

Pleasant Valley Plan District



January 6, 2005
City of Gresham
Community & Economic Development Department
New Communities and Annexation

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Appendix A: Pleasant Valley Implementation Plan Map

Appendix B: Pleasant Valley Plan District Future Governance map

Appendix C: Reference Documents Under Separate Cover:

- Pleasant Valley Concept Plan Summary and Recommendations (May 2002)
- Pleasant Valley Concept Plan Implementation Strategies (May 2002)
- Pleasant Valley Concept Plan Technical Appendix (May 2002)
- Pleasant Valley Implementation Plan Report (December 2003)
- Gresham and Portland IGA (March 2004)

Chapter 1. Summary

Pleasant Valley is an area that was added to the region's urban growth boundary in December 1998 to accommodate forecasted population growth in the region. Pleasant Valley is planned as a new, urban community. It is 1,532 acres located south and east of the current city limits for Gresham and Portland. The City of Gresham, in partnership with the City of Portland, has been working with its regional partners and the community since 1998 to create a plan for the future urbanization of this rural area. This extensive planning process has created a vision and a plan for the transition of a rural community of 800 residents into an urban community of approximately 12,000 residents and 5,000 jobs.

Over the last four years the Pleasant Valley Plan District (Plan District) has been drafted. Crafted during the Pleasant Valley Concept Plan (Concept Plan) project and the follow-up Pleasant Valley Implementation Plan (Implementation Plan) project, it was created with the help of public input from open houses and community forums, numerous advisory committees, and staff from both the cities of Gresham and Portland and other agencies. The *Concept Plan* project created maps and text that provide a blueprint for future development of the area located south of Gresham and east of Portland. The *Implementation Plan* project provided a "bridge" document between the *Concept Plan* and these *Comprehensive Plan Amendments*.

On May 14, 2002, the Pleasant Valley Concept Plan Steering Committee endorsed a Concept Plan and set of Implementation Strategies for the valley. The central theme of the plan is to create an urban community through the integration of land use, transportation and natural resource elements. The Concept Plan has been refined into the Plan District. The Plan District consists of a map of proposed comprehensive plan designations, with associated code text, and other maps, diagrams and background findings.

The Plan District will fulfill the goal of the Concept Plan to create a quality living environment, with a sense of place that is unique to Pleasant Valley. To achieve this goal, the Plan District will implement compact mixed-use neighborhoods, a town center, neighborhood edges and centers, a variety of housing options, transportation alternatives, pedestrian friendly urban design and the integration of the natural environment into the design of the community. Critical to the sense of place in Pleasant Valley are the valley's natural resources and extensive network of streams and wetlands. The Plan District will allow the valley to develop in such a way that minimizes impact on these natural features, while allowing these features to enhance the built environment.

The *Pleasant Valley Concept and Implementation Plans* projects addressed the entire 1,532-acre study area to achieve the overall goal of "creating a complete community." The cities of Gresham and Portland have agreed to adopt similar policies and development code to achieve this goal. In addition, the cities reached an agreement on future governance that entails Gresham annexing about 1,004 acres and Portland about 268 acres in Multnomah County. No service or governance agreement exists in Clackamas County. However, the cities did agree upon a boundary if such an agreement was reached that provided for Gresham and Portland governance. If that happened about 197 acres are Gresham annexation areas and about 38 acres are Portland annexation areas. The remaining 25 acres is a separate area in Clackamas County that has an existing mobile home park and that has been partially annexed by the City of Happy Valley.

This Pleasant Valley Plan District CPA 04-1480 report is intended to both document and implement the Pleasant Valley planning process. It will be adopted as the "Findings" document for the Pleasant Valley Plan District. The organization of this findings document is detailed in Chapter 3.

Chapter 2. Organization

The Pleasant Valley Plan District contains several components, which are summarized below. This Pleasant Valley Plan District document will be adopted as Appendix 42 to Volume 1 -- Findings Document, *Gresham Community Development Plan*. Individual chapters will include amendments to Volume 2 – Policies, Volume 3 -- Development Code and Volume 4 -- Transportation System Plan.

Chapter 3. Background. This chapter summarizes the planning process, the extensive public involvement process and the goals for the Pleasant Valley area. It also describes the context in which the planning for Pleasant Valley occurred, and it summarizes Pleasant Valley’s current geography, land uses and demographics.

Chapter 4. Goals, Policies and Action Measures. The Goals, Policies and Action Measures are a comprehensive set of land use policies intended as text amendments for adoption into the *Gresham Community Development Plan*. They provide the policy basis for the Pleasant Valley Plan District *Community Development Plan* map and *Development Code*. There are separate goals for the Plan District, Urbanization and Land Use Planning, Town Center, Residential and Neighborhoods, Employment and Other Commercial, Natural Resources, Green Development, Cultural and Natural History, Schools, and Transportation. Goals for Water, Stormwater, Wastewater and Parks are located in Chapter 8 – Public Facility Plan.

Chapter 5. Land Use. This chapter describes how the overall land use vision for Pleasant Valley is implemented through the *Development Plan* map and *Development Code*. It describes the future land use patterns, the Pleasant Valley Plan District Map, and the Pleasant Valley land use districts and development code. The Map amends Volume 2 and the land use districts and development code amends Volume 3. The land use districts and development code sections are arranged to provide commentary on the proposed code.

Chapter 6. Natural Resources. The Natural Resources chapter documents the State Goal 5 process for Pleasant Valley and provides the foundation for protecting natural resources, and conserving scenic areas and open spaces. The chapter is comprised of four major sections: the Natural Resources Inventory; Significance Determination; the Economic, Social, Environmental and Energy (ESEE) analysis and development code that implements Natural Resources regulatory program. A key strategy to meet the natural resource goals of the *Concept Plan* is the implementation of an Environmentally Sensitive Restoration Area (ESRA) subdistrict, which is intended to promote compatibility between development and conservation of stream corridors, wetlands, floodplains and forests. The ESRA proposed land use district and development code would amend Volume 3. The report also includes rough costs estimates and funding strategies for preserving and restoration the ESRA.

Chapter 7. Transportation. This chapter would amend Volume 4 – Transportation System Plan. It includes goals, policies and action measures and a description of how the proposed transportation system was developed. It also includes a proposed transportation system including functional street classifications, street design types, a bicycle and pedestrian plan, a transit plan and connectivity standards that meet regional and local connectivity requirements. This chapter also includes a list and a map of the significant transportation projects which are needed to support the land use designations in Pleasant Valley. There are also rough costs estimates and an estimate of when each of the projects will be needed. The plan is responsive to the Natural

Resources strategy, the Foster-Powell Corridor Plan project, and the Regional Transportation Plan.

Chapter 8. Public Facilities Plan. The Public Facilities plan establishes a framework for how parks, water, wastewater and stormwater urban services 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 established a CIP for each of the facilities and amends Volume 2.

Chapter 9. UGMFP Title 11 Compliance Report. As a new urban area, the planning for Pleasant Valley 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 Pleasant Valley and an evaluation report. The evaluation report is to show compliance with the UGMFP and the 2040 Growth Concept.

Chapter 3. Background

Introduction

The background chapter is divided into five major topics and is intended to provide the basic framework for how the Pleasant Valley Plan District was created.

- Planning Process
- Public Involvement
- Concept Plan Goals
- Context
- Plan Area

Planning Process

Planning for the Pleasant Valley area occurred in four distinct phases: Governance, Concept Plan, Implementation Plan, and Adoption.

Governance	Concept Plan	Draft Implementation Plan	City Adoption (Legislative Process)
1998	2000 - 2002	2003	2004

Governance

In December 1998 Metro Council voted to expand the urban growth boundary to include the Pleasant Valley area, known as Urban Reserve Areas #4 and #5. Previous to this decision a series of facilitated workshops were held at the Pleasant Valley Elementary School for interested parties with Gresham, Portland, Multnomah County and Metro staff. A result of the workshops was the development of preliminary Pleasant Valley Urban Reserve Planning goals.

In December 1998 Gresham and Portland Councils adopted an Intergovernmental Agreement (IGA) including the preliminary goals. The IGA identified those areas generally where Gresham and Portland would provide governance and urban services. At the time, about 65% of the project area was identified as future Gresham and 17% future Portland, all in Multnomah County. The rest of the project area (18%) is in Clackamas County, where final governance and services decisions were not made nor was the area included in the IGA. The cities agreed in the IGA to develop a coordinated urbanization plan with a comprehensive public involvement process for citizens within the affected area and in surrounding areas and with affected jurisdictions. It established a five-year goal to complete the planning effort.

Concept Plan

In the Summer of 2000 the City of Gresham, in partnership with Metro, City of Portland, Clackamas and Multnomah Counties and other parties, embarked on creating the *Pleasant Valley Concept Plan (Concept Plan)*. The *Concept Plan* is a guide to the creation of a new 1,532-acre community neighborhood south of Gresham and east of Portland.

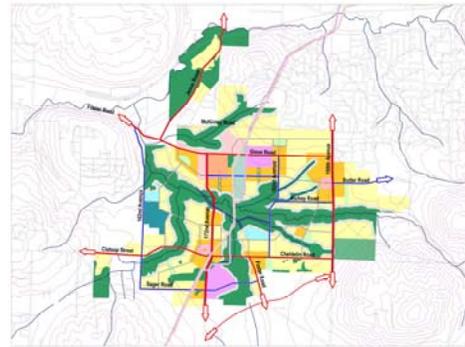
The *Concept Plan* project was partially funded by a grant from the Federal Highway Administration through the Transportation and Community System Preservation pilot program. The purpose of this grant program was to plan and implement strategies that, in part, improve the efficiency of the transportation system, reduce environmental impacts of the transportation system, and ensure efficient access to jobs, services and centers of trade.

The *Concept Plan* was developed by a 23-member Steering Committee representing residents and property owners; Portland, Gresham and Happy Valley planning commissions; Multnomah and Clackamas counties; citizen advisory committees, business and neighborhood associations; Centennial School District, watershed councils, and environmental/livability organizations. The committee met 15 times between November 2000 and May 2002.

The major steps in the process were:

- Inventory of base conditions and projections of land-use, transportation, natural resources and infrastructures needs.
- Establishment of project goals.
- Development of four alternative concept plans.
- Evaluation of alternative concept plans.
- Refinement of the *Concept Plan* and preparation of Implementation Strategies.
- Endorsement of the final *Concept Plan* and Implementation Strategies.

Pleasant Valley Concept Plan



Concept A



Concept B



Concept C



Concept D



On May 14, 2002 the *Concept Plan* Steering Committee approved the award-winning¹ *Pleasant Valley Concept Plan* endorsing a plan summary and recommendations and a set of implementation strategies. For reference see stand-alone documents *Pleasant Valley Concept Plan Summary and Recommendations*, *Implementation Strategies*, and *Technical Appendix* listed in Appendix C.

In the summer of 2002, Gresham (Resolution 2559, July 23, 2002), Portland and Metro Councils, and Multnomah and Clackamas County Commissions all accepted the *Concept Plan* and resolved to use it as the basis for developing implementing regulations and actions.

Implementation Plan

In the Fall of 2002, Gresham and Portland started the Pleasant Valley Implementation Plan (Implementation Plan) project. The purpose of the Implementation Plan project was to draft a

¹ Presented a Professional Achievement in Planning award by the Oregon Chapter of the American Planning Association at the 2002 Oregon Planning Institute conference.

report that would provide a “bridge” document between the 2002 *Concept Plan* and final comprehensive plan amendments ordinances and intergovernmental agreements.

The *Implementation Plan* was partially funded by a State of Oregon Transportation Growth Management (TGM) grant. The purpose of the TGM program is to enhance Oregon’s livability, foster integrated land use and transportation planning and encourage development that results in compact, pedestrian, bicycle and transit friendly communities.

A twelve person Pleasant Valley Advisory Group was formed to advise staff as to the consistency with which the *Implementation Plan* was carrying out the *Concept Plan*. Most members of the Advisory Group had been members of the Steering Committee. The Advisory Group included Gresham and Portland Planning Commissioners, Pleasant Valley residents and property owners, Gresham and Portland neighborhood association and advisory committee representatives, retail business representatives and other stakeholders. They held six meetings and at the last meeting on February 10, 2004 the Pleasant Valley Advisory Group endorsed the *Implementation Plan* report as being consistent with and carrying out the *Concept Plan*.

The *Implementation Plan* report was completed in December 2003. Key steps in creating the *Implementing Plan* report were:

- Creating a *Plan District* map with refined residential land use districts.
- Drafting land use districts and development code.
- Refining the major street functional and design classifications.
- Drafting a street connectivity plan and a bike and trail plan.
- Completing a State Goal 5 natural resources analysis and drafting a regulatory code.
- Drafting a public facility plan for water, wastewater, stormwater, transportation and parks to generally describe projects, costs, timing, and funding options for these facilities.
- Drafting an annexation analysis and strategy report to compare infrastructure costs and revenues, net fiscal positions in sub-areas of Pleasant Valley, and preliminary conclusions regarding strategies for annexation.

In March 2004, Gresham and Portland Councils revised the 1998 IGA by further refining the future boundary between the two cities. The IGA also states that the cities of Gresham and Portland will continue to work cooperatively on planning and plan implementation for the Pleasant Valley area with a target to adopt all the necessary *Comprehensive Plan* amendments in fall 2004.

City Adoption

City adoption is the final phase of planning for Pleasant Valley. The cities of Gresham and Portland must individually adopt the necessary *Comprehensive Plan* and *Zoning/Development Code* amendments to allow for eventual annexation of land into their respective cities. The *Comprehensive Plan Amendments* are processed under the Type IV Legislative procedures. The Planning Commission will hold a public hearing and make a recommendation to the Council. The Council will then hold a hearing and make a final decision. Both Planning Commission and Council encourage public testimony in writing or in person at the hearings. Two hearings are scheduled for both the Planning Commission and Council. The purpose of the first hearing is to hear the staff report and public testimony. The purpose of the second hearing is deliberation with the Planning Commission making their recommendation and the Council making their final decision.

The intent of the legislative process is for each city to adopt plans that are consistent with the Pleasant Valley Concept and Implementation Plans. The cities recognize that the actual

development code and certain policies will be tailored to each city's code structure, but both cities agree to create a "complete community with a unique sense of identity and cohesiveness" regardless of city boundaries.

Public Involvement

The purpose of the Pleasant Valley Public Involvement Plan is to ensure citizens, landowners, businesses, and other interested parties are fully informed of the project; have convenient opportunities to provide input throughout the process of developing, selecting and implementing the plan; and can participate in creating a plan that is new and creative and where special efforts are made to engage and educate affected members of the community and others.

A Public Involvement Plan (PIP) with this purpose statement was created at the beginning of the Concept Plan project. A public involvement work team was formed during the summer of 2000 to develop the Public Involvement Plan. The work team consisted of planning and citizen involvement staff from the Cities of Gresham and Portland, Multnomah County, Metro and Pacific Rim Resources (a consultant) and from citizens representing the Gresham Southwest Neighborhood Association, the Pleasant Valley Neighborhood Association and the Johnson Creek Watershed Council. The work team created the PIP over a series of several meetings and it was endorsed by the Steering Committee in December 2000. It also met periodically over the course of the project to "check in" on the progress of public involvement. The PIP was carried out during the *Concept Plan* project and then re-established during the *Implementation Plan* project.

A number of public involvement elements or key methods were established in the Public Involvement Plan. What follows is a summary record of the key methods that were used.

Key Public Involvement Methods

- ◆ **Stakeholder Interviews.** Stakeholder interviews are done to identify issues related to the project and to address the wants and needs for different levels of opportunities for involvement. Sixteen persons representing a wide range of interests were interviewed. Each person interviewed was asked two categories of questions. In brief the first set of questions asked about issues -- what are the most important issues, how would you address the future look of the community, transportation, natural resources and special places and the second set focused on how to get input -- what is the best way of being kept informed, where are gathering places, what is the best place to hold public meetings; are there organizations that send out newsletters/notices, other ideas, other issues. The results of the interviews were summarized for recurring themes and provided to the project staff and the Steering Committee. The interviews provided early direction on issues to address as well as best public involvement practices.
- ◆ **Steering Committee.** The Steering Committee was created to guide the development of the *Concept Plan*. It led the policy discussions and represented the agencies and constituencies with interests in the project. It served to create partnerships, to exchange information with stakeholders, and to build a consensus on a preferred *Concept Plan*. This 24-member Committee included valley residents and property owners; Portland, Gresham and Happy Valley planning commissioners; Multnomah and Clackamas counties; Metro; area business and neighborhood associations; developer interests; the Gresham Transportation Council Advisory Committee; Portland Bureau of Environmental Services; 1000 Friends of Oregon;

Centennial School District; Pleasant Valley PTA; the Johnson Creek Watershed Council; and Friends of Mt. Scott and Kellogg Creek. Most members had alternates who often attended meetings and participated in the discussions. The Steering Committee met 15 times over an 18-month period. These meetings were held in the evenings and were open to the public. Citizens on an interested persons mailing list were sent agendas of these meetings. This was a decision making group and they made decisions at all key milestones: basic inventory and projections of land-use, transportation, natural resource and infrastructure needs; establishment of goals; development of four alternatives; evaluation of the alternatives and preparation of a hybrid plan; refinement of the concept plan and preparation of implementation strategies; and endorsement of the final Concept Plan and implementation strategies. The final concept plan and implementation strategies were adopted by consensus on May 14, 2002 and the Steering Committee passed their endorsement to the participating jurisdictions.

