd Avenue include the Village Center area opposite to Butler Road. This area will be served by a series of collector streets and one neighborhood connector, as shown in Figure 1. The looping neighborhood connector alignment reduces the number of stream crossings, and still provides convenient connections from the residential neighborhoods to 242nd Avenue and the Village Center. The proposed functional classifications are consistent with the adopted Gresham Transportation System Plan. The exception is the designated Neighborhood Connector route, which has the same design profile as a Community Street, but allows for future traffic calming measures to be deployed, as the need arises.

SPRINGWATER MASTER URBANIZATION PLAN

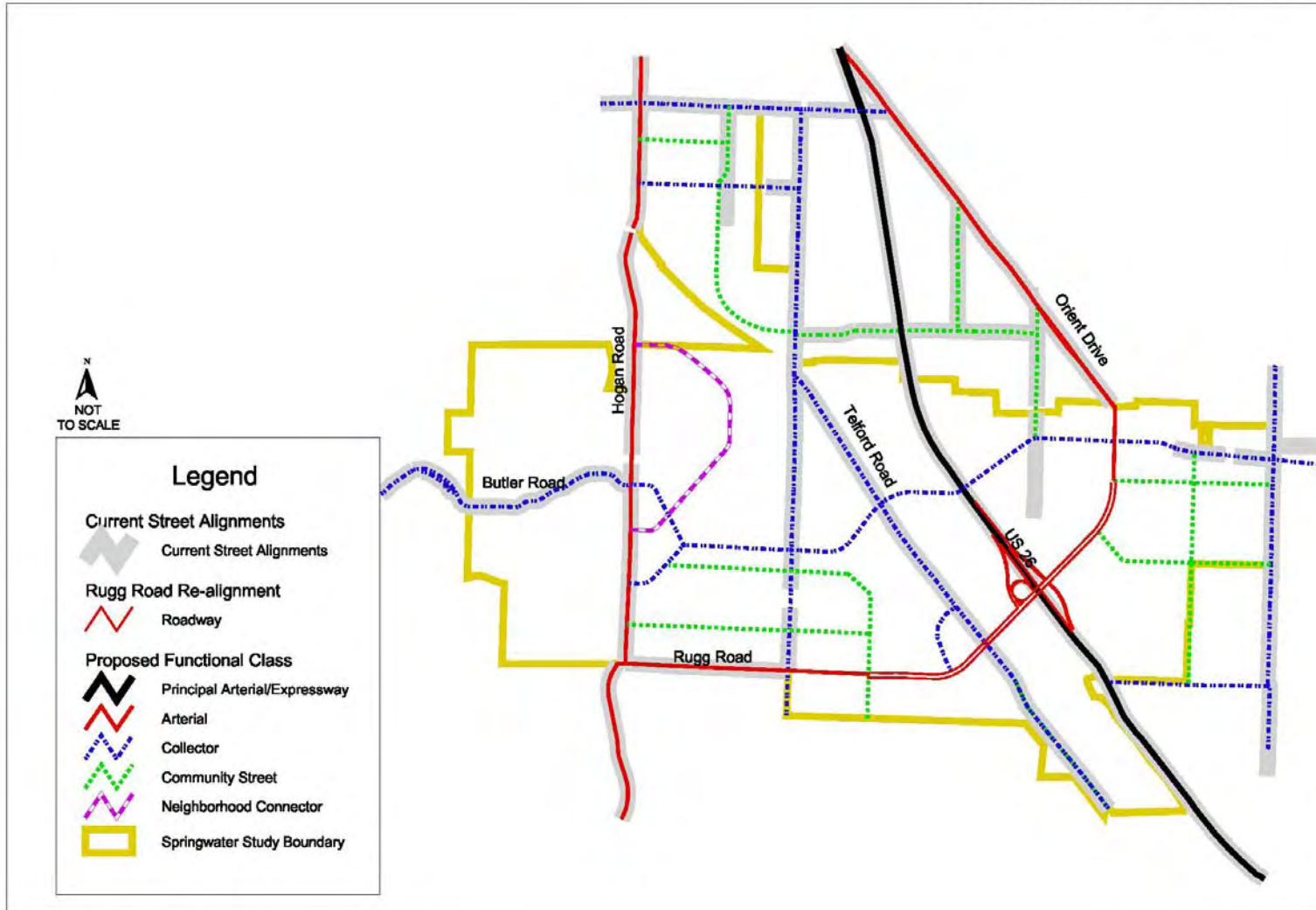


Figure 2 – Proposed Functional Classifications

Transit Plan

Current transit plans do not extend to the Springwater community, and any new service will require an amendment to the existing TriMet and Metro transit plans for this area. In order to provide convenient access to most of the employment and residential areas internal and external to the Springwater expansion area, three transit routes have been identified. Each of these routes will offer a different level of service to transit riders based on the City of Gresham's transit typology.

Primary routes serve as regional trunk lines and provide high quality transit service between community and employment centers and the rest of the region. A priority within this corridor is to ensure adequate and convenient pedestrian and bicycle access to stops and transit preferential treatments such as signal preemption, bus shelters and curb extensions. This route should provide 10-15 minute service between transit vehicles during peak traffic hours and no less than 30 minutes between transit vehicles during non-peak times. The primary route proposed with the Springwater plan travels north/south via Hogan Road/242nd Avenue and will connect the Springwater study area with the MAX light rail line, Mt. Hood Community College and other transit opportunities in Gresham to the north, and the Damascus-Boring area to the south. Depending on ridership levels and transit funding in the region, this corridor is a likely candidate for future high capacity transit services.

Higher capacity transit services could increase the attractiveness of using public transit for Springwater residents and employees. This type of service would be provided by combinations of larger vehicles, less time between vehicles, and higher travel speeds that could make the transit trip more competitive with the conventional automobile trip. The higher capacity transit services could include bus rapid transit, a separated bus way, or street car facilities. Each of these types of services would have specific needs for expanded stations and platforms compared to fixed-route bus service. They also have higher priority for right-of-way at arterial intersections to reduce travel delays and maintain schedule reliability.

Secondary routes connect higher-density neighborhoods to light rail, primary transit routes, and centers. These routes are typically shorter in length than primary routes and are designed to serve mainly Gresham and the rest of east Multnomah County. Peak hour traffic service should be 10-15 minutes between transit vehicles and off-peak service should be between 30-60 minutes between transit vehicles. The proposed Springwater secondary route will provide a loop pattern around the study area, traveling on Kane Road, Orient Drive, Rugg Road and terminating in the Village Center.

The third layer of service, neighborhood circulation, provides local service connections between lower-density neighborhoods, employment centers and higher-frequency transit routes. These routes may be serviced by shuttle buses or vans and may include paratransit. Paratransit service enhances access to the regular fixed bus routes by serving residences and businesses within 3/4 – mile from the existing designated route. Peak hour traffic service should be 15-30 minutes between transit vehicles and off-peak 30-60 minutes between transit vehicles. The neighborhood circulation route proposed for Springwater will bisect the study area by traveling along Butler Road to Pleasant Valley and other points west of the study area including Foster Road. Extending this service across US 26 into the rural eastern section of the study area will provide more coverage within Springwater with a minimum service investment. Existing fixed route bus service in this area is provided by Route 84, which also provides services in the rural lands east of 282nd Avenue. TriMet may modify the services provided by this existing route as new routes are provided within the Springwater area. Any route modifications will be subject to further study by TriMet.