- ◆ **Advisory Group.** An Advisory Group was formed for the Implementation Plan project as a successor to the Steering Committee. The Advisory Group was made up of Gresham and Portland Planning Commissioners, Neighborhood Association and Citizen Committee representatives, project area citizens and other stakeholders. Almost all were on the Steering Committee during the Concept Plan project. Their main purpose was to ensure consistency of implementing regulations with the Concept Plan. The group met six times with the final meeting to provide input on the completed *Implementation Plan* report. These meetings were held in the evenings and were open to the public. Citizens on an interested persons mailing list were sent agendas of these meetings. The Advisory Group, at their February 10, 2004 meeting, endorsed the final *Pleasant Valley Implementation Plan* report.
- ◆ **Pleasant Valley Mailing List.** A Pleasant Valley Mailing List was created for the purposes of sending out notices of beginning of the project (early notice flyer) and postcards and newsletters providing updates on the project and notices for upcoming community forums and events. The Pleasant Valley mailing list included all project area property owners and residents, those within a 300-foot vicinity and interested parties. That list had over 1,100 addresses.
- ◆ **Community Forum.** The purpose of the Community forums was both to inform and to obtain advice from the general public. It was important to involve the public at each stage of the process and to allow the public to participate in preparation of the recommendations before final action by the Steering Committee. Notice of the forums were sent to the Pleasant Valley Mailing List, distributed at the PV Elementary School and at Gresham City Hall and other venues. The forums were held on Saturday mornings at the Pleasant Valley Elementary School (in the project plan area) and featured an open house display of working maps, presentation and large group discussion, and small group breakouts with exit questionnaires. The forums were professionally facilitated. A total of eight forums were held [five during the Concept Plan and three during the Implementation Plan]. The third forum was a design charrette and included a Tuesday evening forum at the PV Elementary School, two open houses at Gresham City hall as well as the Saturday morning forum. For each forum a Public Comment Report of public comments and background material was compiled and mailed to forum attendees and project participants. Anyone who attended a forum received the mailed Reports. The mailing list included 190 addresses.
- ◆ **Early Notice Flyer.** An early notice flyer was sent in November 2000 to the Pleasant Valley mailing list. It described the project, key dates and opportunities for participation. It was also distributed at the Pleasant Valley Elementary School. An Early Notice Flyer was also sent at the beginning of the Implementation Plan project in November 2002.

- ◆ **Frequently Asked Questions.** An FAQ was created at the beginning of the project and updated as necessary throughout the process. It provides a basic description of the project, the reasons for the project as well as questions concerning future annexations, development, etc. The FAQ was distributed throughout City Hall for initial mail, phone and visit inquiries.
- ◆ **Newsletters.** Newsletters were mailed to the Pleasant Valley Mailing List. They provided status and summary information and notice of upcoming meetings. Four newsletters were mailed during the Concept Plan and three newsletter mailings were made during the Implementation Project.
- ◆ **Press Releases.** Press releases were timed to correspond with events and especially the community forums. They were distributed to a comprehensive media list that included the *Outlook* and *The Oregonian*. A number of articles on the Pleasant Valley project were printed in both newspapers. Additionally, there were articles in the *Oregon Business Journal* and the *Journal of Daily Commerce*. Clippings from local newspapers have been included in the Community Forum Public Comment Reports.
- ◆ **Website.** The Pleasant Valley web page, www.ci.gresham.or.us/pleasantvalley, at the City of Gresham website, was created during the Concept Plan project and has been kept up-to-date. The website can be visited for the latest news on the project, to view or download a copy of the draft documents that will reviewed at the next event, for a schedule of upcoming events and for additional project background information. Links were made with other participating jurisdictions including the City of Portland, Metro and Clackamas County.
- ◆ **PowerPoint Presentation.** A PowerPoint presentation was prepared to explain the project and solicit input from citizens and landowners. This presentation was shown at the various forums and at the outreach presentations to interested organizations. It has been continually updated as progress occurs and tailored for the venue.
- ◆ **Speaking Engagements.** Throughout the Concept and Implementation Plan projects efforts were made to contact affected and interested organizations and offer to make presentations on the project at their regular meetings. These presentations provided opportunities for other citizens to learn and provide input on the project and had the added benefit of being open to the general public. Organization presentations included the following:
 - Centennial School District Board
 - Clackamas River Basin Council
 - Coalition for a Livable Future
 - East County Realtors Association
 - East Multnomah County Transportation Committee
 - Gresham Bicycle-Pedestrian Task Force
 - Gresham Citizen Involvement Committee
 - Gresham Community Development and Housing Committee
 - Gresham Environmental Services Council Advisory Committee
 - Gresham Finance Committee
 - Gresham Historic Resources Advisory Committee
 - Gresham Neighborhood Coalition
 - Gresham Parks & Recreation Council Advisory Committee
 - Gresham Council Transportation Advisory Committee
 - Gresham Tree Preservation Committee
 - Johnson Creek Watershed Council
 - Metro Policy Advisory Committee
 - Metro Technical Advisory Committee
 - Pleasant Valley Neighborhood Association

- Pleasant Valley PTA
- Southwest and Centennial Neighborhood Associations

Several of the Gresham Council Advisory Committees reviewed and endorsed Pleasant Valley goals that related to their topic of their committee (CIC, CDHC, ESCAC, HRAC, PRCAC, and CTAC)

- ◆ **Planning Commissions and Elected Officials.** Over the course of the Pleasant Valley project Pleasant Valley updates were provided to the Gresham Planning Commission on an approximately quarterly basis. These generally were made during their monthly growth management sessions. The Portland Planning Commission was also provided periodic updates. Planning Commission meetings are advertised and open to the general public. During the Concept Plan three meetings of an Elected Officials Group (EOG) were held to provide a status report. The EOG consisted of elected officials from the participating jurisdictions. Gresham representatives were Mayor Becker and Councilor Lassen (alternate) and the Portland representative was Mayor Katz. The Gresham Council was also provided periodic updates. Gresham and Portland, along with Metro, Clackamas and Multnomah County, were presented the recommendations of the Steering Committee at public hearings and passed a resolution accepting those recommendations. The Metro Council was also given periodic updates.
- ◆ **Focus Sessions.** Focus sessions bring together industry and user experts on specific topics to provide advice and a “check-in” to project staff and decision makers. Focus sessions were used successfully during the Concept Plan project on topics such as housing, town center, historic preservation, and employment. Two focus sessions were done during the Implementation Plan project on green practices and on annexation strategies.
- ◆ **Tour of Pleasant Valley.** A self-guided tour of Pleasant Valley was developed and put on the website for both the general community and stakeholders. It is also available as a handout. It provides an understanding of the project area and provides opportunity for feedback. It includes a map and two route descriptions (coming from Gresham and from Portland). It marks and describes interesting features and safe places to park.
- ◆ **Portable display.** A portable display was prepared using graphics and text to explain the project. The display was made available at various venues such as Gresham City Hall, the Gresham library, the Gresham Post Office, the Pleasant Valley elementary school and at the Johnson Creek Watershed Summit yearly events as well as displayed at forums and other meetings.
- ◆ **Postings in Community Newsletters and Bulletins.** Notices and project updates were included in various community newsletters and bulletins including the Johnson Creek Watershed newsletter, the Pleasant Valley PTA newsletter, the East Portland Neighborhood News and the City of Gresham Neighborhood News.

Concept Plan Goals

The following goals were endorsed by the Steering Committee on May 2, 2001. They reflect the vision and values underlying the *Concept Plan* and ultimately leading to the Plan District.

A. Create a community. The Plan will create a “place” that has a unique sense of identity and cohesiveness. The sense of community will be fostered, in part, by providing a wide range of transportation choices and living, working, shopping, recreational, civic, educational, worship, open space, and other opportunities. Community refers to the broader Concept Plan area, recognizing that it has (and will have) unique areas within it. Community also refers to Pleasant

Valley's relationship to the region – relationships with Portland, Gresham, Happy Valley, Multnomah County, Clackamas County, and the unique regional landscape that frames Pleasant Valley.

B. Create a town center as the heart of the community. A mixed-use town center will be the focus of retail, civic, and related uses and services that serve the daily needs of the local community. The town center will be served by a multi-modal transportation system. Housing will be incorporated into mixed-use buildings and/or adjacent apartments and townhomes. A central green or plaza will be included as a community gathering space. Streets and buildings will be designed to emphasize a lively, pedestrian-oriented character for the town center. The town center will have strong connections to adjacent neighborhoods, and commercial services that are centralized and convenient to pedestrian-oriented shopping.

C. Integrate schools and civic uses into the community. The number, type, and location of schools will be coordinated with the Centennial School District. Schools and civic uses will be integrated with adjacent neighborhoods and connected by a system of bicycle and pedestrian routes. The number, type and location of mixed-use centers will be considered as schools and civic uses are integrated into the Plan.

D. Celebrate Pleasant Valley's cultural and natural history. The Plan will retain the best of the past and incorporate the area's cultural and natural history, as appropriate, into the new community form. Important cultural and natural names, places and themes will be included in the Plan.

E. Preserve, restore, and enhance natural resources. The Plan will identify, protect, restore, and enhance significant natural resource areas, including stream corridors, forested areas and buttes. These resource areas will provide the basis for identifying buildable and non-buildable areas, and serve as open space amenities for the community. Resource protection will include strategies to protect endangered species, water quality, and the aquifer. Resource protection and enhancement will be a shared responsibility and partnership of property owners, governments and developers.

F. Utilize "green development" practices. The Plan will incorporate community design and infrastructure plans that produce minimal impacts on the environment, including flooding and water quality within Johnson Creek. The Plan will incorporate the guidelines for stormwater quality and quantity and resource management for each subwatershed, and also enhance natural hydrologic systems as a fundamental part of managing drainage and water quality. The plan will incorporate green street designs. The Plan will integrate green infrastructure with land use design and natural resource protection. The plan will incorporate energy-savings measures.

G. Locate and develop parks and open spaces throughout the community. Neighborhood parks, small green spaces, and open spaces will be within a short walk of all homes. A network of bicycle and pedestrian routes, equestrian trails and multi-use paths will connect the parks and open spaces. The park and trail system will be connected to the Springwater Trail, Powell Butte, and other regional trails and greenspaces.

H. Provide transportation choices. Pleasant Valley will be a community where it is safe, convenient, and inviting to walk and ride a bike. The Plan will set the stage for future community level transit service that connects to regional transit service, including street designs, land use types, and densities that support transit. Recommendations will be developed to correct transportation safety issues, address through-traffic, and provide adequate capacity for future growth. The Plan will coordinate with surrounding jurisdictions to create effective regional

connections and a balanced regional transportation system. A well-connected street system will be planned, using a variety of street types that reinforce a sense of community and provide adequate routes for travel. Streets will accommodate walking and biking, with special pedestrian features on major transit streets.

I. Provide housing choices. A variety of housing choices will be provided, with a focus on home ownership options. Housing options will accommodate a variety of demographic and income needs, including appropriate affordable choices and housing for seniors. The plan will provide for an overall average residential density of 10 dwelling units per net residential acre (i.e., including only residential land), based on a mix of densities. Walkable neighborhoods will form the organizing structure for residential land use. Natural features will help define neighborhood form and character.

J. Provide and coordinate opportunities to work in and near Pleasant Valley. The plan will identify opportunities for home-based work and employment areas within Pleasant Valley. A range of employment opportunities will be considered, including retail and other employment. The plan will also consider the relationship of Pleasant Valley to existing employment centers in the East Metro area and potential new employment areas near Damascus.

Context

The Pleasant Valley Plan District is based on the dual premise that Pleasant Valley is 1) part of the Portland metropolitan region, and 2) its own unique place.

Metro Region 2040 Growth Concept

The Region 2040 Growth Concept establishes a general policy direction for managing growth in the region through the year 2040. Adopted in 1995, the 2040 Growth Concept indicates the preferred form of regional growth and development, what densities should characterize different areas, how to protect open spaces and natural resources, and how to maintain air and water quality. Pleasant Valley is almost equally spaced between the two largest regional centers in this part of the region: the Gresham Civic Neighborhood and the Clackamas Regional Center. The same is true for the two closest town centers: Lents and Damascus. Each of the region's centers is unique and Pleasant Valley's town center will have its own individual scale and character.



Metro's 2040 Growth Concept Plan showing the Pleasant Valley area in relation to other town centers and regional centers

The Metro Council, when Pleasant Valley was brought into the UGB in December 1998, generally applied three Region 2040 Growth Concept Map design districts to the Pleasant Valley area: town center, inner neighborhood and transit corridor.

New town centers are expected to accommodate retail and service needs of a growing population while reducing auto travel by providing localized services to residents within a two to three-mile radius.

Region 2040 town centers can and should be different but do share some general characteristics:

- The density guideline is 40 persons per acre.
- Good transit service and, because their density and pedestrian-oriented design play a key role in promoting public transportation, bicycling and walking as viable alternatives to the automobile.
- Include not only employment and shopping, but also housing.
- Provide citizens with access to a variety of goods and services in a relatively small geographic area, creating an intense business climate.
- Act as social gathering places and community centers, where people find the cultural and recreational activities.
- Overall, town centers function as strong business and civic communities with excellent multi-modal arterial street access and high-quality public transportation with strong connections to regional centers and other major destinations.

Inner Neighborhood is primarily a residential area accessible to jobs and neighborhood businesses.

- The guideline for density is an average of 14 persons per acre.

Transit Corridors are along good quality transit lines featuring a high-quality pedestrian environment.

- Density guidelines are 25 persons per acre.
- Typical new developments would include rowhouses, duplexes and one- to three-story office and retail buildings.
- Corridors may be continuous, narrow bands or may be more nodal, with a series of smaller centers at major intersections or other locations.

As a result of the Concept Plan project an additional design district, employment, was identified as appropriate and has been added to the Region 2040 Growth Concept map. Employment is primarily for various employment uses with some residential development and with limited commercial uses.

- Density guidelines are 40 persons per acre.

Pleasant Valley is connected to its surrounding landscape. Powell Butte, Butler Ridge, and the western ridgeline provide a dramatic framing of the valley. Kelley Creek and its tributaries are key water features that connect the surrounding watershed to Johnson Creek and have influenced historical land use patterns. Kelley Creek also serves as a regional migration route for large and small animals traveling between the buttes. These features underlie a strong sense of place that residents of the valley expressed during the Concept Plan process and in previous interviews.

Plan Area

Pleasant Valley enjoys a unique geographical location within a series of lava domes and wooded buttes in the southeast portion on the Portland metropolitan region. The Pleasant Valley site spans the southeast corner of the City of Portland, portions of unincorporated Multnomah and Clackamas Counties, and areas in the western edge of the City of Gresham. The site's western boundary roughly follows SE 162nd Avenue. Its northern boundary follows the edge of developed portions of the City of Gresham and extends north of Foster Road to include portions of Johnson Creek. The eastern boundary of the site extends past SE 190th Drive to Rodlun Road, and the southern boundary generally parallels Sager and Cheldelin Roads.

The area encompassed by the Pleasant Valley site comprises approximately 1,532 acres. Agricultural and rural residential are the most widespread existing uses within the planning area (see Figure 2). Nursery farms dominate agricultural activity. Other existing uses include the Pleasant Valley Elementary School, two churches, a grange, a small convenience market, and a PGE utility structure. There is a 50-foot wide easement for natural gas and electrical utility lines that runs north to south through project area.

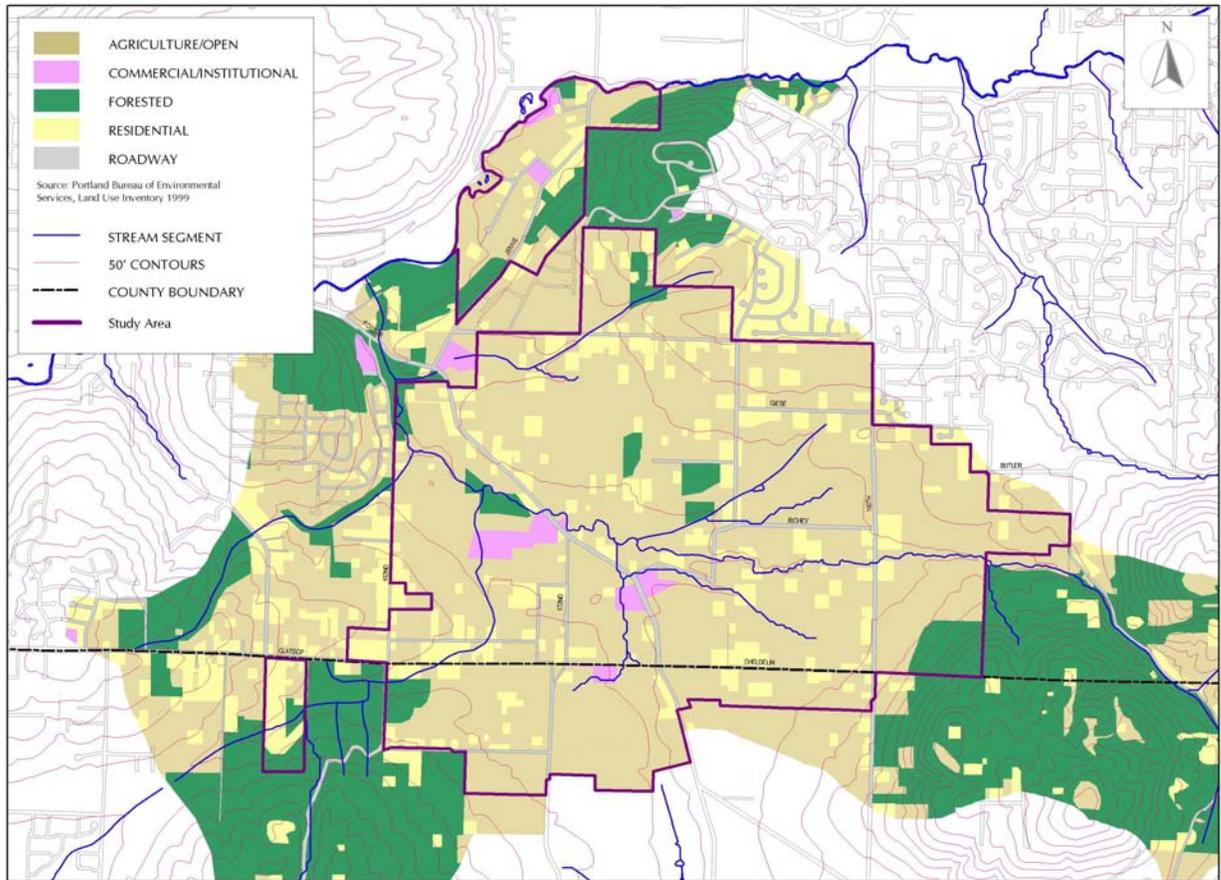


Figure 2. Pleasant Valley Existing Land Uses

Pleasant Valley population calculations are based solely on 2000 Census data using Census Block geography. Most of the Pleasant Valley boundary area fits neatly into Census Blocks with very little data overlap.