Proposed transit routes are shown in Figure 3. In addition to the proposed routes described above, Sandy Transit currently offers an express bus service along US 26 with 30-60 minute frequency during the weekday. This service does not currently have any local stops, but could possibly be amended to allow for local stops and circulation in Springwater in the future.

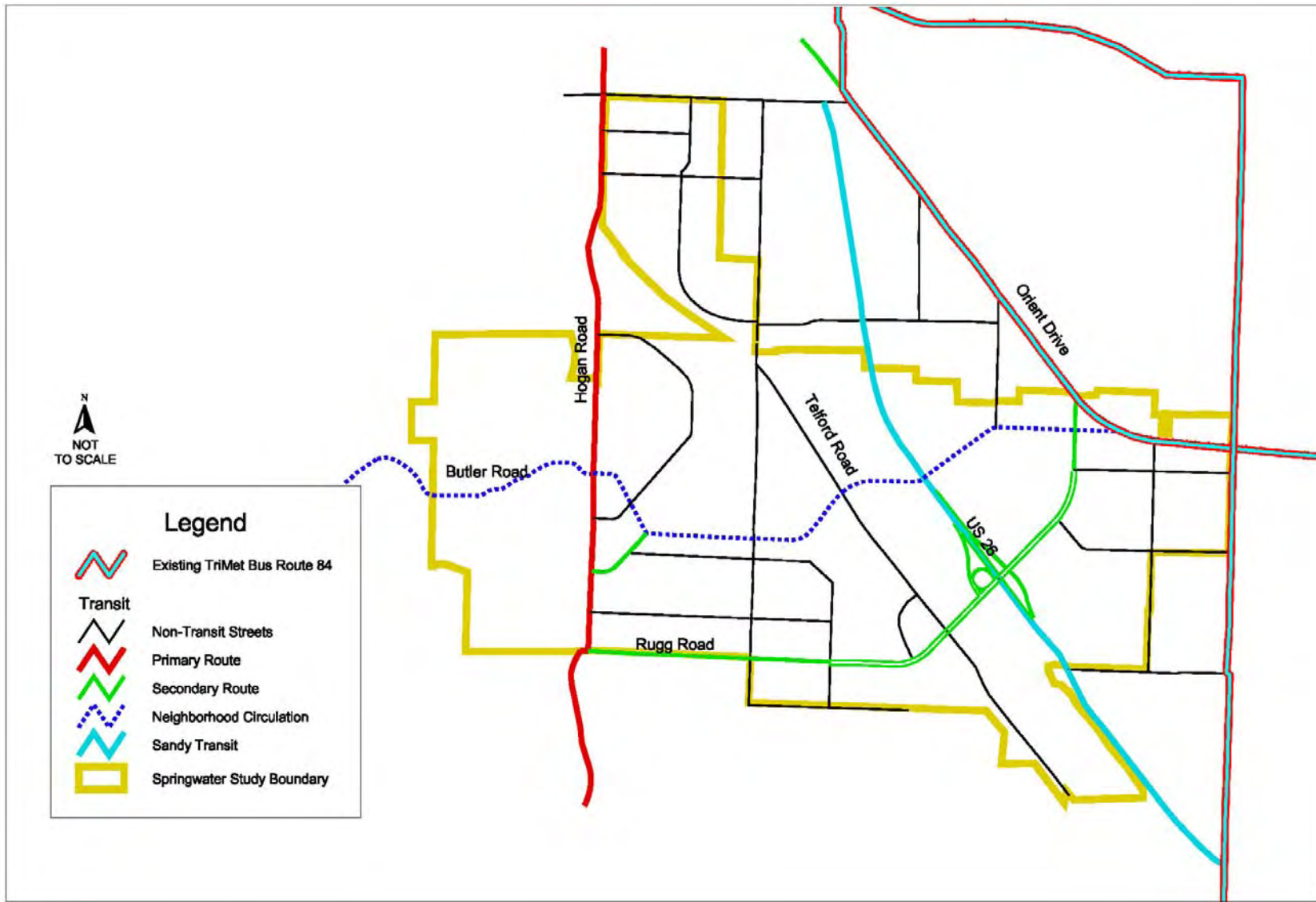


Figure 3 – Proposed Transit Routes

Bicycle and Pedestrian Plan

The design for non-motor vehicle travel shares all the Springwater roadways, and uses specific off-street facilities for exclusive connections to the many greenways, open spaces and a regional trail system. The proposed Bicycle and Pedestrian Plan, illustrated in Figure 4, shows the arterial and collector system within Springwater, and one alternative for the trail system. The final trail alignment east of US 26 has not been selected. Two trail options – one adjacent to streets and one adjacent to streams – are show in more detail in the Public Facilities Plan and will undergo further evaluation by the City. The costs for off-street trails adjacent to streets have been included within the Parks Master Plan for Springwater, and they are not specifically identified within this TSP. If the recommended trail alignment includes trails along multiple stream corridors east of US 26, the cost of the trail improvements may change from the costs identified in the Public Facilities Plan.

Figures 5a and 5b show typical cross sections for different street types in Springwater. All of the community streets, collector streets and arterials within the plan have provisions for either on-street bicycle lane facilities, or parallel off-street trails that provide bicycle riders a convenient route to various destinations. As in Pleasant Valley, all streets also have provisions for Green Street swales, with the exception of the streets that are anticipated for use in commercial office areas with high turnover of on-street parking. Figure 5b shows swale medians on regional facilities, however swales could also be located adjacent to sidewalks depending on the specific needs of the adjacent properties. Additional details regarding the bicycle and pedestrian trail system are provided in the Public Facility Plan and Master Plan for Parks, Trails, and Open Space. Similarly, all of the streets within Springwater include sidewalks, either curb tight (for local streets) or separated from the roadway by planter strips The design of street spacing within the residential areas corresponds with the regional spacing requirements in the RTP under Title 6.

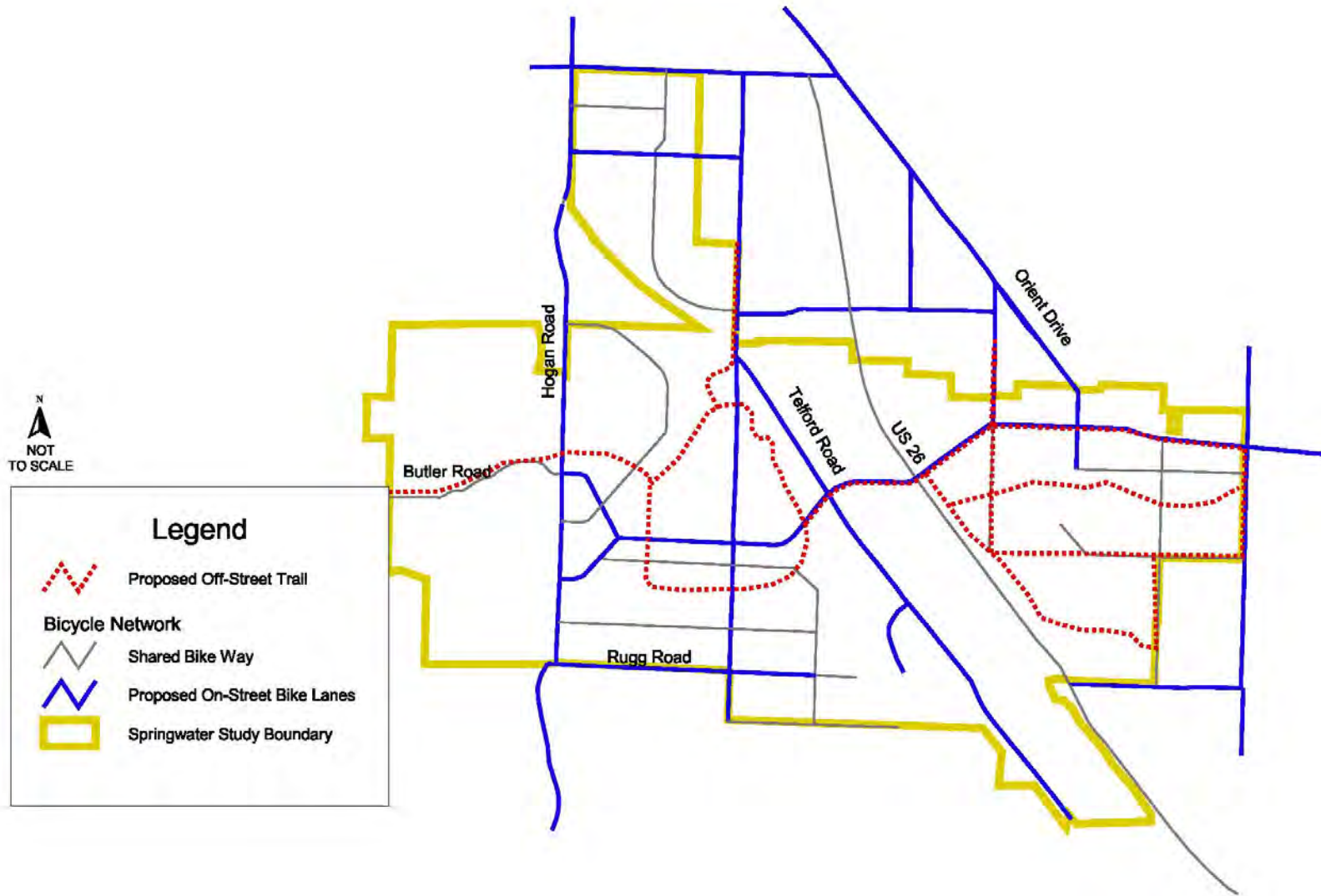


Figure 4 – Proposed Bicycle and Pedestrian Plan

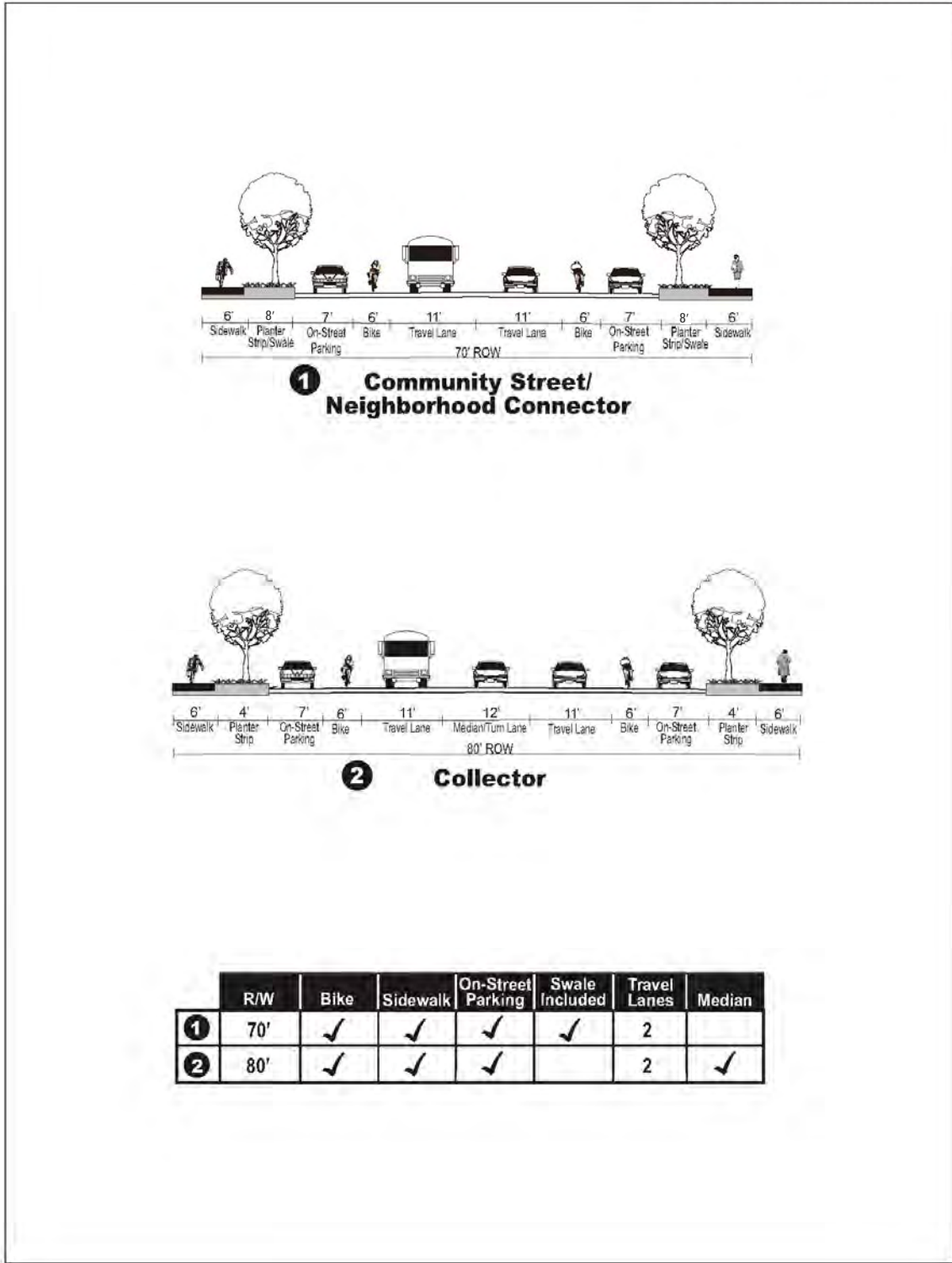
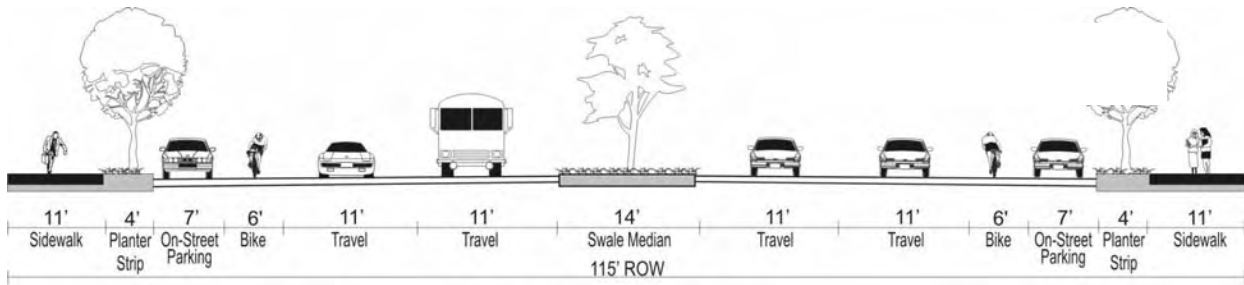
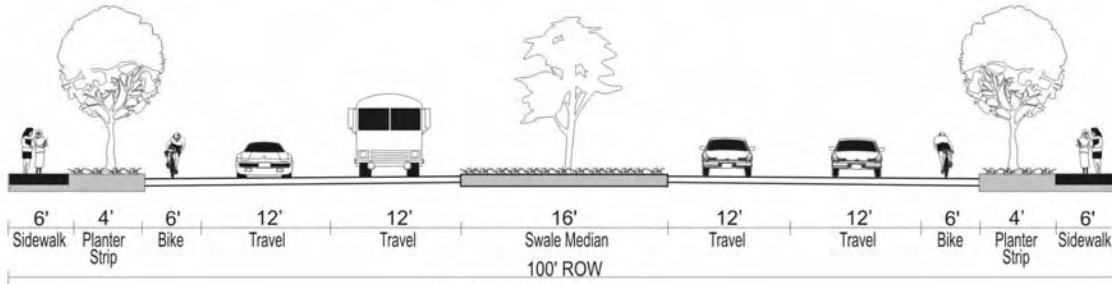