Multnomah County contains the largest land area and population share of Pleasant Valley with 689 people. Clackamas County accounts for 146 people. The total population (2000) of Pleasant Valley is 835. The land area of Pleasant Valley incorporates approximately 1,540 acres, of which 1,272 acres are in Multnomah County and 268 are in Clackamas. This gives an overall population density of 1.8 persons per acre. In comparison, the City of Gresham has a population density of 6.4 persons per acre.

There are 285 households in Pleasant Valley and 835 people. This gives an average household size of approximately 2.9 persons per household.

The age structure of Pleasant Valley trends to an older population, especially in comparison to Gresham that trends to a young population. The age breakdown for Pleasant Valley’s population is as follows:

Population by Age Groups	Clackamas	Multnomah	Pleasant Valley Total
Under 5 years	5.5%	4.9%	5.0%
5 to 19	21.9%	25.0%	24.4%
20 to 34	17.8%	13.1%	13.9%
35 to 59	37.7%	38.9%	38.7%
Over 60	17.1%	18.1%	18.0%

The Pleasant Valley site includes most of the Kelley Creek sub-basin and a small area along Johnson Creek. Seven sub-watersheds exist within the valley. These sub-watersheds were the basis for compiling information on natural resources. Those subareas include Jenne Creek, Clatsop Creek, Mitchell Creek, the Saddle, Gresham South Slope, Lower Kelley Creek Headquarters, and Powell-Jenne Valley (Johnson Creek). The sub-basin drains approximately five square miles of a northwest sloping area with land cover including forest, agricultural lands, and rural residential areas. Elevations in the area range from 1,230 feet to the east to 238 feet at junction with Johnson Creek to the west at 159th Avenue. The major drainage feature, Kelley Creek, flows northwesterly for approximately 2 miles where it joins with Johnson Creek. Several major tributaries, including Jenne Creek, Clatsop Creek and Mitchell Creek, are also significant conveyance features in the sub-basin and convey runoff to the main stem of Kelley Creek.

The valley is defined by a series of volcanic buttes surrounding largely agricultural and residential areas. The buttes are typically forested and steep and are divided by perennial and seasonal streams. The buttes were cleared in the early 1900’s, but are now covered mostly by mid-successional forest that is 60-100 years old. The lowlands were originally forested, but were cleared in the late 1800’s and early 1900’s for farming and timber uses. The majority of the lowlands has remained in agricultural and residential uses and has been tilled in many areas for agricultural drainage. The site contains forest types in the Willamette Valley vegetation zone.

The Pleasant Valley area is currently served by a transportation system that was designed to primarily serve the farm-to-market travel needs of the agricultural uses that once occupied the valley. Foster Road, 162nd Avenue, 172nd Avenue, Jenne Road, Clatsop Street and Cheldelin Street, and 190th Drive are the major roadway in the area.

There are five structures, the grange and four single-family houses which are listed by Multnomah County as historical resources. Two other structures, the Pleasant Valley Elementary School and the Pleasant Valley Community Baptist Church, have been suggested as historical resources.

In both Multnomah and Clackamas County the existing zoning districts are all non-urban designations. They implement rural and resources objectives of the Counties’ comprehensive plans and/or serve as holding zones for future annexation and urban zoning by cities.

Chapter 4. Goals, Policies, and Action Measures

Introduction

The following Goals, Policies and Action Measures were endorsed as part of the Implementation Strategies for the *Pleasant Valley Concept Plan* and then updated during as part of the *Implementation Plan*. The implementation strategies focused on key concepts and policy direction for implementing code, regulations and actions.

The *Community Development Plan Policy Document* is the general guide for matters relating to land use. Goals, Policies and Action Measures identify the intent of the City to accomplish certain results. 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. Action measures are suggestions of ways to 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*.

In addition to goals, policies and action measures each has a background section. The background piece includes a brief history of Pleasant Valley planning, summarizes key elements or characteristics of each section and summarizes the major issues that resulted in the endorsed Pleasant Valley Concept Plan. Taken together these Goals, Policies and Action Measures sections provide the basis for the Pleasant Valley Plan District map and development code. They amend Volume 2 – Community Development Plan Policies.

The Goals, Policies and Action Measures included in this chapter are:

- 10.700 Pleasant Valley Plan District
- 10.701 Urbanization Strategy and Land Use Planning
- 10.702 Town Center
- 10.703 Residential Land Use/Neighborhoods
- 10.704 Employment and Other Commercial
- 10.705 Natural Resources
- 10.706 Green Development
- 10.707 Cultural and Natural History
- 10.708 Schools
- 10.709 Transportation

The *Concept Plan* also resulted in goals for Public Facilities (10.720), Water (10.721), Wastewater (10.722), Stormwater (10.723) and Parks (10.724). Those are located in the Public Facility Plan (Chapter 8).

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10.700 PLEASANT VALLEY PLAN DISTRICT

STATEWIDE PLANNING GOAL 14: URBANIZATION

“To provide for orderly and efficient transition from rural to urban land use.”

INTRODUCTION

In summer, 2000, the City of Gresham in partnership with Metro, the City of Portland, Clackamas and Multnomah Counties, and others, embarked in planning for a new urban area – Pleasant Valley. Pleasant Valley was added to the region’s urban growth boundary (UGB) in December 1998 to accommodate forecasted population for the region. It is 1,532 acres located south and east of the current city limits for Gresham and Portland.

Agricultural and rural residential are the most widespread existing uses in Pleasant Valley. There were 226 dwellings and a population of 800 in 2000. Other uses include a grade school, a grange building, a small convenience store, and a church. The site encompasses the Kelley Creek Basin, an extensive system of creeks and wetlands and a major tributary to Johnson Creek. Johnson Creek is a free-flowing creek in the metropolitan region with natural, historical, and cultural significance. The existing transportation system was designed primarily to serve the farm-to-market needs of the agricultural uses that once occupied the valley. There are no public water, wastewater, or stormwater facilities. There are no public parks or trails.

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 Pleasant Valley Concept Plan (PVCP) project.

In May 2002, the PVCP Steering Committee endorsed the Concept Plan and a set of implementation strategies. The central theme of the Plan is to create an urban community through the integration of land use, transportation, and natural resource elements. Gresham, Portland, and Metro councils, and Multnomah and Clackamas county commissions, by adopting a resolution at a public meeting, accepted the Concept Plan and resolved to use it as the basis for developing implementing regulations and actions.

In the fall of 2002, Gresham and Portland started the Pleasant Valley Implementation Plan (PVIP) project with a purpose to draft a report document as a “bridge” between the PVCP and final ordinances and intergovernmental agreements that may be adopted by Gresham and Portland in 2004. In February 2004, the Advisory Group endorsed the PVIP report as being consistent with and carrying out the PVCP.

Gresham and Portland adopted a revised Intergovernmental Agreement in March 2004. The cities have agreed to adopt similar policies and code and have reached an agreement that Gresham will eventually serve 1,242 acres and Portland 290 acres.

An extensive planning process has resulted in the Pleasant Valley Plan District. The Pleasant Valley Plan District will fulfill the goal that resulted from the planning process to create a quality living environment, with a sense of place that is unique to Pleasant Valley. To achieve this goal, the Plan District will implement compact mixed-use neighborhoods, a town center, neighborhood edges and centers, a variety of housing options, transportation alternatives, pedestrian friendly urban design and the integration of the natural environment into the design of the community. Critical to the sense of place in Pleasant Valley is the valley’s natural resources and extensive network of streams and wetlands. The Plan District will allow

the valley 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 land use elements that make up the Pleasant Valley Plan District. Endorsed by the Steering Committee and refined during the Implementation Plan phase, 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 Pleasant Valley from rural to urban uses.

10.701 URBANIZATION STRATEGY AND LAND USE PLANNING

BACKGROUND

The Metro Council brought the Pleasant Valley area into the Urban Growth Boundary (UGB) in December 1998. 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 restoration; public facilities and services including parks and open spaces; and schools.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. The goals addressed a town center, housing, transportation, natural resources, neighborhoods and schools. The introductory paragraph stated:

The Pleasant Valley Urban Reserve area is a beautiful valley surrounded by lava domes in the southeast portion of the Metro region. It has slowly evolved into a rural residential area over the last 30 years, largely displacing the agricultural uses that once occupied the valley. Now urban development has reached the borders of this community, and rapid and substantial change is in this area's immediate future. As the area is planned for urbanization, the primary goal is to create a place rather than a carpet of subdivisions. To accomplish this, the unique attributes of this area need to be identified and protected, and the limits to development in the area respected. Importantly, the future town center needs to be sized and located in a manner appropriate to the area, and help define the emerging community that will evolve in this area.

In December 1998, Gresham and Portland jointly adopted an Intergovernmental Agreement (IGA) regarding Pleasant Valley. The IGA concerns provisions for creating a plan, future annexations and future provisions for urban services. The IGA provides the Gresham and Portland coordination in creating an urban plan. The goals mentioned above were attached to the IGA and are to be considered when creating the urban plan. The IGA also provides that no urban zoning be applied until the urban plan was adopted by Gresham and Portland and approved by Metro.

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The goal for urbanization was:

***Create a community.** The plan will create a "place" that has a unique sense of identity and cohesiveness. The sense of community will be fostered, in part, by providing a wide range of transportation choices and living, working, shopping, recreational, civic, educational, worship, open space and other opportunities. Community refers to the broader Concept Plan area, recognizing that it has (and will have) unique areas within it. Community also refers to Pleasant Valley's relationship to the region – relationships with Portland, Gresham and Happy Valley, Multnomah and Clackamas counties, and the unique regional landscape that frames Pleasant Valley.*

In the alternatives evaluation process, the "Create a Community" goal was used as a way to coordinate and integrate the best attributes of the alternatives. The "Create a Community" goals was the vision that

guided the guided the developed of a “hybrid” alternative and ultimately the Steering Committee’s preferred Concept Plan.

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary, the central theme of the plan is to create an urban community through the integration of land use, transportation and natural resource elements.

Key features of the Concept Plan are:

- A mixed-use town center as the focus of retail, civic and related uses.
- A new elementary school and middle school located adjacent to 162nd Avenue.
- The location of major roads away from important historic resources and “park blocks” that connect the town center to the historic central section of Foster Road.
- A framework for protection, restoration and enhancement of the area’s streams, floodplains, wetlands, riparian areas and major tree groves through the designation of 461 acres of the valley as “environmentally sensitive and restoration areas” (ESRAs).
- Designation of a “neighborhood transition design area” adjacent to the ESRA so that neighborhood development is compatible with adjacent green corridors.
- A “green” stormwater management system intended to capture and filter stormwater close to the source through extensive tree planting throughout the valley, “green” street designs, swale conveyance and filtration of run-off, and strategically placed stormwater management facilities.
- Nine neighborhood parks dispersed throughout and a 29-acre community park centrally located between the utility easements north of Kelley Creek.
- A network of trails including east-west regional trails paralleling Kelley Creek and north-south regional trails following the BPA power line easement. A reorganization of the valley’s arterial and collector street system to create a connected network that will serve urban levels of land use and all modes of travel.
- Re-designation of Foster Road from arterial to local street status between Jenne Road and Pleasant Valley Elementary School. The intent is to preserve the two-lane tree-lined character of Foster Road and to support restoration efforts where Mitchell Creek and other tributaries flow into Kelley Creek.
- A network of transit streets that serve three mixed-use centers and seven nodes of attached housing.
- A variety of housing organized in eight neighborhoods. The variety includes large-lot, medium-lot and small-lot single-family homes, townhomes, apartments, condominiums and senior housing.
- Planned housing that is 50 percent attached, 50 percent detached and has an overall density of 10 dwelling units per net residential acre. The estimated housing capacity is 5,048 dwellings.
- Two 5-acre mixed-use neighborhood centers.
- Employment opportunities in the town center, mixed-use employment district, general employment district and in home-based jobs. Employment capacity is estimated at 4,985 jobs, with a job to housing ratio of .99:1.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in an urban plan for land uses in Pleasant Valley:

Compact and Mixed-Use Neighborhoods. Pedestrian communities should have stores, offices, homes, and parks placed close to each other. The physical components of an ideal pedestrian neighborhood are:

- A five to ten minute walk ($\frac{1}{4}$ to $\frac{1}{2}$ mile walk) from the center to the edge defines the boundaries of a neighborhood. This time and distance is comfortable for the average American. Neighborhood residents should be within walking distance of many of their daily needs, such as a convenience store, ATM, transit stop, day care and a community police office.
- There is a balanced mix of activities with places to live, shop, work, worship, learn and recreate. Proximity of daily destinations and transit can reduce the number and length of auto trips. Those that can't drive but can walk (or bike), such as the young and the elderly, are able to be active in their neighborhood.

Neighborhood Edges and Centers. Neighborhoods should have edges and centers. The edge of a neighborhood marks the transition from one neighborhood to another. The edge might be a natural area or a tree-lined arterial street. Schools, bus stops and other uses located at the edge are shared by neighborhoods. The neighborhood center is the main gathering place. Neighborhood centers could consist of a combination of any of the following:

- A public space such as a neighborhood or community park;
- Plazas within developments to create a public realm, instead of just a parking lot.
- An important intersection with pedestrian improvements.
- Civic neighborhood institutions such a meeting hall or a day care center would be located at the center.
- Shops and especially mixed-use buildings can be located around a plaza.

In centers, public spaces are given priority. Public spaces and public buildings are a source of community identity. The structure of streets and blocks, and the resultant location of public spaces and buildings can create special places. The importance of the public realm can be enhanced by its location without increasing the additional infrastructure costs.

Variety of Housing Options. Communities should have places for people of all ages and incomes to live. This can be made possible by locating different dwelling types in the same neighborhoods and even on the same street.

- Locate dwelling units in relation to public spaces and infrastructure. A variety of housing types can include small apartments, row housing, housing over shops, live/work studios, co-housing (clustered housing project in which certain common areas such as dining rooms are shared), small lot housing, and larger lot housing.
- Accessory dwellings (i.e., secondary suites or granny flats) can increase affordable housing opportunities both for the person renting a unit and the homeowner paying a mortgage.

Increasing Transportation Options. Every community should provide transportation alternatives, such as transit service, bicycle lanes and sidewalks. Transit provides necessary mobility for those who can't drive – because they are too young, too old, disabled, or can't afford a car. Transit also provides a more energy efficient and less polluting alternative to a car trip. The ability for adults and children to safely ride a bicycle or walk is also important.

- All new development should be designed with transit in mind. Transit (buses or even light rail) may be planned but not immediately implemented until well after development occurs. Land use patterns should lead transit service planning, rather than retrofitting a developed area to be served by transit.
- Public transit is only feasible when dwellings and jobs are concentrated near transit lines. A walkable, mixed-use neighborhood within walking distance of a transit stop makes it convenient for residents and employees to travel by transit, bike, foot, or car.
- Focusing development into pedestrian-oriented patterns that can be served by transit can be part of the strategy to preserve open space/natural resource areas.
- New development should be bike friendly, so that this method of transportation is safe – especially for children.

Provide Buildings that are Pedestrian Friendly. By presenting a friendly face to the street, individual buildings can contribute to a safer, more conducive walking environment.

- Rear alleys can allow housing and commercial buildings to be closer to the street with parking at the rear.
- Planting many shade trees along streets is easier when driveways are not present. Trees provide a number of benefits including a more interesting urban design, place setting, stormwater management, and energy (shading) conservation.

Incorporate the Natural Environment into the Design of the Community. Critical to the “sense of place” in Pleasant Valley is the extensive network of streams and wetlands. It is critically important to develop the valley in such a way to minimize impact on these natural features, while at the same time using the presence of features to enhance the built environment. This can be accomplished in the following ways:

- Use the area adjacent to streams and wetlands to create a multi-use trail system that creates a pedestrian and bicycle pathway linkage system.
- Design neighborhoods to incorporate existing natural features to enhance the aesthetic environment while minimizing impacts.
- Design the roadway system to minimize impact on natural resources. Provide additional neighborhood level connectivity with pedestrian connections, such as bridges.

Plan District. Gresham and Portland provide for Plan District approach when there are unique conditions within a specific area that require a unique approach rather than a generalized citywide zoning approach. The Plan District designation must be based on a study or plan that documents those unique conditions and the measures that address the relevant issues. Proposed policies, procedures, development standards and other measures need to be consistent with the study/plan and with the city's comprehensive plan.

GOALS

1. Pleasant Valley will be a complete community with a unique sense of identity and cohesiveness.
2. Pleasant Valley will have a wide range of transportation, living, working, recreation, and civic and other opportunities.

POLICIES

1. The Pleasant Valley Concept Plan Map and Implementation Strategies will provide the blueprint for local jurisdictional adoption of comprehensive plan amendments and implementing measures for future urbanization.
2. Pleasant Valley will be master planned as a complete community. A complete community has a wide range of transportation choices; of living choices; of working and shopping choices; and of civic, recreational, educational, open space and other opportunities.
3. Pleasant Valley will have full public services to include transportation, stormwater management, water, wastewater, fire and police services, recreation, parks and connected open spaces and schools.
4. Urbanization of Pleasant Valley will carefully consider its relationship to adjoining communities as annexations and extensions of public facilities occur.
5. Urbanization of Pleasant Valley will carefully consider and enhance its relationship to the unique regional landscape that frames Pleasant Valley.
6. Urbanization will be guided by a Pleasant Valley urban services and financial plan that will ensure that annexation, service provision and development occur in a logical and efficient manner and that major public facilities are provided at the time they are needed.

ACTION MEASURES

1. Establish a Plan District for Pleasant Valley. 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 Pleasant Valley Concept Plan.
2. Establish the new Plan District Zoning Classifications based on the Concept Plan guidelines in the Town Center, Housing, and Employment and other sections found in these Pleasant Valley Concept Plan Implementation Strategies.
3. The Pleasant Valley Plan District will allow for unique planning and regulatory tools that are needed to realize the Pleasant Valley Concept Plan.
4. Establish a strategic plan for urban services and financing infrastructure. The plan will include a phasing plan, i.e., identifying a logical sequence for phased annexations, development of public infrastructure and delivery of public services as urbanization occurs. This strategic plan will also include a provision for providing major public facilities at the time they are needed. "Major public facilities" will be defined in this process and be based on the details provided in the water, wastewater, stormwater and transportation reports.
5. Create a set of new development standards for the design of land use types and the transition and compatibility of these land uses down to the block level based on the Pleasant Valley Concept Plan map and implementation strategies.