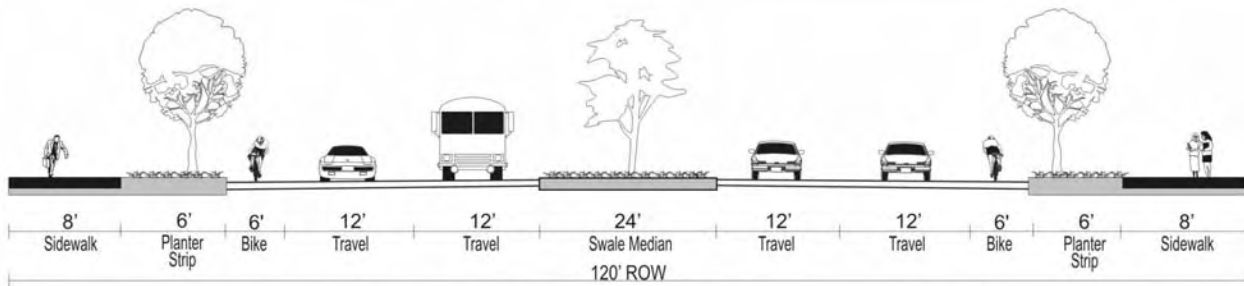
Figure 5a. Springwater Street Cross Sections



3 Boulevard



4 Arterial



5 Principal Arterial/Expressway*

	R/W	Bike	Sidewalk	On-Street Parking	Swale Included	Travel Lanes	Median
3	115'	✓	✓	✓	✓	4	✓
4	100'	✓	✓		✓	4	✓
5	120'	✓	✓		✓	4	✓

* Expressway cross section will be based on the Oregon Department of Transportation's Highway Design Manual.

Figure 5b. Springwater Street Cross Sections

Freight Master Plan

To accommodate planned vehicle movement through Springwater, the Gresham's TSP and the Regional Transportation Plan should be amended to delete the planned connection between Hogan Drive and US 26 that was originally envisioned as part of the Mt. Hood Parkway project. In addition, the planned designation of this route as a freight route should be amended to terminate at Powell Boulevard. This segment represented the most southern portion of the planned 242nd Avenue freight route from US 26 and I-84 in conjunction with the County's 242nd Avenue extension project to I-84 to provide an alternative freight route between US 26 and I-84. That project has been suspended, and the roadway connection within this study area is not included in the Springwater Concept Plan. The remaining segments of the 242nd freight route, from Burnside Road to Glisan Street, will continue to provide service to the I-84 interchange at 207th Avenue. On-going studies in Clackamas County may recommend amending the freight route designation for 242nd Avenue south of the city limits to Highway 212.

In addition to the regional freight route services, the street system within Springwater has been developed to provide convenient freight vehicle movements to local destinations. Local freight travel is best facilitated by adhering to appropriate functional class street cross-sections, appropriate curb radii at intersections and driveways, public street and access spacing standards, efficient traffic control plans, and by maintaining adequate service levels during peak travel hours of the day. The primary freight routes for local service will be provided to and from US 26 at the planned interchange near 252nd Avenue, then distributed to local destinations via arterials and collector streets. These elements have been incorporated into the Springwater Community plan.

Other Travel Modes

Airport

There is no airport or airfield within the study area. The closest airport activity is the Troutdale Airport, which provides general aviation services, but no commercial airline carrier services.

Rail

There is no freight or passenger rail facilities within the planning area. The Springwater Trail is located on a former freight line right-of-way, but there is no active freight services within this corridor.

Pipeline

There is one high-pressure gas line within the study area along Hogan Drive – 242nd Avenue corridor. Appropriate setbacks from the gas line and construction activity around it should be maintained. Refer to the Gresham TSP for details on the high-pressure gas line, and the planned water service line from the Bull Run reservoir.

IMPLEMENTATION PLAN

The Springwater area has several key implementation issues associated with incorporating the Springwater Plan into the City of Gresham plans and ordinances, staging infrastructure improvements to US 26, and linking to existing County and State roadway facilities. To resolve these issues, as part of the adoption phase of the Springwater Community Plan efforts, the City's transportation system plan will need to be amended to include:

- Recommended changes to the street functional class map
- Recommended street cross-sections for the Springwater area
- Recommended amendments to the transportation plans for each travel mode (motor vehicle, transit, bicycle, pedestrian)

- Funding program needs for the City of Gresham and the addition of transportation improvements to the project list..

These elements are described in more detail later in this TSP.

New or modified street connections to County facilities (e.g., 242nd Avenue, 282nd Avenue) will require compliance with appropriate spacing and design standards. One specific consideration for streets on the Urban Growth Boundary edge, especially 282nd Avenue, is that urban improvements will be built on the Springwater site only. The rural edge of these street facilities will be left intact on the side fronting the rural protect lands.

US26 Improvements

This section summarizes findings from the Springwater US 26 Concept Design and Access Study prepared under a separate planning document (included in the Reference Documents). The study focused on alternative access concepts to US 26 to support Springwater as it develops over the next twenty years. The development assumptions and travel forecasting process was coordinated with the Master Plan development process so that the same assumptions and methods were applied for both studies. The 2025 travel forecasts were made using the same Metro model that was applied for Springwater. More detail was provided to describe the various network alternatives used in this study, but, overall, the same base model was applied. A wide range of alternative highway connections were investigated for Springwater, including at-grade intersections controlled by traffic signals, and several variations of grade separated interchanges. The alternatives were developed with consideration of applicable mobility, safety and design standards that are adopted by ODOT and the City of Gresham. One of the critical elements of this concept design process considered the minimum spacing between adjacent traffic signals or interchanges and the proximity to major environmental constraints , so that the proposed alternatives were consistent with standards, and generally considered feasible to construct. The concept design alternatives were evaluated using 2025 traffic conditions to assess how successful they performed relative to the applicable automobile and freight mobility standards. A comparative matrix evaluation showed the relative merits and impacts for each alternative, in terms of compliance with standards, performance and potential impacts to the environment.

The recommended plan alternative for Springwater was a new US 26 interchange at the southern arterial, which connects to Rugg Road on the west and Orient Drive on the east. Prior to the construction of the interchange, the necessary environmental reviews, facilities design and approval and project funding need to be completed. The initial concept design will be further refined to address any identified impacts or issues identified through these further studies. Interim steps for access and circulation to and from US 26 in the Springwater area were identified in the following phases. Where appropriate, potential thresholds for development triggers in Springwater have been identified, however, a specific evaluation will be required at the time of development application to confirm the need and timing of interim improvements.