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10.702 TOWN CENTER

BACKGROUND

The Metro Council designated a town center within Pleasant Valley on the Region 2040 Growth Concept map when Pleasant Valley was brought into the Urban Growth Boundary (UGB) in December 1998. New town centers are expected to accommodate retail and service needs of a growing population while reducing auto travel by providing localized services to residents within a two to three-mile radius.

Region 2040 town centers can and should be different but do share some general characteristics:

- The guidelines for density are 40 persons per acre.
- Good transit service and, because of their density and pedestrian-oriented design, play a key role in promoting public transportation, bicycling and walking as viable alternatives to the automobile.
- Include not only employment and shopping, but also housing.
- Provide citizens with access to a variety of goods and services in a relatively small geographic area, creating an intense business climate.
- Act as social gathering places and community centers, where people find the cultural and recreational activities.
- Overall town centers function as strong business and civic communities with excellent multi-modal arterial street access and high-quality public transportation with strong connections to regional centers and other major destinations.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. A preliminary goal for a town center included these elements:

- Focus of retail and other public and private services serving this community.
- Village atmosphere through a mix of land uses.
- Sized carefully to limit the amount of traffic attracted into this area from outside the community.
- Excellent pedestrian facilities and amenities to facilitate walking throughout and from adjoining areas.
- Average building two stories developed in a compact form around a grid of streets with on-street parking.
- View corridors from surrounding hillside properties considered in the design.
- Residential areas adjacent to the town center a focus for the higher density housing options in the area.
- Includes open space.
- Developed to protect watercourses and sensitive environmental areas.
- In a single city jurisdiction.

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The goal for town center was:

Create a town center as the heart of the community. *A mixed-use town center will be the focus of retail, civic, and related uses and services that serve the daily needs of the local community. The town center will be served by a multi-modal transportation system. Housing will be incorporated into mixed-use buildings and/or adjacent apartments and town homes. A central green or plaza will be included as a community gathering space. Streets and buildings will be designed to emphasize a lively, pedestrian-oriented character for the town center. The town center will have strong connections to adjacent neighborhoods, and commercial services that are centralized and convenient to pedestrian-oriented shopping.*

Two Town Center Focus Sessions were held during the development of the Pleasant Valley Concept Plan. The purpose of the first session was to assess the nature and extent of a future Pleasant Valley town center. The purpose of the second session was to discuss important attributes of a future Pleasant Valley town center and to evaluate four town center configurations developed in the design charrette planning process. These focus sessions were hosted by the Pleasant Valley Concept Plan Land Use work team and facilitated by project staff. Participants included commercial real estate professionals and planning professionals as well as citizen advocates. Through the course of the focus session's participants identified major issues critical to ensure the economic and design success of a town center.

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary, the Pleasant Valley Concept Plan town center is intended to be the civic and commercial heart of the Pleasant Valley community – a place to shop, get a cup of coffee, greet neighbors and visit the local community center. Primary uses include retail (anchored by a grocery store), offices, services and civic uses. A range of higher density housing types will be allowed as part of a mixed-use development.

Selected characteristics of the town center include:

- An east-west main street connecting 172nd Avenue to the community park. This street will have two travel lanes, on-street parking, wide sidewalks and pedestrian amenities.
- A centrally located plaza or community green.
- An overall “village feel” with buildings oriented to streets, generally two- to three-story building heights, storefront character along key streets and extensive pedestrian amenities.
- Access and circulation designed in a logical grid of streets.
- Park blocks extending from Kelley Creek and terminating at the plaza, a key building or intersection within the town center.
- Street and place names that link the center to the cultural and natural history of Pleasant Valley.

The mixed-use employment area north and west of the town center is intended to provide employment opportunities and other uses that are compatible with, and support, the town center. Primary uses shall include offices, services and small retail. Housing will be allowed within a mixed-use building.

Selected characteristics of the mixed-use employment area include:

- Buildings can be up to three stories high.

- This district is intended to have buildings oriented to streets and pedestrian amenities. These characteristics will help reduce the impact of the three- and four-lane character of Giese Road and 172nd Avenue. Both Giese Road and 172nd Avenue are transit streets, so it is important that a walkable character is created to complement the opportunity for transit-oriented development.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in planning a Pleasant Valley town center:

- **Market Issues.** The town center needs to survive in the marketplace. Therefore, concepts that are untested in the marketplace should be avoided. However, innovation is still important. It is possible to have a town center that relates to tested market rules of thumb, has a character that reflects the pedestrian-orientation goals adopted by the Steering Committee, and is unique to Pleasant Valley.
- **Public Sector.** Land use regulations and incentives could help create the desired town center. Infrastructure improvements should be timed to facilitate development of the town center. The public sector could stimulate the private sector investment in the town center by building uses such as libraries, fire stations and other community uses in a centralized area. A strong master plan could be helpful in creating a cohesive town center.
- **Size.** The size of the town center could be as large as 20 acres. This size would include any associated civic uses.
- **Design Issues.** The Metro model of a town center focuses on a centralized “nodal” pattern. Towards this end commercial strips along major arterial roadways should be avoided. The town center should be well integrated into design of the valley, including transportation (vehicular, transit and walking), open space, and land use systems. A “main street” environment should be created. A rectilinear shape increases development feasibility.
- **Parks and Plazas.** The town center should include a handsome well-proportioned park or plaza to serve as a focal point for collective civic action. It should be a space that defines a role for the buildings that surround it, rather than being the remnant space left after the buildings have been designed. A public space will help create a community oriented town center and will support retail. A large central park in the heart of the town center may not be appropriate and could dilute its functionality. A better alternative could be a small hardscape plaza or series of plazas immediately adjacent to retail uses. The size and location can vary depending on design objectives, but might be between 1 and 3 acres in size. However, smaller may be better in the core of the town center and could be as little as 1/8 to 1/4 of an acre – depending on design.
- **Open Space.** Linkage and proximity of open space are important to town center character and design. Linkage to a larger open space, such as the “Nature Park” or the stream corridor open space system is desirable. This linkage could pass through a residential neighborhood.
- **Natural Area.** The connection of the town center to the natural areas and open space system is desirable. However, it is not necessary or even desirable for the town center to be adjacent to natural areas. Residential areas can provide a buffer between the town center and stream corridors. The concept plan should balance the necessary configuration and size of a town center with the protection of natural areas.
- **Retail and Service Uses.** A grocery store (30,000 – 55,000 square feet) will serve as the anchor for a town center. A second anchor such as drug store may be appropriate. Smaller uses could include restaurants, coffee shops, video stores, personal services, copying, gas station, bank and insurance offices. Overall retail and service uses could combine for 80,000 to 150,000 square feet. Envisioned

as a shopping area and neighborhood center for meeting daily needs of residents, not as a “big-box” retail center.

- **Civic Uses.** Commercial uses should be combined with civic and community service uses when possible. Certain civic and community service uses such as a library, meeting hall or elderly housing facility would benefit from immediate adjacency.
- **Transportation.** Access to a major roadway is critical and a good intersection (“100% corner”) is highly desirable. Access to a good bus route is also critical.
- **Concept of Linked Trips.** A substantial benefit is gained by locating complementary uses close to one another. For example, a school or a day care near (not necessarily adjacent to) a grocery store allows parents to combine trips. This helps support the town center economically and reduces vehicle trips. Senior housing facilities, where many residents do not have vehicles, also benefits from proximity to the town center.
- **Housing Issues.** Housing density makes sense around town centers. The density provides customers to the town center and, if designed correctly, can create a pedestrian environment that reduces vehicle trips. While a high number of households close to the town center is good, the center will still need the population from the valley as a whole to survive. Visibility and vehicular access remain important.
- **Offices.** Offices will likely be okay around the current town center and neighborhood center areas. Those areas, because of the mix of land uses, would likely have employment because of the positive relationship or mutually supportive relationship of land uses. Institutional uses and small office and business parks with relatively small buildings would also likely occur near the town center.

GOAL

Pleasant Valley will have a mixed-use town center that will be the heart of the community.

POLICIES

1. The town center will be the focus of retail, civic and office related uses and services that serve the daily needs of the local community.
2. The town center will be served by a multi-modal transportation system with good access by vehicular, pedestrian, bicycle and transit traffic.
3. A wide range of housing types will be allowed and incorporated into mixed-use buildings and adjacent townhouses and apartments.
4. Streets and buildings will be designed to emphasize a lively, pedestrian-oriented character where people feel safe by day and night.
5. A “main street” environment that is a visually stimulating area that makes people want to linger and explore will be created.
6. A central green or plaza(s) will be included as a community gathering space(s). There shall be good linkage to the central park space to the east and to Kelley Creek to the south. Linkage design to Kelley Creek shall include consideration of a park block design.
7. The town center will have strong connections to adjacent neighborhoods and include commercial services that are centralized and convenient to pedestrian-oriented shopping.

8. The core town center will have adjacent mixed-use employment areas that will include office uses and live-work housing opportunities.
9. The expectation for the Town Center is a highly pedestrian oriented place with a dense mix of shopping, service and civic and mixed-use buildings.
 - a. It is anchored (at least) by a grocery store. Smaller buildings for retail and service uses, civic uses and mixed commercial/residential uses will be oriented on pedestrian main streets(s) and plaza(s).
 - b. It will be an easy and attractive place to walk, bike and use transit. It will be a convenient and attractive place to drive.
 - c. A high standard for development will be set. Develop techniques such as shadow platting to provide for future infill at the desired minimum density.
10. The Pleasant Valley Plan District will include two mixed-use zoning districts associated with the town center:
 - a. A town center zoning district with a mix of retail, office and civic uses and housing opportunities as a pedestrian oriented area and a main street character.
 - b. A mixed-use employment zoning district that will provide office, professional services and other support services and employment opportunities adjacent to the town center.

ACTION MEASURES

1. Develop a strategy to help ensure the town center's survival in the marketplace. Marketplace design standards and principles can be combined with pedestrian-oriented design standards to create a unique Pleasant Valley Town Center. Consideration shall be given to future public involvement strategies including a design charrette with property owners and developers and the public to create specific design standards, street layouts and a scheme for a mix of retail, service and housing uses. Develop techniques, such as shadow platting, to provide for future infill at desired density. Shadow platting requires placement of buildings in a way that allows future infill at the desired minimum density.
2. Identify and recruit desired civic uses. These uses to consider should include a library, a community police station, a community-meeting hall and a day care facility.
3. Develop a strategy that allows for a town center master plan review process. Such a master plan included more detail than found in the Plan District regulations and would guide development of the town center.

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10.703 RESIDENTIAL LAND USE/NEIGHBORHOODS

BACKGROUND

The Metro Council designated most of the Pleasant Valley area as inner neighborhood on the Region 2040 Growth Concept map when Pleasant Valley was brought into the Urban Growth Boundary (UGB) in December 1998. Inner Neighborhood is primarily a residential area accessible to jobs and neighborhood businesses. The guideline for density is an average of 14 persons per acre.

In addition to Inner Neighborhood (and the town center designation discussed elsewhere), the Metro Council designated transit corridor along the expected transit streets. Corridors are along good quality transit lines featuring a high-quality pedestrian environment. Density guidelines are 25 persons per acre. Typical new developments would include rowhouses, duplexes and one- to three-story office and retail buildings. Corridors may be continuous, narrow bands or may be more nodal, with a series of smaller centers at major intersections or other locations.

Title 11 of Metro's Urban Growth Management Functional Plan has a provision for average residential densities of a least 10 dwelling units per net residential acre. This provision is also consistent with State requirements for housing in the Portland metropolitan area. Title 11 also includes provisions requiring demonstrable measures that will provide for a diversity of housing stock that will fulfill needed housing requirements as defined in State statutes (ORS 197.303). This definition asserts the need to ensure affordable, decent, safe and sanitary housing opportunities for persons of lower, middle and fixed income, as well as seasonal workers. Needed housing includes attached and detached single-family housing, multiple family housing for both owner and renter occupancy, government-assisted housing and manufactured home housing.

State statutes also require that for new construction that jurisdictions designate sufficient buildable land to provide the opportunity for at least 50% of new residential units to be attached single-family housing or multiple family housing.

Title 11 also provides that there be a 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.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. Preliminary goals were developed for housing and for neighborhoods:

A variety of housing will be planned for, with a wide array of densities.

- Full range of housing types, from large lot single family to small lot single family, row houses, and apartments.
- Highest densities will be concentrated along transit lines and in close proximity to commercial services, transitioning to lower density housing at the edges of the area and in both the foothills of the steeper slopes.
- High quality design will be important to achieve both density and aesthetic goals.
- Affordable housing will be planned. Existing amounts of affordable housing in the south and eastern parts of the region will be considered in determining the share and percentage in this area.

- The focus of meeting affordability goals in this will be on home ownership options.

The area should be divided into **neighborhood areas** defined by natural features or major roads.

- Neighborhoods are often defined and characterized by the amenities that are located in their physical area.
- To ensure that each neighborhood develops into a community with an identity, they shall include provision for local shopping, parks, and several schools.
- The tax base for each of these neighborhoods will be diversified, but predominantly single-family housing.

A Residential Focus Session was held during the development of the Pleasant Valley Concept Plan. The purpose of the session was to assess the nature and extent of who will eventually live in Pleasant Valley, what range of housing types should be provided and what are reasonable ranges for percentage of each type of housing. This focus session was hosted by the Pleasant Valley Concept Plan Land Use work team and facilitated by project staff. Participants included multiple and single-family residential developers, a non-market rate housing provider, a realtor, and housing planning professionals. Through the course of the focus session, participants identified major issues critical to ensure the success of the plan by addressing future housing needs. The focus session participants recommended the percentages of various housing types that were ultimately used to calculate the final dwellings units, jobs and population estimates for the Pleasant Valley Concept Plan areas. The final percentages used were:

Housing Type	Percentage
Large Single Family (7,500+ sq. ft. lots)	14%
Standard Single Family (5,000 – 7,000 sq. ft. lots)	32%
Small Single Family (3,000-5,000 sq. ft. lots)	5%
Rowhouses/Plexes (15-20 dwelling units/acre)	8%
Condos/Cohousing (20-30 dwelling units/acre)	9%
Apartments (20-30 dwelling units/acre)	23%
Senior Housing (20-60 dwelling units/acre)	9%

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The following goal addressed housing and neighborhoods:

Provide housing choices. *A variety of housing choices will be provided, with a focus on home ownership options. Housing options will accommodate a variety of demographic and income needs, including appropriate affordable choices and housing for seniors. The plan will provide for an overall average residential density of 10 dwelling units per net residential acre (i.e., including only residential land), based on a mix of densities. Walkable neighborhoods will form the organizing structure for residential land use. Natural features will help define neighborhood form and character.*

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary, the Concept Plan addressed housing and neighborhoods with the following characteristics:

- Each of the eight Pleasant Valley neighborhoods is intended to include a variety of housing options.
- Overall housing density is 10 dwelling units per net residential acre, with 50 percent of the proposed housing as detached and 50 percent attached.

- Detached housing choices include small lots (3,000-5,000 square feet), medium lots (5,000-7,000 square feet) and large lots (7,500 square feet and greater).
- Attached housing choices include townhomes, apartments, condominiums and senior housing.
- Pleasant Valley's neighborhoods will have a walkable character with defined centers and edges. Neighborhood dimensions will be a comfortable walking distance of 1/4 to 1/2 mile (5- to 10-minute walk).
- Neighborhoods will be designed to increase transportation options. Neighborhoods will be bike and walking-friendly, especially so that children can travel safely. Neighborhoods along the community's transit streets will be designed with transit in mind.
- Neighborhoods will be designed to incorporate the existing natural features, connect to the ESRA and support "green" stormwater management practices.
- Neighborhoods have a neighborhood park.
- Zoning will allow and encourage home-based employment.

The neighborhood concept described above is an essential part of the vision for Pleasant Valley. The development of individual properties is intended to fit together into complete, cohesive neighborhoods.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in planning Pleasant Valley residential neighborhoods:

- ***Place attached residential near Town Center and transit streets.*** Having the higher density areas near the town center and transit streets supports the compact and mixed-use environment desired for the project area. This increases accessibility by allowing more opportunities to travel by bus, walking or biking. Small lot development is also transit supportive. A mix of smaller lots, townhomes and apartments would be a good balance of mixed character and transit orientation.
- ***Senior and higher density residential.*** As more refinement occurs during implementation, distribute certain type of attached housing, e.g., higher density and senior housing, along streets with more frequent transit service.
- ***Attached residential and parks.*** Locate a park next to or near attached residential areas. This enhances the quality of life for attached residential residents that are often underserved by park facilities and will help ensure a high quality of higher density housing. Relating attached residential to open space and parks can also minimize the feeling of multi-family being clustered together.
- ***Variety of housing.*** Communities should have places for people of all ages and incomes to live. This can be made possible by locating different dwelling types in the same neighborhood and even on the same street.
- ***Walkable neighborhoods.*** Neighborhoods should have edges and centers. The edge of the neighborhood marks the transition from one neighborhood to another. An edge might be a natural area, a transit stop or a tree-lined arterial street. The neighborhood center is a main gathering place. Public spaces, such as parks and civic buildings, should be given priority. From center to edge of neighborhood should be a comfortable walking distance of 1/4 to 1/2 mile (5 to 10 minutes).
- ***Neighborhoods should increase transportation options.*** Neighborhoods should be bike and walking friendly, especially so that children can travel safely. Neighborhoods should be designed with transit in mind. A transit stop(s) should be located within walking distance of mixed-use neighborhoods. A

compact, mixed-use neighborhood with transit options is one strategy for preserving the open space/natural resource areas associated with the Environmentally Sensitive and Restoration Areas.

- **Arterial streets.** Design arterial streets, where they split a neighborhood or where they form the edge of a neighborhood, to be a worthy setting for buildings, an aesthetic benefit and unifying for the neighborhood.
- **Incorporating the natural environment.** Neighborhoods should be designed to incorporate the existing natural features in a way that enhances the aesthetic environment while minimizing impacts. This is a critical aspect of Pleasant Valley's "sense of place".

GOAL

Pleasant Valley will provide a wide variety of housing choices that will accommodate a variety of demographic and income needs within high quality, well-designed and walkable neighborhoods framed by the natural landscape.

POLICIES

1. Each Pleasant Valley neighborhood will include a wide variety of housing options for people of all ages and incomes with the following considerations:
 - a. Home ownership options that range from affordable housing to executive housing.
 - b. Housing for the elderly and the disabled.
 - c. Affordable housing choices including rental and home ownership opportunities.
 - d. An overall average density of 10 dwelling units per net residential acreage.
 - e. A 50/50 ratio of attached dwelling to detached dwelling opportunities.
 - f. A housing type mix in the same neighborhood and on the same street.
2. Home-based work will be permitted and encouraged in residential districts. Standards shall be established to ensure compatibility with surrounding neighbors. Existing City of Portland and City of Gresham standards shall be used as a model for home-based work standards.
3. Pleasant Valley will have walkable neighborhoods with a defined center and edges. The edge of the neighborhood marks the transition from one neighborhood to another. An edge might be a natural area, a transit stop or a tree-lined arterial street. The neighborhood center should be a main gathering space with priority given to public spaces, such as parks and civic buildings. From the center to the edge should be a comfortable walking distance of ¼ to ½ mile radius (5 to 10 minute walk).
4. Pleasant Valley neighborhoods will be designed to increase transportation options. Neighborhoods shall be bike and walking friendly, especially so that children can travel safely. Neighborhoods shall be designed with transit in mind. A transit stop(s) should be located within walking distance of a neighborhood.
5. Pleasant Valley will support a compact, mixed-use urban form, increase accessibility for walking and biking and be transit supportive. Attached housing should take a nodal form as opposed to a transit street lined with apartments.
6. Higher density residential areas will be designed and scaled in keeping with the desired pedestrian form.

7. Higher density residential areas will be located near the town center, transit streets and the mixed-use neighborhood centers. A mix of smaller lots, townhomes and apartments provide a good balance of mixed housing character and transit-orientation.
8. Neighborhoods will be designed to incorporate the existing natural features in a way that enhances the aesthetic environment while minimizing impacts. A compact, mixed-use neighborhood with transit options is one strategy for preserving open space and natural resource areas.
9. Parks will be located next to or near higher density areas. They shall also serve to provide a sense of place for the neighborhood and be accessible to the whole neighborhood. This enhances the quality of life for attached residential residents and will help ensure a higher quality of higher density housing.
10. Neighborhoods will have strong connections to the Kelley Creek and Mitchell Creek open space systems. The design and function of neighborhoods shall facilitate preserving, enhancing and restoring Pleasant Valley's open space system.
11. The Pleasant Valley Plan District will include residential districts that will provide for small, standard and large single-family lot (detached residential) opportunities and for high and moderate density attached dwelling (attached residential) opportunities. High-density attached dwelling opportunities shall be focused in the vicinity of the town center.

ACTION MEASURES

1. Work with groups such as the City of Gresham's Community Development and Housing Committee (CDHC) and the Planning Commission to create a plan that identifies appropriate strategies and implementation measures to promote affordable housing in Pleasant Valley.
2. Create principles and strategies to ensure that the scale and design of dwellings, especially in the high and moderate density zoning districts, are compatible with the compact, pedestrian oriented and smaller scale character of Pleasant Valley. Consider a process for developing a design vocabulary (a variety of specific architectural elements) for the Pleasant Valley community.

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10.704 EMPLOYMENT AND OTHER COMMERCIAL

BACKGROUND

The Metro Council generally applied three Region 2040 Growth Concept Map design districts to the Pleasant Valley area: town center, transit corridor and inner neighborhood. The bulk of employment opportunities were expected to occur within the town center focused on retail, commercial services and office uses. Corridors were expected to have some employment focused on small centers with office and retail uses at major intersection or other locations. Inner neighborhoods would have a small amount of employment focused on home based jobs and civic uses (such as schools).

No employment or industrial area 2040 design districts were included in the Region 2040 Growth Concept Map for Pleasant Valley. Employment areas encourage various types of employment with limited commercial uses and have a density guideline of 20 persons per acre. Industrial areas are primarily for industrial activities with limited supporting uses and have a density guideline of 9 persons per acre.

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The goal for employment was:

Provide and coordinate opportunities to work in and near Pleasant Valley. The plan will identify opportunities for home-based work and employment areas within Pleasant Valley. A range of employment opportunities will be considered, including retail and other employment. The plan also will consider the relationship of Pleasant Valley to existing employment centers in the East Metro area and potential new employment areas near Damascus.

Employment opportunities for the four alternatives focused on the town center and schools. The evaluation of the alternatives for the above employment goal found that: 1) Home-based work is a desirable element of the Pleasant Valley community; and 2) the overall estimates for jobs are relatively low for a 1,500-acre community and additional opportunities for employment should be evaluated. The relatively low estimate was considered a significant issue and led to three recommendations.

1. That the Preferred Concept have a more efficient use of the Town Center through a combination of having more office and civic uses and less retail uses and higher floor area ratios; that a 10-15 acre pedestrian-oriented business/office park near the Town Center be added and that two five-acre mixed-use neighborhood centers (retail and adjacent office use or live-work opportunities) be added.
2. Consider adding an employment area to the Concept Plan. This would be significant area (e.g., 60 +/- acres) that would be planned as a cohesive district that is integrated with the overall community concept.
3. Develop strategies to encourage and allow home-based employment in Pleasant Valley.

Consideration of adding an employment area to the Concept Plan resulted in two additional evaluations: 1) an analysis report on Pleasant Valley Employment Opportunities by City of Gresham and E. D. Hovee & Company staff, and 2) an Employment Focus Session. The analysis report focused on three areas: 1) what additional employment opportunities are viable during a 20-year planning period, 2) if additional employment opportunities are viable what kind, where and how much, and 3) what are the site characteristics to associate with employment centers.

One Employment Focus Session was held during the development of the Pleasant Valley Concept Plan. The purpose of the session was to assess future employment opportunities in Pleasant Valley with a focus on what type of businesses might be appropriate and what characteristics are needed to attract the businesses. The focus session was hosted by the City of Gresham in conjunction with the Pleasant Valley Concept Plan Land Use work team and facilitated by project staff. The thirteen session participants included employment and economic development experts and planning professionals. Through the course of the focus session participants identified major issues critical to ensure the economic success of an employment district in Pleasant Valley.

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary:

Mixed-Use Neighborhood Centers. Two mixed-use neighborhood centers are proposed: one along 190th Avenue and one at the corner of 172nd Avenue and the Clatsop Street extension. These centers are intended to provide local retail and service and employment opportunities at the edge of the adjacent neighborhoods. Primary uses shall include small-scale retail and service and office buildings. Housing will be allowed as part of mixed-use and live-work buildings. Street-oriented retail and pedestrian amenities along the streets will contribute to a pedestrian-friendly character. Each center includes a small plaza.

Employment Areas. Two employment areas are proposed: one along Giese Road and one along 172nd Avenue at the Sager Road extension. These districts are intended to provide Business/Office Park, medical and other employment opportunities. Primary uses will include knowledge-based industries (graphic communications, creative services, etc.), research and development facilities, office uses, medical facilities and other business park uses. Emphasis is placed on business suited to a high environmental quality setting.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in planning Pleasant Valley employment and neighborhood mixed-use center districts:

Mixed-use Neighborhood Centers. One to three small nodal centers could be strategically located in the concept plan area. The smaller centers would not compete with the larger town center due to difference in scale, character and type of use. Visibility from a major street is an important consideration.

Flex space. Local and regional studies show a strong need for additional business park/flex space lands. Gresham tends to attract small companies. Its strengths are in high tech, graphic communication and creative services, which could be accommodated in a business park setting. Medical facilities and research could also fit into a business park/campus setting.

Quality environment. Quality of environment is becoming increasingly important in site location decisions. The case studies of Snoqualmie Ridge in Washington and the Comprehensive Health Center in Hawaii are examples. A preserved natural environment can create a desirable setting for information sector uses.

Job/Housing balance. The job to housing balance in the concept plan need not meet the regional average. However, it is desirable to strive to attain an even balance of jobs and housing. A density of about 35 persons per acre in an additional 50 acres of land would help achieve this balance.

Employment opportunities. Additional employment opportunities in the concept plan area should allow business park development with a focus on flex space. The information sector, research and development and medical campus should be allowed and encouraged. Development regulations should set high standards for green practices and positive relationships with the adjoining community. Institutional uses and small office and business parks with relatively small buildings would also likely occur near the town center.

Types of uses

- Offices, health and elderly care facilities, and small start-ups such as a software firm should be attracted to Pleasant Valley. This will likely be local and entrepreneurial in nature. Small floor areas, 2-3 stories high, and Class B office space are likely features.
- Health care uses of all types have been consistently mentioned as good fits for Pleasant Valley: hospitals, clinics, health related research and development, elderly care, etc.
- Research and development firms tend to locate next to other firms doing research and development. The only way that research and development would work in this area is if it was initiated in the Pleasant Valley area and was a small enough company that it didn't need to move right away.
- Spin-off employment. Due to constraints, Pleasant Valley may not be a natural choice for business locations. However, as people move into the valley, they may choose to start companies in an available business park. Also, a successful town center could lead to additional employment in a business park.

Locational Attributes. Locational attributes include access to major roads (arterial system), transit service, strong relation to the Environmentally Sensitive and Restoration Areas, convenient access to the commercial centers and site(s) sizes of 10-50 acres.

Damascus. The long-term relationship to Damascus is critical to larger scale employment uses in Pleasant Valley. Having a relationship to Damascus and a direct transportation connection to the future Sunrise Corridor is important.

Transportation. Transportation is absolutely essential, and building an effective and connected road network should be a high priority. The regional transportation system needs to be funded by all the users. Due to the complexity and expense of needed improvements in Pleasant Valley, cooperation with other jurisdictions will be critical. Improvement to the Foster and Powell corridors and improvements in Damascus will be needed.

Zoning. It is also important that zoning and land uses provide as much regulatory flexibility as possible, but still maintain a high quality of life for area residents and businesses.

Capital Improvement Programs. Jurisdiction's capital improvement programs and public facility plans should be tied to improving employment opportunities in the area.

Quality of Community

- Success of the town center is critical to the creation of employment opportunities in Pleasant Valley. Employment in the town center and adjacent to the town center are most likely in the short term. A small business park near the town center is practical in the (relative) short term.
- High quality neighborhoods and amenities will be needed to support employment. The quality of the neighborhood will lead to stronger employment as business owners choose to live and locate in

Pleasant Valley. The area should have the following characteristics: executive housing; higher density housing (around commercial areas); recreation areas; community facilities (schools, libraries) and protected open space areas.

- Executive housing. An existing strength of some housing developments in the area surrounding Pleasant Valley is the option for a larger than average lot size (for example, 4 dwelling units per acre) in a natural setting. This type of housing development is appealing for executive housing and the high income can help support the town center. Case studies from the Portland and Seattle metro areas suggest that executive housing development can attract business park developments. It was emphasized that executive housing should be a part to serve a range of housing types for a wide range of income and demographic needs. Quality of all housing should be high.
- Higher density housing. This type of housing should be clustered around town centers and can provide additional support for the town center and employment uses.

There are quality of life issues associated with a library, cultural centers, and athletic facilities. These uses could be provided with future schools in the area. Mt. Hood Community College could work with Multnomah County Library and the Centennial School District on a joint facility.

GOAL

Pleasant Valley will provide for a range of employment opportunities that enable Pleasant Valley to be part of a complete community and to provide the opportunity to work and live in the same community.

POLICIES

1. Home-based work opportunities will be allowed and encouraged.
2. Employment opportunities will include retail and services, business office and business park uses to include “flex space,” research and development, and medical facilities.
3. Employment opportunities will consider the relationship of Pleasant Valley to existing employment centers in the east Metro area and potential new employment areas south (Damascus area).
4. Pleasant Valley will have mixed-use neighborhood centers to provide local service and shopping opportunities within a very short walking, biking or driving distance. Small (3-5 acre) mixed-use neighborhood centers shall provide retail, office and live-work employment opportunities.
5. A higher density and variety of housing types will be located near the mixed-use neighborhood centers.
6. The quality of the natural environment will be an asset in Pleasant Valley. Businesses locating in Pleasant Valley shall be expected to be good environmental stewards, utilize green practices and have a positive relationship with the community.
7. The quality of the built environment will be an important contributor to employment opportunities. A high quality town center, high quality neighborhoods and the inclusion of a mix of housing types will foster employment opportunities.
8. Pleasant Valley will endeavor to have a sustainable balance of jobs and housing capacity. This policy supports fiscal and community sustainability, distributes the risk for future developers/builders and eases costs associated with infrastructure improvements.
9. The Pleasant Valley Plan District will (in addition to the two mixed-use zoning districts associated with the town center) include two other mixed-use employment zoning districts:

- a. A mixed-use neighborhood center zone district with a mix of local retail, service and office live-work uses to encourage short walking, biking and driving trips.
- b. An employment center zone district that will provide business park employment opportunities including flex space, office park, research and development and medical facilities.

ACTION MEASURES

1. Develop a strategy to preserve employment center areas and to test its viability in the marketplace. The preservation strategy would include developing a list of prohibited uses. A cited example of a potential prohibited use is mini-storage facilities.
2. Develop a strategy for economic development recruitment and incentives to locate businesses that will enhance the compact nature and pedestrian scale orientation of Pleasant Valley and its environmental features.
3. Local participating jurisdictions and others are strongly encouraged to participate in actions and to take steps to solve employment issues on a community and citywide basis and on a regional basis.

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10.705 NATURAL RESOURCES

BACKGROUND

Pleasant Valley has an extensive system of creeks that connect to the surrounding forested lava domes and provide habitat for listed steelhead and cutthroat trout under the Endangered Species Act. Mitchell Creek, a tributary of Kelley Creek, has some of the highest quality habitat in the region and provides winter habitat for cutthroat trout.

The Metro Council brought the Pleasant Valley area into the Urban Growth Boundary (UGB) in December 1998. 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 include specific provisions for natural resource protection and restoration. It requires:

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 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.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. The goals addressed a town center, housing, transportation, natural resources, neighborhoods, and schools. The preliminary planning goal for natural resources stated:

This area has unique and important natural resources and the plan must identify and protect them. The watercourses and associated wetlands must be protected from development, and should be preserved as the signature natural feature of the area. This should be refined as environmental, site amenity and development impacts are better understood. The natural resource and amenity value of the lava domes that surround and form the valley should be protected. Sufficient areas should be set aside so that the habitat of Johnson Creek is preserved and enhanced, and sufficient areas set aside to insure that stormwater can be detained and treated before entering the creek system. A master plan should be developed that can be implemented as the area develops. In addition, this area should coordinate with the other portions of the Johnson Creek Watershed. There should be no net increase in water run-off or decline in water quality as a result of the development in this area. The natural resources of the area, including the streams, should be coordinated and included in the parks master planning for this area. The BPA power line that cuts through the area should also be considered.

The Pleasant Valley Concept Plan Steering Committee endorsed a series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan and were used in evaluating the four plan alternatives. The goal for natural resources is the following.

Preserve, Enhance, and Restore Natural Resources. *The plan will identify, protect, enhance, and restore significant natural resource areas, including stream corridors, forested areas and buttes. These*

resource areas will provide the basis for identifying buildable and non-buildable areas, and serve as open space amenities for the community. Resource protection will include strategies to protect endangered species, water quality and the aquifer. Resource protection and enhancement will be a shared responsibility of property owners, governments, and developers.

The work of the Natural Resource/Watersheds work team used this goal as a basis for developing the Environmentally Sensitive/Restoration Areas (ESRA). After a thorough inventory of resources in the study area, the work team presented their findings through a series of inventory maps at a Community Forum. Local residents made additions and corrections to the maps, which formed the basis for the ESRA areas. One of the unique aspects of the Concept Plan was the identification of the green infrastructure (ESRA) prior to the creation of the street network and locating land uses, such as the town center.

A tool used for addressing water quality issues, habitat protection issues, and natural hazards mitigation was to divide the Kelley Creek watershed into seven subwatersheds for analysis purposes. Extensive documentation of the scientific basis for resource protection was prepared as part of the subwatershed planning process.

Each of the four alternatives created during the 5-day design charrette included the ESRA as part of the base map. As a result, the work team evaluated each alternative using criteria that evaluated the number of stream crossings, amount of tree cover, etc. The alternatives that kept major roads and the town center away from the confluence of the creeks in the center of the study area were rated the highest.

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary, the Pleasant Valley Concept Plan ESRA is the green framework for the Pleasant Valley Plan. It constitutes the resource management areas with important ecological functions planned for integration with a new urban community. The long-term goal is to restore and enhance sensitive wetlands and stream corridors to more natural vegetation conditions, recognizing that existing homes and other uses will continue in the ESRA.