POTENTIAL US 26 CORRIDOR CONSTRUCTION PHASING

The potential construction phasing of improvements to the US 26 corridor and Springwater roadway network must support the transportation demand as the Springwater community develops. In general the US 26 corridor will be developed from north to south and will tentatively utilize Proposed Collector A as a temporary connection to US 26 until the transportation demand supports building the Proposed Arterial B interchange as the permanent connection to US 26. Figure 5-6 illustrates the following potential construction phasing for the recommended US 26 corridor concept that is described in more detail in this section:

- Phase 1A: Stop Control at Proposed Collector A

- Phase 1B: Traffic Signal at Proposed Collector A
- Phase 2A: Build Proposed Arterial B Interchange
- Phase 2B: Build Proposed Collector A Overcrossing

The phasing of access improvements to US 26 will need to be addressed at a higher level of detail in the NEPA process and preliminary engineering. This additional analysis may lead to changes in the phasing shown in this report.

Phase 1A: Stop Control at Proposed Collector A

Phase 1A includes the following potential construction elements:

- Construct Proposed Collector A, including a bridge over Johnson Creek, as an at-grade intersection with US 26 just south of the wide median on US 26. This also includes an at grade intersection with Telford Road and the Springwater Trail.
- Install stop signs on the Proposed Collector A approaches to the US 26/Proposed Collector A intersection. Use the lane configuration illustrated in Figure 5-6, which includes one dedicated left and right turn lane and two through lanes on both US 26 approaches as well as one dedicated left turn lane and one shared through/right lane on both Proposed Collector A approaches. An additional dedicated left turn lane and through lane should be added to both Proposed Collector A approaches for the installation of a traffic signal (see Phase 1B) since this geometry will maximize the life span of the intersection.
- Install underground electrical conduit to accommodate the installation of a traffic signal at the US 26/Proposed Collector A intersection (see Phase 1B).
- Close the US 26/267th Avenue intersection upon the completion of the US 26/Proposed Collector A intersection.
- Keep the US 26/Hillyard Road and US 26/Stone Road intersections open.

Phase 1B: Traffic Signal at Proposed Collector A

Phase 1B includes the following potential construction elements:

- Construct a traffic signal at the US 26/Proposed Collector A intersection. Maintain the lane geometry constructed during Phase 1A and open the additional dedicated left turn lane and through lane on both Proposed Collector A approaches.
- Construct visual indicators on US 26 to cue motorists to the presence of a traffic signal. Specific design elements will be determined by ODOT during the design of the traffic signal and may include vertical elements such as raised curbs and roadway illumination that provide a more urban feel.
- Keep the US 26/Hillyard Road and US 26/Stone Road intersections open.

Phase 2A: Build Proposed Arterial B Interchange

Phase 2A includes the following potential construction elements:

- Construct Proposed Arterial B and the interchange at US 26. This also includes grade-separation at Telford Road and the Springwater Trail and a bridge at Johnson Creek. Install traffic signals at the ramp terminals if they are warranted within three years of the interchange completion. Install stop signs at the ramp terminals if traffic signals are not warranted.
- Keep the US 26/Stone Road intersection open during construction of the interchange for as long as feasible.
- Keep the US 26/Hillyard Road intersection open during this phase.
- Maintain the traffic signal at the US 26/Proposed Collector A intersection.

Phase 2B: Build Proposed Collector A Overpass

Phase 2B includes the following potential construction elements:

- Close the US 26/Proposed Collector A, US 26/Hillyard Road, and US 26/Stone Road intersections at the completion of Phase 2A. These intersections will no longer meet access spacing standards once the interchange is operational.
- Remove the traffic signal at US 26/Proposed Collector A.
- Realign southbound US 26 at the north end of Springwater to reduce the median separation between southbound and northbound US 26 to 16 feet, which is the current ODOT standard for US 26. By saving this realignment until the last phase it provides more flexibility for detours, lane closures, or construction staging during the earlier phases.
- Construct the Proposed Collector A overcrossing at US 26.

It will be important for development to recognize the shift in access over time within Springwater. During the early years, primary access will be to and from the northern Collector; however, eventually, this connection to US 26 will be close (Phase 3), and these circulation replaced by the new interchange located at the southern Arterial.

Amendment to Street Functional Class Map and Plan Designations

The city street designations in the Gresham Transportation System Plan were applied to the Springwater Master Plan area. The street design type designations and cross-section elements were taken from the Pleasant Valley Plan area, since it is the most recent new development that incorporates Green Street components into new street designs. The proposed Street Functional Class Plan for the Springwater Master Plan area was illustrated in Figure 1.

The key arterial connections for Springwater include US 26, 242nd Avenue, Orient Drive, Kane Road and Rugg Road. The existing alignment of Orient Drive changes to create a new four-way intersection just east of 267th Avenue. This change is intended to separate urban travel to and from the US 26 connections versus rural travel between destinations in rural East County areas. Other aspects of the proposed functional class plan include:

- Orient Drive changes designations from arterial to collector at the new four-way junction.
- Two crossings to US 26 are shown; one is a collector facility and the other is an arterial facility. The north collector changes to a collector after crossing Telford Road, and then continues westerly through the proposed Village Center to its terminus at 242nd Avenue. The southerly crossing to US 26 connects Rugg Road to new Orient Drive junction.
- A neighborhood connector route is shown as a loop road east of 242nd Avenue north of Butler Road through the residential neighborhood.
- Hillyard Road is upgraded to a Community Street between 262nd Avenue and Anderson Road (267th Avenue). This change is recommended because SE 262nd Street is not extended as a full street into the Springwater Master Plan area, because it is too close to the northerly US 26 crossing for a standard intersection. Therefore, the designation of 262nd Street south of Hillyard Road would be changed to local street within the city limits.

Street Cross-sections

Figures 5a and 5b illustrated the street cross-sections for these facilities. The illustration shows the right-of-way requirements, and the composition of street elements included within each profile. The cross-sections essentially are the same as shown in the city Transportation System Plan with two amendments. The section have been modified to explicitly allow drainage swales in addition to conventional storm water drainage. Also, a new designation has been added for Neighborhood Connector, which is the same size as a standard Community Street, but it allows for traffic calming measures, as appropriate. All of the streets are expected to provide on-street bicycle facilities and adjoining sidewalks, however, others may also include on-street parking, center medians, or green street swale areas. Outside of the Village Center area, where on-street parking activity is high, it is appropriate and possible to have swales alongside the street curbs. For cases where off-street trails are indicated on the Local Street Connectivity Plan (see Figure 7), the need for on-street bicycle facilities is optional.

Amendment to Street Project List

The Gresham TSP identifies long-range improvement projects that are expected to be built and operational within the plan year period to serve planned growth. New or modified streets within the Springwater area are identified for additions to this list. The street projects are labeled by segment number on Figure 6, and summarized in Table 8 below. The functional class identifies the type of street cross-section that is to be constructed for each of the roadways. The street cross-sections are adapted from the Pleasant Valley plan area, since they incorporate Green Street elements that help to reduce the stormwater runoff.

The total estimated cost for all arterial, collector, and community street improvements is \$165.5 million. A portion of this total cost would be built as development occurs through exactions of property and frontage road improvement requirements. The community streets needs represent approximately \$50 million of the above total. New or upgraded bridges represent approximately \$29 million of the total. All of these projects would be funded and constructed by either the City of Gresham or local development as growth occurs.