Selected characteristics of the ESRA include:

- Wetlands, upland, and riparian habitats that incorporate 34 habitat types. Wetlands range from open water to forested wetlands. Upland habitat ranges from deciduous and conifer forests to shrubs and habitats of mixed species.
- Habitat migration routes.
- Buffers adjacent to the resources range from 50 to 200 feet, depending on the type of resource.
- The implementation strategies included rough cost estimates, funding strategies, regulatory and incentive options, and restoration priorities.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in planning for Pleasant Valley:

- As the area urbanizes and open fields are developed, traditional wildlife migration routes between Powell Butte and the surrounding lava domes will be disturbed. A fully forested area along the creeks is vital to provide wildlife a useable corridor.
- Protection for the confluence area will provide important habitat for migrating wildlife to use as a resting and nesting area.
- A complex “network circuitry” of linkages between habitats will improve the effectiveness of the network for species movement. Examples of linkages include north and south along the utility corridor, linkages between Kelley Creek and the Metro open space land, and linkages between riparian corridors created by parks.
- An important key to the effectiveness of the riparian corridors system is the provision of “core” areas or nodes along the corridor that provide functional habitat and sufficient spaces for species to rest and breed. These nodes improve the survival rate for dispersing wildlife, and increase overall wildlife use of the network. The stream confluence area near the existing elementary school provides an important opportunity to create a centrally located core habitat. A further site study to relocate the existing north-south section of Richey Road is needed.
- The wetland complex south of Foster and east of 172nd is unique in the region in that it sits at the crest of two creeks flowing in opposite directions. This complex has great potential for restoration and stormwater management.
- Depending on their design, both parks and schools located adjacent to the riparian corridors could also serve as important buffers to the habitat network by providing natural or semi-natural area.
- The integrity of the system will be enhanced by minimizing crossings within the confluence area of Kelley, Saddle and Gresham South Slope, and the wetland complex in the Saddle subwatershed.
- The final site planning and design of urban development is critical to achieving the natural resource goals and policies. Careful consideration of resource issues suggest a community focused around the natural resource system of Kelley Creek and its tributaries. The design of parks, trails, school grounds, open space, transportation crossings, and other land uses will need special consideration of design to achieve the natural resources goal.

State Goal 5 Natural Resources. In order to protect natural resource values, Statewide Planning Goal 5 and its administrative rule require that jurisdictions complete a natural resource inventory, a determination of resource significance, an analysis of the consequences of resource protection, and develop resource protection standards. This work is one of the three central elements in the effort to create an urban community through the integration of land use, transportation, and natural resources.

The inventory is largely based on information collected during the Concept Planning phase. The purpose of the inventory is to document the quantity and quality of the characteristic vegetation, wildlife habitat, streamside areas, sensitive species, and other natural features in the Pleasant Valley study area.

The inventory is then used to determine which resources are significant. A set of mapping criteria was developed and a computer mapping exercise was used to assist in the process. The following nine different basic functions were used to provide the foundation for the significance determination.

- 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
- Upland sensitive species
- Upland interior habitat

The Goal 5 process then requires an analysis describing the different types of land uses that impact streamside areas, wetlands, and upland forest. Specifically, it requires an analysis of 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 areas (ESRA).

The final step in a Goal 5 process is the development of a program to implement the outcome of the inventory, significance determination and the ESEE analysis. Programs include both regulatory and non-regulatory elements.

GOAL

Pleasant Valley will be an urban community integrated with the natural environment.

POLICIES

1. Urbanization of Pleasant Valley will preserve, enhance, and restore natural resources.
2. Urbanization of Pleasant Valley will be balanced with the protection of sensitive species and habitat, water quality, and the aquifer.
3. Road crossings within the Environmentally Sensitive/Restoration Areas (ESRA) will be designed to provide crossings with the least impact.
4. Urbanization of Pleasant Valley will achieve low levels of effective impervious areas and high levels of tree protection and reforestation.
5. Flooding will be addressed by managing the frequency and duration of water flows in relation to match pre-development conditions for Kelley Creek and also to reduce downstream impacts to Johnson Creek.
6. Floodplains and wetlands will be fully protected and restored for improved hydrology and flood protection.

7. Urbanization of Pleasant Valley will increase quantities and diversity of upland habitats by creating larger, more diverse, connected habitats in the uplands.
8. Wildlife habitat connections between upland and riparian (river) habitats will be maintained and restored.
9. Wildlife habitat connections to surrounding areas, such as Powell and Clatsop buttes and Butler Ridge, will be maintained and restored.
10. Fish passage, where current passage is blocked, will be restored. Barriers to wildlife habitat corridors, such as bridges and roads, will be designed to provide proper opportunities for wildlife migration.
11. Urbanization of Pleasant Valley will prevent erosion and control sedimentation through the use of green development practices, site-sensitive design, appropriate construction management practices, revegetation of disturbed areas, and regular maintenance and monitoring. The use of native plants is a priority for revegetation and Green Streets.
12. As a near-term objective, downgrade the function of Foster and Richey Roads in the confluence area of Kelley Creek to serve as local access streets. As a long-term objective, disconnect and vacate the vehicular function of these street segments while maintaining the opportunity for a local trail opportunity.
13. As a major organizing feature, the network of natural resources identified on the Resource Management Map should serve as an open space amenity for the community.
14. Resource protection and enhancement is a shared responsibility and partnership of property owners, governments, community and non-profit organizations, and developers.

ACTION MEASURES

1. The Pleasant Valley Resource Management Map will serve as the basis for identifying areas to preserve, restore and enhance.
2. Require abandoned water wells to be decommissioned following Oregon Department of Water Resources accepted procedures to avoid groundwater contamination.
3. Establish a Greenway along Kelly Creek and its tributaries as the valley urbanizes. Greenways provide for public access and create a focal point for the community in the form of trails and open space along Kelley Creek and its tributaries.
4. Develop interim regulations for the sections of Foster and Richey Roads within the ESRA detailing how improvements are allowed, if at all, to minimize impervious surface, manage stormwater, and not preclude future removal.
5. The participating cities, area neighborhood associations, and the Johnson Creek Watershed Council are encouraged to support revegetation efforts, work to restore fish and wildlife habitat in the study area, and pursue funding sources outlined below to achieve the goals of the Pleasant Valley Concept Plan.

6. Complete and adopt a state goal 5 natural resources process including an ESEE analysis and implementing program.

10.706 GREEN DEVELOPMENT

BACKGROUND

Green development practices refer to a toolbox of stormwater management techniques. The technique is an approach that instead of using a traditional piped collection and conveyance system uses a system of landscaping features that treat and infiltrate stormwater on the development site. The benefit of green development practices is that it minimizes the production of stormwater runoff and manages it close to the source.

- 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.
- Traditional stormwater management techniques also 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.
- Green development practices 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 in 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.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. A preliminary goal for natural resource protection included these elements:

- This area has unique and important natural resources and the plan must identify and protect them. The watercourses and associated wetlands must be protected from development, and should be preserved as the signature natural feature of the area. This should be refined as environmental, site amenity and development impacts are better understood.
- Sufficient areas should be set aside so that the habitat of Johnson Creek is preserved and enhanced, and sufficient areas set aside to ensure that stormwater can be detained and treated before entering the creek system.
- A master plan should be developed that can be implemented as the area develops. In addition, this area should coordinate with the other portions of the Johnson Creek Watershed.
- There should be no net increase in water run-off or decline in water quality as a result of the development in this area.

The Metro Council brought the Pleasant Valley area into the Urban Growth Boundary in December 1998. It was recognized that future urban development would result in increased impervious surfaces and increased stormwater runoff. A federal Transportation and Community and System Preservation (TCSP) grant was obtained by Metro, with Gresham and Portland and others as partners, in part to address this

stormwater runoff issue. Included in the goals of the TCSP grant, as acknowledged by the Pleasant Valley Steering Committee, was:

- To develop strategies to help protect steelhead and cutthroat trout salmonoids;
- To minimize stormwater runoff in the Johnson Creek watershed; and
- To avoid further degradation of water quality.

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The goal for green development practices was:

Use “green” development practices. The plan will incorporate community design and infrastructure plans that produce minimal impacts on the environment, including flooding and water quality within Johnson Creek. The plan will incorporate guidelines for stormwater quality and quantity and resource management for each subwatershed, and also will enhance natural hydrologic systems as a fundamental part of managing drainage and water quality. The plan will incorporate green street designs. The plan will integrate green infrastructure with land use design and natural resource protection. The plan will incorporate energy-savings measures.

As part of the evaluation and concept plan selection process a hydrodynamic model (MIKE 11) was developed, calibrated and run for the Kelley Creek watershed. The purpose of the hydrological modeling was to simulate the impacts that different land use changes and green development practices would have on the water level, flow and extent of flooding through the Kelley Creek system. Different scenarios were developed with variables of the Environmentally Sensitive and Restoration Area (ESRA); green development practices such as bioswales in green streets; landscape planters and ecoroofs; and creating a tree canopy throughout the plan area.

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary, the concept plan provides for a “green” stormwater management system intended to capture and filter stormwater close to the source through extensive tree planting throughout the valley, “green” street designs, swale conveyance and filtration of run-off, and strategically placed stormwater management facilities.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in planning for green development practices in Pleasant Valley:

Initial stormwater modeling. Initial modeling that simulates for both continuous rainfall and single events showed a large increase in stormwater runoff between pre-development and post-development flood peak and flow durations. Green development practices, such as managing stormwater on each individual parcel to the maximum amount practicable, will be an extremely important strategy in mitigating these impacts and protecting endangered species, water quality and the underlying aquifer.

Johnson Creek flooding. Initial modeling notes a significant enough rise in floodwaters downstream in Johnson Creek, and specifically in the Lents area, to warrant management for the nuisance flood event in Kelley Creek watershed. The nuisance flood is the targeted level of protection indicated in the Johnson Creek Restoration Plan for minimizing and preventing frequent and repetitive flood damage, and

maximizing environmental benefits. The nuisance flood event is based on an actual, historical 3-day rainfall pattern in the watershed that generated an approximately 10-year flood event.

Kelley Creek Watershed Stormwater Modeling Conclusions.

- A full tree canopy is highly desirable. However, trees may take at least 20 years to grow to maturity and until they are at maturity will not realize the full benefits of stormwater management. Other stormwater management practices are, therefore, necessary.
- Considering the benefits shown in the model of tree canopy on stormwater management, there should be a long-term goal of vigorous tree planting throughout the valley. Additional tree canopy will help to mitigate the potential loss of green development practices due to improper maintenance or inaccuracies in facility sizing or modeling.
- To protect stream habitat, green development practices must be sized larger to more adequately mitigate runoff from larger storms. Facility sizing should be left to the next planning stage when stormwater management plans are written.
- The use of green development practices may decrease the size of stormwater management facilities needed to be built to prevent nuisance flooding downstream. However, green development practices will not completely manage larger storms and they will be conveyed from green facilities through swales and into regional facilities.
- The Environmentally Sensitive and Restoration Areas (ESRAs) help to reduce flood peaks for the nuisance, 5-year and 2 ½-year storms. Initial modeling shows that the 100-year footprint stays well within the ESRA with the implication that the ESRA is a flood management tool so that regional facilities don't need be sized to manage the 100-year flood, providing a significant cost savings.
- Maintenance of green development practices should be addressed as part of the implementation plan for stormwater management. Improper maintenance and enforcement may lead to failure of the stormwater system.
- Modeling greatly facilitates and provides information critical to the decision making process. Results tend to be accurate from a relative standpoint when comparing alternative scenarios. However, model representations and results should only be one item among others that influence decisions and project design/implementation.

Tree canopy. The planting and preservation of trees is one of the most cost-effective green development practices. The planting and preservation of trees is encouraged in the front and backyards of residential areas, along all streets and in medians, in neighborhood and community parks, on school grounds, and in all landscaped areas of parking lots and employment lands.

Ecoroofs. Ecoroofs are recommended for buildings in the town center, employment areas, apartments and senior housing. Ecoroofs are also encouraged on other structures. Ecoroofs are vegetated areas on top of roofs that absorb precipitation. Ecoroofs consist of a vegetated layer, a geotextile layer and a synthetic drain layer. They can vary in depth and vegetation depending on the weight bearing restrictions of the roof. A 3-inch ecoroof can reduce annual runoff by more than 50 percent in temperate climates.

Bioswales. Bioswales are recommended for all development outside the town center where hard surfaces predominate. Swales are essentially depressions lined with well draining soils where water can pond. They can be planted with vegetation that helps to absorb water and pollutants, or with grass. Runoff is directed into the swale and infiltrates. When soils are saturated, runoff ponds within the depression and begins to drain down slope. Check dams are often added to slow down runoff within the depression. Also, swales can be used for stormwater conveyance. The benefit of this approach is that unlike pipes,

which quickly gather and pass stormwater, swales slow down the progression of stormwater and help to reduce the overall volume through infiltration and evapotranspiration.

Landscape planters. Landscape planters are recommended to mitigate stormwater for all development in the valley. Planters can vary in shape, style and form, but the essential design is a landscaped area that sits anywhere from 1 to 2 feet above ground and is filled with well draining soils and plants specialized in filtering pollutants. Landscape planters can line the perimeter of buildings and treat roof runoff via downspouts. In poorly draining soils, the bottom of the planters should be lined with an impermeable fabric and underlain with perforated pipes which convey water away from building foundations and into other management systems. Landscape planters can also be incorporated into the middle of courtyards. In this case, they do not have to be lined and in areas with well draining soils they can act as bioretention facilities by infiltrating stormwater. In areas with poorly draining soils they are underlain with perforated pipe to prevent overflows.

Green Streets are recommended for all streets (with flexibility for those within the town center). Green Streets are designed to incorporate stormwater treatment within its right-of-way. They incorporate the stormwater system into the aesthetics of the community and maximize the use of street tree coverage for stormwater and climatic reasons. The handbook, published by Metro, titled *Green Streets – Innovative Solutions for Stormwater and Stream Crossings*, provides detailed designs and specifications.

Education and Maintenance. Green Streets, and green practices, are relatively new concepts that will require education on the part of the developer to build and the jurisdictions and homeowners to maintain. There are considerable construction cost savings (in addition to the environmental benefits) to building Green Streets, as outlined in the Stormwater Report, and these cost savings should be applied directly to the cost of maintaining Green Streets over the life of the system.

GOAL

Pleasant Valley will be a “green” community where green infrastructure is integrated with land use and street design and natural resource protection.

POLICIES

1. Encourage the planting, maintenance and preservation of trees throughout the watershed.
2. Transportation plans will use Green Street designs, as described in Metro’s handbook titled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* as a resource in the development and design of streets.
3. Community design and infrastructure plans will produce minimal impacts on the environment, including flooding and water quality in Johnson Creek.
4. Infrastructure plans will avoid placement of utilities in the Environmentally Sensitive and Restoration Areas where practicable.
5. Community design and infrastructure plans will enhance the natural hydrologic system as a fundamental part of managing stormwater and water quality.
6. Community design and infrastructure plans will incorporate energy-saving measures.
7. Community design, infrastructure, and natural resource protection plans will incorporate guidelines for resource management by subwatershed, including stormwater quality and quantity.

ACTION MEASURES

1. Develop regulations, incentives, and development standards that include measures to protect and augment the natural stream system with a variable width, 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 for buildings, houses, parking lots, and street rights-of-way by integrating stormwater management into the landscaping. The intent is to preserve and create opportunities for infiltration, evaporation, and transpiration before utilizing off-site storage. Where off-site storage is necessary, design shall be consistent with the *Johnson Creek Watershed Plan*. For example, off-site storage should be linked to swales and other infiltration areas and designed in a way that mimics natural storage functions (e.g., constructed wetlands).
3. Develop regulations, incentives, and development standards to provide for the planting and preservation of trees throughout the valley, including street rights-of-way, community open spaces, parking lots, and other landscaping areas, in order to:
 - Restore the natural hydrologic system by providing opportunities for evaporation, transpiration, and infiltration of rainwater.
 - Act as an energy-saving measure to save on heat and cooling costs by shading and buffering buildings, and by reducing urban heat effects by shading parking lots and streets.

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10.707 CULTURAL AND NATURAL HISTORY

BACKGROUND

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The goal for cultural and natural history was:

***Celebrate Pleasant Valley's cultural and natural history.** The plan will retain the best of the past and incorporate the area's cultural and natural history, as appropriate, into the new community form. Important cultural and natural names, places and themes will be included.*

A Cultural/Natural History focus session was held during the development of the Pleasant Valley Concept Plan. The session's purpose was discussing how to retain and incorporate the Pleasant Valley area's cultural and historical past into the future Pleasant Valley community form. The twelve session participants included a panel of historical and planning experts. The meeting was hosted by the Pleasant Valley Land Use work team and facilitated by project staff. Historical and citizen advocates and planning professionals were invited for additional expertise and specialized knowledge of the area.

The Cultural/Natural History focus session was informed by a discussion of two documents. First, there was *Residents Informing the Planning Process: Pleasant Valley and Its Natural Resources*, a report prepared by Portland State University planning graduate students. Much of the data assembled in the report came from interviewing long-time residents of Pleasant Valley. The oral history focused on the land uses and natural history of the Kelley Creek system that is within the Pleasant Valley area. Secondary sources included the Oregon and Gresham Historical Societies and interviews with agricultural and natural resource experts. The information was gathered to understand how the land and the movement of water have affected the activities of people, and, in turn, how people have affected natural resources.

Key findings included:

- There is a strong sense of place in Pleasant Valley. Many residents' families have lived in the valley for several generations and still remember the rich local history.
- The presence of a compacted soil layer a few feet below the surface of the valley has greatly affected farming in the area. There has been 150 years of continuous manipulation of the water flow in the valley.
- Creeks have changed regarding geomorphology and flow, water quality and riparian areas. Flows have increased in the winter and decreased in the summer, erosion and sedimentation have increased, and blackberries and fields are replacing riparian forests. Kelley Creek supported a healthy salmon run in the past, which ceased in the 1970's. Resident cutthroat trout, sea run cutthroat trout and steelhead are still present.
- The wildlife of Pleasant Valley has changed with large carnivores, such as bears, disappearing, bird life changing and the number of coyotes rising.

History

Early History. The valley was once covered with old growth fir forest with cedar in the bottomlands. While there is little archeological evidence of Native American activity in the valley, it is likely that area

tribes did travel through. The first Europeans arrived in the early 1800s trapping fur, but the first settlement began in the 1850s after the passage of the Oregon Donation Land Claim Act.

Settlers and Farmers. The first settlers and future farmers worked hard to clear the land for farming. Some earned a living from logging, some farmed hay, and others farmed potatoes. The most prominent of the early settlers were the Richey brothers, who held the first church services and donated land for the first school. Many others were memorialized with street names, such as Giese and Jenne.

Berries and Dairies. Many current residents recall a landscape of filbert orchards, berry fields, small dairy farms, and stumps. The work to remove the large stumps and forest continued until the 1920s. The valley continued to prosper and a small town emerged, near the current Grange site, called Sycamore. There was a post office, feed store, and gas station. The peak of farming occurred just prior to World War II. During the depression, the Works Progress Administration (WPA) was active building bridges and lining Johnson Creek. The WPA also constructed the current elementary school in 1939.