Table 8: Springwater Street Projects

New Roads									
Num	Street	From	To	Functional Class	Lanes	Length	Cost	Bridge	Bridge Cost
1	Rugg Road Ext.	Orient Drive	US 26	Arterial	4	3,100'	\$9,116,000	1	\$3,040,000
2	Rugg Road Ext.	US 26	252nd Avenue	Arterial	4	4,500'	\$20,385,000	3	\$10,080,000
3	Rugg Road	252nd Avenue	242nd Avenue	Arterial	4	2,700'	\$6,183,000		\$0
4	4	242nd Avenue	252nd Avenue	Collector	2	2,600'	\$4,108,000		\$0
5	252nd Avenue	Palmquist Road	10	Collector	2	7,200'	\$11,376,000		\$0
6	252nd Avenue	10	Rugg Road	Collector	2	1,900'	\$3,002,000		\$0
7	7	242nd Avenue	9	Collector	2	1,400'	\$4,532,000	1	\$2,320,000
8	8	242nd Avenue	9	Collector	2	1,100'	\$1,892,000		\$0
9	9	7	252nd Avenue	Collector	2	1,800'	\$3,096,000		\$0
10	10	252nd Avenue	Telford Road	Collector	2	1,600'	\$4,848,000	1	\$2,320,000
11	11	Telford Road	Orient Drive	Collector	4	4,300'	\$6,794,000		\$0
12	12	Palmquist Road	4	Community Street	2	1,300'	\$1,794,000		\$0
13	13	4	252nd Avenue	Community Street	2	3,200'	\$4,416,000		\$0
14	14	242nd Avenue	242nd Avenue	Neighborhood Connector	2	4,400'	\$7,992,000	1	\$1,920,000
15	267th Avenue	Springwater boundary	16	Community Street	2	1,700'	\$2,346,000		\$0
16	16	15	Rugg Road	Community Street	2	1,300'	\$3,714,000	1	\$1,920,000
17	17	Rugg Road	282nd Avenue	Community Street	2	2,500'	\$3,450,000		\$0
18	18	Orient Drive	17	Community Street	2	1,200'	\$3,576,000	1	\$1,920,000
19	19	20	Stone Road	Community Street	2	2,600'	\$5,508,000	1	\$1,920,000
20	20	Rugg Road	9	Community Street	2	1,900'	\$2,622,000		\$0
21	21	8	252nd Avenue	Community Street	2	1,500'	\$2,070,000		\$0
22	22	252nd Avenue	26	Community Street	2	2,000'	\$4,680,000	1	\$1,920,000
23	23	26	Rugg Road	Community Street	2	650'	\$2,817,000	1	\$1,920,000
25	25	20	252nd Avenue	Community Street	2	1,400'	\$1,932,000		\$0
26	26	252nd Avenue	20	Community Street	2	2,600'	\$3,588,000		\$0
Community Street Subtotal (May be built by development)						28,250'	\$50,505,000		
Other Road Subtotal							\$75,332,000		
New Roads Total						60,450'	\$125,837,000	12	\$29,280,000
Existing Roads									
27	242nd Avenue	Palmquist Road	Rugg Road	Arterial	4	9,300'	\$18,228,000		
28	Telford Road	Springwater boundary	252nd Avenue	Collector	2	8,800'	\$13,904,000		
29	Palmquist Road	242nd Avenue	252nd Avenue	Collector	2	2,600'	\$4,108,000		
30	282nd Avenue	Springwater boundary	20	Collector	2	2,200'	\$3,476,000		
31	US Hwy. 26	267th Avenue	--	Interchange			\$24,500,000		
Existing Roads Total						22,900'	\$64,216,000		
TOTAL						83,350'	\$190,053,000		
All bridges assumed 200' long @ \$200 per s.f.									

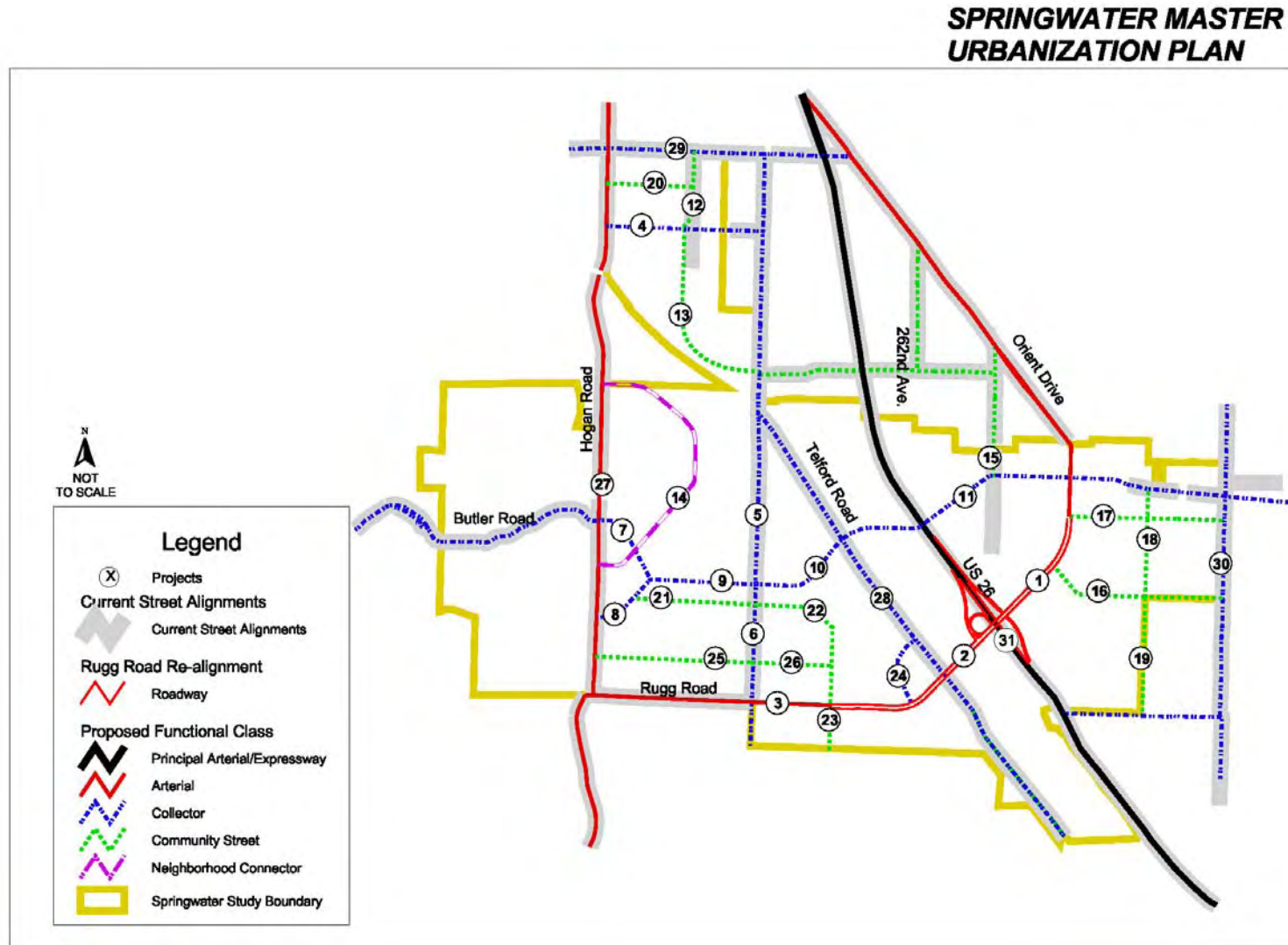


Figure 6. Proposed Functional Classes and Road Projects

For all phases, estimated construction cost for the ultimate US 26 connection improvements totals \$24.5 million. Once the preferred US 26 improvement project has been adopted, the specific nature and expected construction costs should be incorporated into the, Gresham TSP, and the Metro RTP as appropriate.

Several existing streets bordering Springwater require improvements in the long-term to support planned growth. These include the projects numbered 27 through 30 shown in Table 8. Of these, Telford Road is the only street that traverses the planning area; the other streets border the site. The total estimated cost for improvements on these facilities is \$38 million. Most of these projects will be constructed in a 6-20 year timeframe; however some would be required to support likely initial development in the northern part of the study area adjacent to US 26 and Telford Road. These are shown as occurring in a 1-5 year timeframe. All of the recommended improvements for Springwater are eligible for funding using system development charges (SDCs), however the City should investigate opportunities to obtain federal, state, or private funding to augment local funding of transportation improvements.

Outstanding Issues

The improvements identified above do not address the off-site system improvements required to service long-term travel demands, particularly in the north-south arterial corridors. The North/South Transportation Study (also known as the East Metro Area Telecommunications and Transportation Assessment) is evaluating the need for enhanced services or new facilities, and subsequent regional studies are to address recommended capacity improvements through Gresham (including additional needs associated with Springwater and Damascus development). Preliminary findings from that study show the need for substantially more north-south carrying capacity, which could include upgrade existing arterials to higher quality of service, and implementing a high capacity transit solution between Damascus and Interstate 84. The implications for Springwater potentially include a much higher level of traffic for the connector between 242nd Avenue and US 26 (Projects 2 and 3), and potentially a wider right-of-way requirement on 242nd Avenue (or other parallel north-south route) for a high capacity transit service. Based on this study, the City's Transportation System Plan update and Metro's Regional Transportation Plan update provide forums to continue to address off-site improvements beyond the Springwater Plan.

Local Street Connectivity Map

Overall, local street planning for Springwater incorporates the on-site circulation requirements to support the intended land use development schemes, and is designed to provide key connections for low volume circulation between neighborhoods for automobiles, bicycles and pedestrians alike. A better connected street and trail system helps to reduce out-of-direction travel for all modes of transportation, and it also complies with requirements as described in Title 6 of the Regional Transportation Plan.

The local street network in Gresham bordering the Springwater area is developed along the northern face, on either side of US 26, and portions of the western face along 242nd Avenue, north of Butler Road. The southern and eastern faces of the Springwater planning area border the Urban Growth Boundary and local street extensions are not expected with the current designations. Development of local streets within Springwater will be consistent with standards adopted by the City of Gresham for spacing, sight distance and other design elements. The specific alignments of local streets within Springwater have not been defined explicitly to allow for greater flexibility in land use development.

By providing connectivity between neighborhoods, out-of-direction travel and vehicle miles traveled (VMT) can be reduced, accessibility between various modes can be enhanced and traffic levels can be balanced out between various streets. Additionally, public safety response time is reduced. In south

Gresham, some of these local connections can contribute with other street improvements to mitigate capacity deficiencies by better dispersing local traffic, rather than relying solely on the arterials street system. Several roadway connections are recommended between the residential neighborhood areas to reduce out of direction travel for vehicles, pedestrians and bicyclists.

Figure 7 shows the proposed Local Street and Trail Connectivity Plan for Springwater. The primary purpose of this map is to illustrate how the new Springwater roads and trails will connect to neighborhoods bordering it. In most cases, the connector alignments are not specific and are aimed at reducing potential neighborhood traffic impacts by better balancing traffic flows on neighborhood routes. The double-headed arrows shown in the figures represent potential connections and the general direction for the placement of the connection. In each case, the specific alignments and design will be better determined upon development review. The criteria used for providing connections are as follows:

- Every 300 feet, a grid for pedestrians and bicycles (shown as dotted lines)
- Every 530 feet, a grid for automobiles (shown as solid lines)

Most of the street or multi-use (trail) extensions are shown along the northern edge of Springwater into existing residential neighborhoods. Most of these connections are shown restricted to pedestrian and bicycle travel only (trail), which allows more direct connections to the trails and proposed community parks within Springwater. The full street connections are limited since the land use in this part of Springwater is designated as industrial use, and mixing travel between the two should be discouraged.

To protect neighborhoods from the potential traffic impacts of extending stub end streets, connector roadways should incorporate neighborhood traffic management into their design and construction. All stub streets should have signs indicating the potential for future connectivity. Additionally, new development that constructs new streets, or street extensions, must provide a proposed street map that:

- Provides full street connections with spacing of no more than 530 feet between connections except where prevented by barriers.
- Provides bicycle and pedestrian access ways in lieu of streets with spacing of no more than 330 feet except where prevented by barriers.
- Limits use of cul-de-sacs and other closed-end street systems to situations where barriers prevent full street connections.
- Includes no close-end street longer than 200 feet or having more than 25 dwelling units.
- Includes street cross-sections demonstrating dimensions of right-of-way (ROW) improvements, with streets designed for posted or expected speed limits.