Transition from Farming to Suburban/Exurban. Farming in the valley began to decline in the 1950s. Many noted that farming became less profitable, and as a result, many of the farms were carved up into smaller parcels and sold for large lot residences. Residents are very aware of the changes that have occurred in the valley – including increased traffic and a loss of the rural character. Residents still have a strong sense of community and long standing institutions to support the community, such as the Grange, the Baptist Church, and the elementary school.

The second document was a report, compiled by the project consultant, that listed and described historical structures identified and recommend for designation by Multnomah County. It also includes two structures suggested by the Damascus Historical Society. The structures are:

Pleasant Valley Grange No. 348, SE Foster Road (From Multnomah County). The grange acquired the subject property in 1912. According to the county records, the grange building was constructed in 1933. Grange No. 348 is the only known historic grange building in the study area. It is a modest expression of the Bungalow style, a popular domestic architecture style at the time of construction.

Forsgren House, 17120 SE Foster Road (From Multnomah County). Frank and Lillian Richey are believed to be the original owners of the turn-of-the-century architectural style dwelling built in 1929. It is located on the northwest corner of the intersection of 172nd Avenue and Foster Road.

James Richey House, 18102 SE Richey Road (From Multnomah County). James Richey is believed to be the original owner of the subject Queen Anne dwelling. Richey owned the property from 1874 until 1909. The Richey House is a rare example of the Queen Anne style in the study area. According to the county records it was constructed in 1891. Characteristic features include an asymmetrical plan, paired double-hung sash windows and numerous decorative treatments. Pleasant Valley Residents now refer to this building as the Ziniker House.

Gustave Richey Farm, 18960 SE Richey Road (From Multnomah County). Gustave and Martha Richey are believed to be the original owners of the bungalow dwelling built in 1910 and its associated barn and two sheds. The Western style barn has exposed rafters and a tile foundation, suggesting a date of construction contemporary with the dwelling.

Bliss House, 7620 SE 190th (From Multnomah County). Paul and Mary Isabelle Bliss from Switzerland are believed to be the original owners of the bungalow style house built in 1920 and its detached garage and three sheds. An offset, gabled, single-bay porch with round-arched openings fronts the house. The

house is located on the east side of 190th at its intersection with Richey Road; small clusters of early 20th Century farm buildings are in the vicinity.

Pleasant Valley Community Baptist Church, 17608 SE Foster Road (From Damascus Historical Society). The church was incorporated in 1902 and was originally at the corner of 182nd and Richey Road. When that building burned down in 1943 the church met at the Grange Hall for a year until a new building could be built across the street from the school. It is a community church in fact as well as in name; for the first 50 years of its existence it was ecumenical, unaffiliated with the Baptist church. The church today also hosts the Romanian Apostolic Church and Pleasant Valley PTA meetings.

Pleasant Valley Elementary School, 17625 SE Foster Road (From Damascus Historical Society). Pleasant Valley Elementary School was constructed with the assistance of the Works Progress Administration (WPA) in 1939. It is home to yearly picnics for valley residents. Barb Velander, past principal of the School, noted that the school has done natural/historical planting on the south side of the school near Foster Road.

In addition to structures, names also have a role in Pleasant Valley's history. A small town by the name of Sycamore existed in the vicinity of the present-day Grange building. It consisted of a post office built in 1889, a feed store and gas station. The first postmaster was from West Virginia, the Sycamore State, and named it the Sycamore Post Office (McArthur, 1992). The Sycamore name was used widely for a time in the northern end of the valley. The school was called Sycamore School, Southeast 162nd was called Sycamore Road until around 1930, and the trolley station just north of the valley was called Sycamore Station.

Many of the roads in the valley were named after the land claims they ran along or across. Current residents see reminders of the past whenever they see road signs for **Richey, Jenne** or **Giese** Roads. Richey Road and the Richey House are both named after the best-known settlers, Stuart and Caleb Richey. The Richey's land claims were in the center of Pleasant Valley, and they had donated land for the first school. The Giese family made improvement to Filberts but were mostly involved in current Gresham.

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. A key feature of the Concept Plan regarding cultural and natural history is that the location of major roads is away from important historic resources and there are "park blocks" that connect the town center to the historic central section of Foster Road.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in planning Pleasant Valley cultural and natural history:

Sense of Place. Developing within the structure of the existing movement patterns (streets, drives, alleyways) is one way to retain a sense of the historical place.

Historical Landmarks. What makes an historical landmark is not the ability to get on a register but, rather, if people talk about it and want to relate to it. It was agreed that anything 50 years or older would be considered historical.

Conversion of Rural Roads. Historical homes and farm buildings naturally relate to the rural roads on which they front. Conversion of the roads to wider arterial streets can have a negative impact on landmarks. A successful walking tour would not tend to be on main arterials but on more pedestrian friendly roads.

Riparian Corridors. Many of the historical landmarks are near the riparian corridors. Consider stubbing out streets so that there is a connection from the regional trail system to the historic landmarks.

Completeness of Historic Landmark List? It was noted that the current project has not attempted to identify any additional historic landmarks except for those already noted. It was suggested that any future planning process seek to identify additional historic resources.

How Can Historical Landmarks be preserved? What is the role or obligation of a developer and how can removal of landmarks be prevented? It was suggested involving property owners early in the process and that a partnership of owners, developers and the City will be needed to prevent loss of historic buildings.

Future criteria. The more specific the criteria and implementation strategies are, the more likely they will be to preserve and celebrate the past.

Keeping historic resources away from major roads that will be widened is best for the goals. Besides potentially causing removal of a structure, major roads can have a negative effect on the ability to experience cultural and natural history resources.

A town center that has a close relationship with the natural history (riparian system) and historical landmarks is best for the goal.

Look for good connections ***to the Kelley Creek (historical) trail.***

The more growth within an area near a historic/cultural/natural resource the more threat there is for those sites.

GOAL

The best of Pleasant Valley's cultural and natural history is retained and incorporated into the new community form.

POLICIES

1. Important cultural and natural names, places and themes will be used as Pleasant Valley urbanizes. Historic place names can be used for the street, place and neighborhood names.
2. To the extent possible, major roads that will need to be widened shall be kept away from historic resources. This should be done to lessen the potential that a historic structure may be removed, preserve context around structures, and generally enhance the ability to experience cultural and natural history resources.
3. Design the town center to reflect the area's natural history (the riparian system) and historical landmarks. The town center can be connected to the central area near the grange with well-designed streets (possibly park blocks) and/or off-street paths.

4. Have good connections to the Kelley Creek trail as a potential historical trail. The Kelley Creek trail, among other functions, can link together the valley's historic landmarks and cultural and natural history.

ACTION MEASURES

1. Identify and use historic place names for streets, places and neighborhoods. To the extent practical this should occur during the next implementation plan phase. The names identified in the evaluation report shall be a starting point. The City of Gresham Historic Resources Advisory Committee, the Gresham Historical Society and others should be engaged in determining additional names.
2. Review existing regulations regarding historic landmarks and prepare new ones as needed for Pleasant Valley. Property owners and developers should be engaged in this process before development occurs. The City of Gresham Historic Resources Advisory Committee, the Gresham Historical Society and others should also be engaged.
3. Continue to document the history of the valley and identify historic landmarks. The historic landmarks identified in the evaluation report shall be a starting point. The City of Gresham Historic Resources Advisory Committee, the Gresham Historical Society and others should be engaged in this process.
4. Cultural and natural history will be an element for consideration in future determination of how Foster and Richey Roads function in the Environmentally Sensitive and Restoration Areas. Historical homes and farm buildings naturally relate to the rural roads on which they front.
5. Integrate a cultural and historical resources plan with parks and trails master plans including a potential historical trail.

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10.708 SCHOOLS

BACKGROUND

A requirement of Title 11 of the Metro Urban Growth Management Functional Plan is to plan for schools with a provision that requires: “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.” Title 11 also requires a map that shows “General locations or alternative locations for any needed school.”

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary goals was developed as part of this process. A preliminary goal for schools was that “the Centennial School District shall be included, and develop a plan for the number, type, and location of schools needed in the area.”

The Pleasant Valley plan area is within the Centennial School District (CSD). The Centennial School District Board appointed a representative to serve on the Pleasant Valley Concept Plan Steering Committee. Additionally, the Pleasant Valley Elementary School PTA was represented on the Steering Committee. Project staff worked closely with Centennial School District staff in developing a conceptual school plan.

The Pleasant Valley Concept Plan Steering Committee endorsed a series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The goal for schools was:

***Integrate schools and civic uses into the community.** The number, type, and location of schools will be coordinated with the Centennial School District. Schools and civic uses will be integrated with adjacent neighborhoods and connected by a system of bicycle and pedestrian routes. The number, type and location of mixed-use centers will be considered as schools and civic uses are integrated into the Plan.*

A meeting was held between project staff and Centennial School District staff during the development of the Pleasant Valley Concept Plan. The meeting’s purpose was twofold: First, to discuss how integrate a new elementary school (approximately 10 acres in size serving 600 students) and a new middle school (approximately 20 acres in size and serving 800 – 1,000 students) and the existing Pleasant Valley Elementary School. The Centennial School District had previously requested that the Concept Plan address those three school components. Second, to evaluate the four Pleasant Valley Concept Plan alternatives for compliance with project goal C – “integrate schools into the community.”

The school evaluation essentially dealt with locational issues of walkability, accessibility, and park availability with focus on:

1. How well is the school situated relative to residential areas (attached and detached) so that children could safely walk or bicycle to school without crossing a major street?
2. Is the school served by a collector street for bus access to minimize the use of a local street for bus traffic (loading and unloading)?
3. Is there a public park that will enhance the school fields and facilities?
4. Is it located in a way that will minimize neighborhood conflict?

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary, the central theme of the plan is to create an urban community through the integration of land use, transportation and natural resource elements.

Selected features of the school plan are:

- There would be two new schools serving Pleasant Valley: a new elementary school and a new middle school. Pleasant Valley Elementary School will remain as one of the three schools serving the valley.
- The two new schools are located at a combined site adjacent to 162nd Avenue. This location is subject to future decisions on site acquisition and funding, however, it is recommended as the preferred general location for the schools. Some consolidation of land and joint use of facilities may result from having the schools next to each other.

MIDDLE SCHOOL

Purpose. Middle schools serve grades 7 through 8 and serve 750 – 1,000 students.

Characteristics

- One new middle school is expected unless a middle school is built at the Butler Road site.
- Approximately 20 acres in size. Can be smaller, but large sites allow for more recreational play fields.
- Frontage on collector street for school bus service. Transit facilities are not needed for middle school students. Staff and parents would be most likely to use public transportation.
- Student walking distance is one mile and generally students should be able to walk within ½ mile of a middle school without crossing more than one arterial.
- Adjacent to a public park of at least 2-3 acres in size immediately adjacent to the school fields is desirable. Even larger parks would allow more opportunity for school and community events.
- Not located in town center or mixed-use centers. However, being near commercial is acceptable and would allow for dual-purpose trips.

ELEMENTARY SCHOOL

Purpose. Elementary schools serve grades K through 6 and serve 600 students.

Characteristics

- The District has identified a longer-term need for a new elementary school.
- Approximately 10 acres in size. Can be smaller, but large sites allow for more recreational play fields.
- Frontage on collector street for school bus service. Transit facilities are not needed for elementary school students. Staff and parents would be most likely to use public transportation.
- Student walking distance is one mile and generally students should be able to walk within ½ mile of an elementary school without crossing an arterial.

- Adjacent to a public park of at least 2-3 acres in size immediately adjacent to the school fields is desirable. Even larger parks would allow more opportunity for school and community events.
- Not located in town center or mixed-use centers. However, being near commercial is acceptable and would allow for dual-purpose trips.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in a school plan for Pleasant Valley:

- ***Walking to school.*** It is particularly important to not have kids crossing busy streets. Collector streets, in addition to arterial streets, can be concern. The walking distance for elementary school and middle school children is 1 mile.
- ***Access.*** Elementary and middle schools should have frontage on a collector street in order to accommodate school buses. Access to public transit is not required to serve elementary or middle schools.
- ***Public parks and schools.*** A public park adjacent to school fields can allow for an enhanced community space that benefits the school and the community. A larger public park can provide more opportunities but a 2 – 3 acre park is beneficial. The public park should not be located across a street. This is especially true for elementary school kids so that the students do not have to cross a street to use the park. The school district prefers that the parks be joint use and not have separating fences.
- ***Schools and town center or other mixed use commercial areas.*** Would not expect an elementary or middle school to be in the town center. However, being close to the town center or other mixed-use commercial is okay and can be a benefit by allowing dual-purpose trips, i.e., combining a trip to take or pick up a student at school with a shopping trip.
- ***Schools and neighborhood location.*** Compatibility in a neighborhood needs to be balanced with the benefits of passive supervision. Sites that minimize conflicts, for example, with a natural feature acting a buffer can be beneficial. However, residential “eyes,” especially towards fields, can enhance security.
- ***Major power lines.*** The Bonneville Power Administration has a major transmission line that runs through the project area. Northwest Natural Gas has a major pipeline than runs through the project area. Both lines generally use the same 75-foot wide easement, although they are separate through one segment. The school district prefers that schools stay at least 1,000 feet away from power lines and gas lines.
- ***Butler Road Site.*** The school district is currently pursuing permits to construct a new elementary school on Butler Road just outside the project area. The site may also be used for a future middle school. If a middle school were built on that site one would not be needed, at least in foreseeable future, in the project area. However, the school district advised to still look for a second site which, if not a middle school, could be an elementary school.
- ***Joint site.*** Locating the schools at a joint site can have some area and joint use benefits such as joint use of parking lots, fields, and computer and safety systems.
- ***School balance within the district.*** Locating the elementary school to on the west side of the plan area would provide a better balance for the district considering the new Butler Road elementary site and the existing Pleasant Valley Elementary School site.

ROUGH COST ESTIMATES

The planning process for schools shall include the associated costs for necessary land acquisition, design services, and construction. The costs stated in 2002 dollars (inflation between 2002 and project commencement date would also need to be accounted for) are estimated in the table below:

Type of School	Land	Construction	Associated Costs	Total
Elementary School	\$1M – \$3M	\$8.5M – \$10M	\$2.5M – \$3M	\$12M – \$16M
Middle School	\$3M – \$8M	\$15M – \$19M	\$4M - \$5M	\$22M - \$32M
Total	\$4M - \$11M	\$23.5M - \$29M	\$6.5M - \$8M	\$34M - \$48M

GOAL

Schools will be integrated into the Pleasant Valley community.

POLICIES

1. The number, type and location of schools will be coordinated with the Centennial School District. The School District has indicated that for planning purposes:
 - a. The existing Pleasant Valley School Elementary School use will remain.
 - b. There are potential needs for a new elementary school and for a new middle school.
2. Schools and civic uses will be integrated with adjacent neighborhoods and connected by a system of bicycle and pedestrian routes. Schools should be located to avoid students crossing major streets.
3. School compatibility in a neighborhood will be balanced with the benefits of passive surveillance. Residential “eyes,” especially towards a field, can enhance security.
4. Where practical a public park will be located adjacent to school fields. Such parks shall be a minimum of 2-3 acres in size, but can be larger. This allows for an enhanced community space that benefits the school and the community. The park should not be located across a street, especially for use by elementary school students.
5. New schools will be located at least 1,000 feet from major electrical and gas transmission lines.
6. Elementary and middle schools should have frontage on a collector street to accommodate school buses.

ACTION MEASURES

1. The Centennial School District should continue to evaluate the benefits of a joint middle/elementary school site. Potential benefits of a shared site include flexibility for school and community events, fields that are large enough for community events such as little league and soccer, parking lots that can be shared, and there are potential cost savings through shared infrastructure such as gas and electric service, telephones, sewer and water systems and computer network systems.
2. The Centennial School District should continue to work with the affected City (or County) to provide for the amount of land and improvements needed.
3. Mt. Hood Community College with Multnomah County Library and the Centennial School District should explore the potential of a joint facility. The joint facility could include a library, cultural center and an athletic facility.

FUNDING STRATEGIES

1. An attempt should be made to coordinate the land acquisition for the schools and parks with master planning of the areas when developments occur. Providing land for a school site in a neighborhood enhances property value and, as such, is often set aside and donated for the school.
2. The affected City (or County) should have adequate urban services such as water systems, sewer systems and transportation systems in order that the School District taxpayers do not have to be financially burdened with system upgrades before the schools can be built.
3. A broad-based group of School District patrons should be convened to develop a long range facility plan for both elementary and middle schools. The outcome of this group could be a recommendation to the Board of Directors for a public vote on issuing bonds for the needed facilities or purchase of property.

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10.709 TRANSPORTATION

BACKGROUND

The Metro Council brought the Pleasant Valley area into the Urban Growth Boundary (UGB) in December 1998. 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 restoration; public facilities and services including parks and open spaces; and schools.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. The goals addressed a town center, housing, transportation, natural resources, neighborhoods and schools. The goal for transportation stated:

The area has inadequate rural road improvements and suffers from traffic congestion and unsafe road conditions and driving behaviors. Development of the area should be timed to coincide with road improvements. The transportation plan should include a system of local collectors and arterials that will provide sufficient north-south and east-west connectivity. Transit bus service should be included in any transportation plan. Other modes of transportation should also be available. Some of the roads in the area may be difficult to widen without significant environmental impacts. In some cases, a realignment or replacement should be considered. In general, roads should be planned and designed for speeds consistent with local uses rather than regional through traffic. For example, Foster Road provide for slower, safer speeds, particularly in the town center area. Biking and walking should be safely accommodated on all arterials and collectors.

Transportation and Community Systems Preservation (TCSP). The Pleasant Valley Concept Plan was initiated under a federal highway TCSP grant. It was a pilot project – the specific goal being to link a balanced land use plan and a multi-modal transportation system with an efficient circulation system with good connection in an environmentally constrained area. Environmental considerations included creating strategies to help protect steelhead and cutthroat trout salmonoids, minimize stormwater runoff in Johnson Creek watershed and avoid further degradation of water quality.