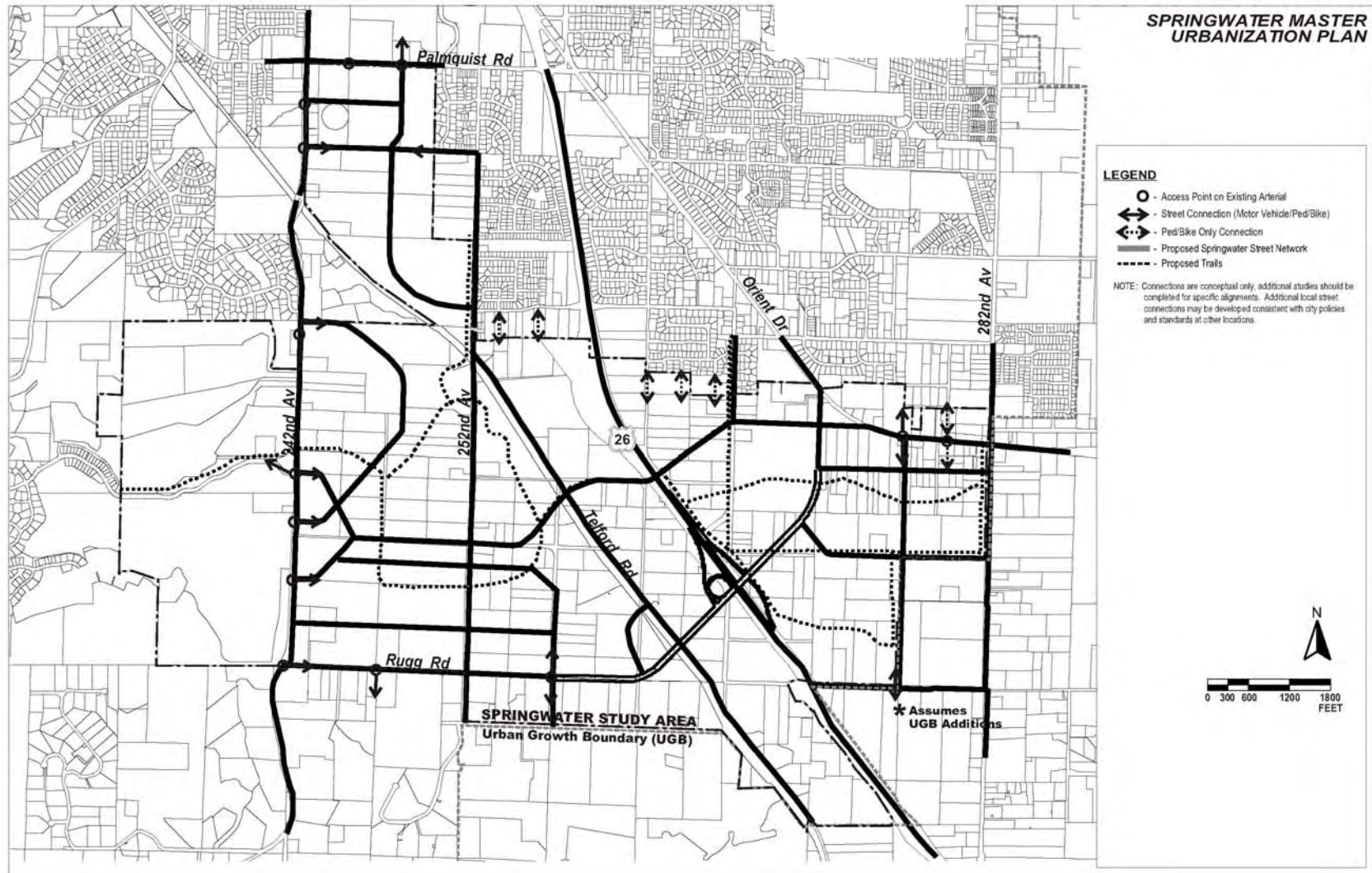


Figure 7. Local Street and Trail Connectivity Map

The other element of the Local Street Connectivity map is the locations on existing arterials that are expected to have new or modified intersections with Springwater streets. This is most significant along 242nd Avenue where seven locations are identified as new or modified intersections for connections to Springwater. The number of connections and distance between adjoining intersections is regulated by access spacing standards, and adopted by the responsible agency, either the City of Gresham or Multnomah County.

PREFERRED PLAN COST ESTIMATE AND FUNDING OPTIONS

The primary funding sources for the development of the transportation system in Springwater will include regional, state, and federal grants for large regionally-significant improvements and existing deficiencies; development exactions for frontage improvements and local street improvements; and transportation improvement fees (TIFs) for development-related system improvements.

The Springwater Plan District will include special Green Street designs for local, collector, and arterial streets. The Pleasant Valley Stormwater Master Plan³ suggests a possible design for local street drainage, but additional effort may be required to prepare a model Green Street standard. This could be connected with an early development proposal or as a separate staff-level effort. Given the importance of Green Streets to the overall plan for Springwater, the preparation and adoption of model Green Street designs is identified as an early-action item in the list of projects for implementing the TSP.

The tables below outline costs associated with the street improvements in Tables 10, as well as additional studies required to implement the Springwater TSP.

³ CH2M Hill, July 2004.

Exhibit D – Amendment to Volume 4 – Transportation System Plan

Table 9: Springwater TSP Projects

Project	Street	Cost	Timing (Years)	Responsible Jurisdiction	Funding Source
Projects Within Springwater					
1	Rugg Road Ext.	\$9,116,000	6-20	Gresham	SDC/Local
2	Rugg Road Ext.	\$20,385,000	6-20	Gresham	SDC/Local
3	Rugg Road	\$6,183,000	6-20	Gresham	SDC/Local
4	4	\$4,108,000	6-20	Gresham	SDC/Local
5	252nd Avenue	\$11,376,000	6-20	Gresham	SDC/Local
6	252nd Avenue	\$3,002,000	6-20	Gresham	SDC/Local
7	7	\$4,532,000	1-5	Gresham	SDC/Local
8	8	\$1,892,000	6-20	Gresham	SDC/Local
9	9	\$3,096,000	1-5	Gresham	SDC/Local
10	10	\$4,848,000	1-5	Gresham	SDC/Local
		\$6,794,000	1-5	Gresham	SDC/Local
11	11				
12	12	\$1,794,000	6-20	Gresham	SDC/Local
13	13	\$4,416,000	6-20	Gresham	SDC/Local
14	14	\$7,992,000	1-5	Gresham	SDC/Local
15	267th Avenue	\$2,346,000	1-5	Gresham	SDC/Local
16	16	\$3,714,000	1-5	Gresham	SDC/Local
17	17	\$3,450,000	6-20	Gresham	SDC/Local
18	18	\$3,576,000	6-20	Gresham	SDC/Local
19	19	\$5,508,000	6-20	Gresham	SDC/Local
20	20	\$2,622,000	6-20	Gresham	SDC/Local
21	21	\$2,070,000	6-20	Gresham	SDC/Local
22	22	\$4,680,000	6-20	Gresham	SDC/Local
23	23	\$2,817,000	6-20	Gresham	SDC/Local
24	24	\$1,824,000	6-20	Gresham	SDC/Local
25	25	\$1,932,000	6-20	Gresham	SDC/Local
26	26	\$3,588,000	6-20	Gresham	SDC/Local
		\$125,837,000			
Subtotal					
Projects Bordering or Near Springwater					
27	242nd Avenue	\$18,228,000	6-20	Gresham	SDC/Local
28	Telford Road	\$13,904,000	6-20	Gresham	SDC/Local
29	Palmquist Road	\$4,108,000	6-20	Gresham	SDC/Local
30	282nd Avenue	\$3,476,000	6-20	Gresham	SDC/Local
31	US 26 Interchange	\$24,500,000	6-20	State	State/Fed./Local
Subtotal		\$64,216,000			

Table 9 (Continued): Springwater TSP Projects

Project	Street	Cost	Timing (Years)	Responsible Jurisdiction	Funding Source
Additional Projects					
32	Refine Green Street Design Standards	\$50,000	1-5	Gresham	Local
33	TIF Update Study	\$100,000	1-5	Gresham	SDC
34	282 nd Access Study	\$100,000	1-5	Gresham/Multnomah County	SDC/Local
Subtotal		\$250,000			
		<i>\$190,303,000</i>			
Total Transportation Projects					

Grant Funding

Grant funding could be used to offset the cost of transportation improvements. Over the past 10 years, the City of Gresham has averaged approximately \$1 million per year in transportation capital grants from various sources. A specific estimate has not been made as to how much grant funding will be available to offset the cost of transportation improvements.

Developer Exactions

Developer exactions are applied to transportation improvements (usually frontage improvements) that developers are required to construct in order to develop their land. These most often apply to internal local streets.

TSP IMPLEMENTATION ACTIONS

The following actions are required to implement the Springwater TSP:

1. Continue to participate with other regional service providers to advance concepts from the North/South Transportation Plan to fully develop alternatives, develop a recommended plan, and identify and execute implementation measures to improve access between Springwater and major transportation routes such as I-205 and I-84.
2. Refine the Green Street concepts from this TSP and the Stormwater Master Plan as required to fully implement Green Street development in Springwater.
3. Implement a Transportation Impact Fee to adequately fund growth-related improvements in Springwater.
4. Continue to work with the Oregon Department of Transportation to develop plans for improved access to US 26 through Springwater.
5. Consider including conduit with future roadway improvements in Springwater to serve telecommunication needs in the area.