Acknowledging the TCSP goals the Steering Committee adopted a series of purpose statements. Included, as a purpose, was to “*determine land use and transportation patterns minimizing the impact to environmentally sensitive areas*” and to “*link with regional context such as the regional transportation system, the Johnson Creek watershed and the Gresham Regional Center.*”

Pleasant Valley Transportation Goal. A Transportation work team conducted a number of sessions during the Pleasant Valley Concept Plan process. The Transportation work team consisted of transportation planning, land use planning and traffic engineering professionals from the Cities of Gresham and Portland, Multnomah and Clackamas County, Metro, Tri-met, the Oregon Department of Transportation and DKS Associates (a private consultant firm).

The Transportation work team identified four principles for well-planned street system to help prevent traffic congestion, while promoting walking, transit and bicycling. Good design can also avoid the effects of heavy traffic on neighborhood safety and the environments.

Principle 1 – Spread out the Traffic. When designing streets it is important to not only consider the roadway’s traffic function, but also other modes of travel and character of the surrounding community that the street will serve. Well designed arterial, collector and local streets are a good starting point for spreading out traffic in communities, and avoiding overly wide streets as a community and its neighborhoods grow.

Principle 2 – Design for Livability. The design of streets of our streets directly affects our quality of life. Streets design can promote community livability by emphasizing local travel needs and creating a safe, inviting space for community activity. Street design elements such as sidewalks, crosswalks, landscaped sidewalk buffers, bikeways, on-street parking, street trees, landscaping, street lighting, bus shelters, benches and corner curb extensions provide an environment that is not only attractive, but can slow traffic and encourage walking, bicycling and use of transit. Metro’s handbook *Creating Livable Streets* provides examples of better design. Additionally streets can be designed to be “green”, where features like street trees, landscaped swales and special paving materials can be used to limit stormwater runoff, which, in turn, helps protect stream habitat. Metro’s *Green Streets* handbook is a resource for green street design and issues.

Principle 3 – Connectivity Works. On average, each household generates 10-12 automobile trips per day. A well-connected street system with reasonably direct connections encourages walking, bicycling, and transit use, and can reduce the number and length of these automobile trips. In well-connected street systems, local traffic is more dispersed, rather than focused on arterials where it combines with through-traffic to create congestions. With a well-connected system that provides multiple routes to local destinations, any single street will be less likely to be overburdened by excessive traffic. Police and fire response also benefits from a well-connected street system. Other benefits include: travel is more direct, better serves the development of main street and town centers as alternatives to commercial strip development, ideal for walking and biking because of more direct routes that are safer streets, allows streets to be narrower reducing costs, saving energy and reducing stormwater runoff, and allows for more frequent transit stops and ease of walking to transit stops.

Principle 4 – Copy What Works. There are a number of good street system examples in the Metro region. Older areas such as Laurelhurst (Portland), East Hill and Southeast Roberts (Gresham), Eastmoreland (Portland) and newer areas such as Fairview Village (Fairview), Tualatin Commons (Tualatin) and Orenco Station (Hillsboro).

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The following goal addressed transportation:

Provide transportation choices. *Pleasant Valley will be a community where it is safe, convenient, and inviting to walk and ride a bike. The Plan will set the stage for future community level transit service that connects to regional transit service, including street designs, land use types, and densities that support transit. Recommendations will be developed to correct transportation safety issues, address through traffic and provide adequate capacity for future growth. The Plan will coordinate with surrounding jurisdictions to create effective regional connections and balanced regional transportation system. A well-connected street system will be planned, using a variety of street types that reinforce a sense of community and provide adequate routes for travel. Streets will accommodate walking and biking, with special pedestrian features on major transit streets. The plan will incorporate green street designs [from “Use ‘green’ development practices” goal] and “A network of bicycle and pedestrian routes, equestrian trails and multi-use paths will connect the parks and open spaces [from the “Locate and develop parks and open spaces throughout the community goal].*

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies.

Key features of the Transportation element of the Concept Plan are:

In summary, the key elements of the transportation plan (as integrated with land use and natural resources) are to:

- Create a network of arterial, collector, neighborhood connector and local streets that accommodates travel demand and provides multiple routes for travel. Key new street extensions and connections include:
 - a. 172nd Avenue extension north to Giese Road
 - b. Giese Road west to Foster Road
 - c. Clatsop Street west to Cheldelin Road
 - d. 182nd Avenue south to Cheldelin
 - e. Butler Road west to 190th Avenue
 - f. Sager Road east to Foster Road
 - g. Long-term arterial connection from 172nd to 190th Avenue south of the study area.
- 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 Pleasant Valley, with direct connections to Happy Valley, Clackamas regional center, Damascus, Lents, Gresham, the Columbia Corridor and downtown Portland. Transit streets include 172nd Avenue, Giese Road, 182nd Avenue, 190th Avenue, a new east-west collector south of Giese Road and Clatsop Street-Cheldelin Road.
- 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.
- Use “green” street designs that are an integral part of the stormwater management system and provide walkable tree-lined streets. Green streets are designed to incorporate stormwater treatment and conveyance within its right-of-way. They incorporate the stormwater system into the aesthetics of the community and maximize the use of street tree coverage for stormwater and climatic reasons. Metro’s *Green streets – Innovative Solutions for Stormwater and Stream Crossing* provides detailed guidelines, designs and specifications.
- Downgrade the function of Foster and Richey roads to serve as local access streets and develop a strategy to disconnect and potentially vacate these streets in the confluence area of Kelley Creek.
- Plan for a long-term major arterial connection south of the study area from 172nd Avenue to 190th Avenue to serve long-term regional mobility needs if future urbanization occurs in Damascus. This will be evaluated more fully by Metro as part of urban area planning for the Damascus area.
- Evaluate needed capacity improvements to address long-term travel demand for key gateway routes if future urbanization occurs in Damascus. This will be evaluated as part of a Powell/Foster corridor study (beginning in summer 2002), continued Damascus area planning, and the next Regional Transportation Plan update.

SUMMARY OF MAJOR ISSUES

The following are some of seven major issues that were considered in an urban plan for transportation in Pleasant Valley. Each bulleted issue is followed by a general discussion of ideas the work team identified for further consideration as part of the planning process.

Issue 1. Develop a network of arterial and collector streets adequate to serve future growth in Pleasant Valley, while protecting environmentally sensitive areas and adjacent neighborhoods and rural reserves from the effects of urbanization.

Traffic analysis conducted as part of the update to the Regional Transportation Plan (RTP) demonstrated that future growth in Damascus and Pleasant Valley would likely have widespread effects on the regional transportation system, despite significant improvements to the primary routes serving the area. Additional analysis will be conducted as part of the Pleasant Valley Concept Plan process. It will be important to design the transportation system in a manner that supports the land use goals of the community, protects the natural features that define the area and improves community access by all modes of travel by providing a variety of travel choices. It will be equally important to locate the land uses in a manner that the transportation system can best serve it.

Issue 2. Currently, most travel out of Pleasant Valley is via Foster Road, which is limited in its ability to accommodate future growth in traffic. The cost of any improvements in the Foster Road corridor will likely be high due to topographic and environmental constraints.

Foster Road is an important connection between the Damascus/Pleasant Valley area and employment areas in the I-205 corridor and Portland. Foster Road has two functional segments. The first segment, from the Portland central city to I-205, experiences significant levels of congestion today. The second segment, from I-205 to Pleasant Valley, is expected to experience heavy travel demand in the future.

Four related concerns have been identified for the eastern portion of Foster Road. First, intersections at 162nd/Foster Road and Jenne Road/Foster Road have safety problems today that need to be addressed. Next, environmental and topographic constraints limit future capacity expansion of Foster Road east of I-205. In addition, I-205 experiences significant congestion today and directing most traffic to I-205 from Pleasant Valley via Foster Road will likely have significant implications for I-205 in the future. Finally, RTP analysis showed that despite widening Foster Road to five lanes from I-205 to Damascus and implementation of high quality bus service and a limited arterial and collector street network, the corridor experienced significant levels of traffic congestion. Any improvements to Foster Road will need to be evaluated in the context of the environmental and community impacts.

If an additional north/south route is provided (such as Foster/190th to 182nd Avenue) and the function and capacity of Powell Boulevard east of I-205 is upgraded to serve longer trips, then Foster Road could function more like a collector in the town center area. This strategy would be consistent with the RTP. Foster Road could be relocated/realigned to orient traffic onto north/south routes (i.e., 162nd Avenue or 190th Avenue). The potential for a new north/south connection east of Foster Road could also be examined. The location and shape of the Pleasant Valley town center should be designed in the context of the function of Foster Road.

The RTP recommended evaluation of street connectivity, potential parallel route improvements, system management strategies and rapid bus service along Foster Road. RTP analysis showed rapid

bus service is expected to generate good ridership levels. Any transit improvements should include improvements to the pedestrian environment along the road, bus priority treatment at signals and improved access to bus stops.

Issue 3. Safety issues exist for all modes of travel due to topography, awkward intersections and high speeds and traffic volumes. Walking and biking is also made difficult due to a lack of facilities for these modes of travel.

Safety issues exist throughout the area due to topography, awkward intersections with difficult sight distances, and high speeds and traffic volumes. More than 20 intersections were identified by participants in the first community forum as being unsafe because of one or more of these issues. In addition, many individuals indicated they often travel significantly out of direction to avoid congested locations and routes or intersections they feel are dangerous. Cut-through traffic on existing roads was also identified as a significant issue.

Issue 4. 172nd Avenue could serve as an important link between the future Sunrise Highway to the south and the Columbia Corridor via 182nd Avenue to the north. Regional transit service in this corridor could also link Pleasant Valley neighborhoods to the commercial services in the town center and the Gresham and Clackamas regional centers.

Currently, 172nd Avenue is a narrow two-lane farm-to-market road. The 2000 RTP evaluated the comparative advantages of 172nd Avenue over Foster Road (east of 172nd Avenue) as the primary connection to Highway 212. 172nd Avenue has fewer topographic constraints, and provides more direct access to planned industrial areas along Highway 212. 172nd Avenue is also more centrally located to the Pleasant Valley/Damascus area. Based on this evaluation, the 2000 RTP upgraded 172nd Avenue to be a Major Arterial. This change in classification could transform this route into the north/south spine for the area, linking Pleasant Valley to the future Sunrise Corridor Highway to the south and Gresham and the Columbia Corridor via 182nd Avenue to the north. The location and shape of the Pleasant Valley town center should be designed in the context of the function of 172nd Avenue. The RTP recommended providing parallel routes to 172nd Avenue and more direct regional bus service linking Gresham, Pleasant Valley and Clackamas along the Sunnyside Road/172nd Avenue/Towle Road/Eastman Parkway alignment.

Issue 5. The existing street system is not adequate to serve future town center growth. Connect Pleasant Valley to major streets in Gresham, Portland and Happy Valley in a manner that provides alternatives to Foster Road while protecting existing neighborhoods from traffic infiltration.

Additional connections and improvements to existing streets are needed to increase access from Pleasant Valley to other parts of the region. Currently, there is a lack of north/south arterial routes serving this area, which could create significant traffic congestion in the future without additional street connections in Pleasant Valley. An evaluation of new north/south street connections would need to address the potential impact of traffic generated in Pleasant Valley area on adjacent neighborhoods. A number of potential connections could take pressure off the Jenne Road route that is currently used. Possible connections to be examined include: 172nd Avenue extension to 190th, Foster Road to Towle Road and 172nd Avenue to 162nd Avenue around Powell Butte. 162nd Avenue is one of the few north/south routes that connect to the Columbia Corridor employment area. The area around the base of Powell Butte has significant topographic and environmental constraints. Highland Drive is currently a three-lane collector street that connects SW Gresham to Powell Boulevard and 182nd Avenue. The route traverses Jenne Butte and crosses Johnson Creek.

Pleasant Valley also lacks an adequate number of east/west arterial routes to serve this area. It will be important to identify potential east/west connections to improve access from the Pleasant Valley area to Clackamas regional center area to reduce demand for Sunnyside Road to the south. The current Happy Valley TSP identifies only one potential east-west connection to the Pleasant Valley area given environmental and topographic constraints. The committee felt the planning process should address the Scouter's mountain "island," potentially using the future street plan for Pleasant Valley to define the edges of this rural reserve. One possible connection could be an extension of Clatsop Street to Foster Road.

RTP analysis showed that expanded transit service via Sunnyside Road and 172nd Avenue was promising in combination with improvements to parallel routes and widening Sunnyside Road between Clackamas regional center and Pleasant Valley. The RTP recommended evaluation of additional street connectivity, potential parallel route improvements and system management strategies along the eastern portions of Sunnyside Road.

As new arterial street connections are identified, it will be necessary to balance land use and transportation planning to keep neighborhood infiltration to a minimum. Implementation strategies could include measures within these adjoining neighborhoods to make them less attractive to through-traffic intrusion.

Issue 6. By providing local circulation and access from growing neighborhoods to the town center, community level transit service will be an important component of serving travel needs in Pleasant Valley.

Pleasant Valley is not currently served by transit service. Implementation of more locally oriented transit service and connecting local service to regional service will need to be addressed as part of the transportation plan for the area, including connections to Gresham transit center, Clackamas transit center and downtown Portland. Some sort of a transit hub could be established as part of the land use and transportation plan for the town center to serve that important connection.

Issue 7. The topography of Pleasant Valley and the need to protect streams will require an emphasis on providing bicycle and pedestrian connections where full street connections are not possible. These connections could be further complemented by multi-use trails that connect Pleasant Valley neighborhoods to schools, parks, commercial services, existing multi-use trails and Damascus. As a result, bicycle and pedestrian access and safety, including an extended trail system, will also need to be addressed as part of the transportation plan for this area.

Street connectivity within the town center is important, and should complement the broader goals of tying together existing and future streets so that the town center has a high level of connectivity. Improved street connectivity can help keep local auto trips on local streets without placing an undue burden on the arterial streets like Foster Road and Sunnyside Road, and provides better access for pedestrians, bicycles and transit users. With an interconnected system that provides multiple routes to local destinations, any single street will be less likely to be overburdened by excessive traffic. Emergency response vehicles also benefit from a well-connected street system.

Community forum discussions revealed that many people drive to access the Powell Butte and Springwater Corridor trail systems and shared a desire to have a network of sidewalks, bike facilities and multi-use trails linked to existing trails systems. Better equestrian access to trails and natural areas in Pleasant Valley was also identified as important to many people during the first community forum. In addition, a safer equestrian crossing at SE 162nd Avenue and Foster Road to improve access to Powell Butte has been identified as a need.

Green street designs help reduce impervious surface and incorporate on-site stormwater management within the right-of-way through the use of vegetative filter strips, swales, linear detention basins, infiltration trenches, permeable pavement and tree planting. Street alignments should follow natural contours and features as much as possible, which can help optimize implementation of green street designs. Metro has studied green streets over the same timeline as the Pleasant Valley Concept Plan study using Pleasant Valley as a case study. It recommends innovated approaches to stormwater management and stream crossing using green streets in its handbook – Green Streets – Innovative Solutions for Stormwater and Stream Crossing. Also published by Metro is the Trees for Green Street – An illustrated guide handbook.

Metro's Green Streets manual states that bridges are preferred for all stream crossings but they tend to be a more expensive option than culverts. It notes that bridges tend to become more economically justifiable when required hydraulic opening exceeds 15 feet in span (active channel width) or 10 feet in diameter. It also notes that bridges are preferred for fish passage when stream channel slopes exceed 5 percent. A bridge design principle is that bridge abutments, piers and foots should be located outside the bankfull channel.

GOAL

Pleasant Valley will be a community where a wide range of safe and convenient transportation choices are provided.

POLICIES

1. Pleasant Valley will be a community where it is safe, convenient, and inviting to walk, ride a bike and use transit. The network of streets shall accommodate walking and biking, with special pedestrian features on transit streets.
2. The community will be served by a balanced transportation system that serves all modes of travel and is coordinated with Gresham, Portland, Happy Valley, Clackamas County, Multnomah County, Tri-Met, ODOT, Metro and other transportation service providers to provide effective regional connections to the Pleasant Valley community.
3. The community will be served by community level transit service that connects to regional transit service, and include street designs, land use types, patterns and densities and pedestrian and bicycle improvements that support transit.
4. An efficient, well-connected street system will be planned, using a variety of street types that reinforce a sense of community, provide adequate routes for travel by all modes and preserve adequate right-of-way to serve future transportation needs.
5. Existing transportation safety issues will be addressed.
6. The Pleasant Valley Plan District map will serve as the basis for providing opportunities for through-travel on arterial streets and local access to community destinations on collectors, neighborhood connectors and local streets.
7. The plan district will provide a bicycle and pedestrian system that provides for safe, convenient, attractive and accessible bicycle and pedestrian routes on all streets. These routes will connect the multi-use trail and parks and open spaces system, and to major activity centers such as schools, civic uses, neighborhood centers, employment areas and the town center.

8. The plan district will provide a multi-use trail system to serve as important off-street bicycle and pedestrian connections to schools, parks, commercial areas and neighborhoods within the Pleasant Valley community, particularly in areas near the confluence of Kelley and Mitchell creeks where streams limit street connectivity.
9. Transportation plans will use green street designs, as described in Metro's handbook titled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and *Trees for Green Streets* as a resource in the development and design of streets.
10. The Pleasant Valley Town Center and adjacent Mixed-Use Employment area will be served by a regional transit system prior to the buildout of the Town Center.

ACTION MEASURES

1. As a near-term objective, downgrade the function of Foster and Richey roads in the confluence area of Kelley Creek to serve as local access streets. As a long-term objective, develop a strategy to disconnect and potentially vacate the vehicular function of these street segments while maintaining the opportunity for a local trail opportunity.
2. Establish street design standards that respect the characteristics of the surrounding land uses, natural features, and other community amenities. All streets will be designed to support adjacent land uses, accommodate pedestrians and bicyclists and include green streets design elements that help minimize stormwater runoff. Design will be based on the Pleasant Valley Street Designs adopted in the Pleasant Valley Concept Plan Implementation Strategies. In developing street designs utilize Metro publications *Creating Livable Streets*, *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and *Trees for Green Streets*. The plan district street design standards will provide for:
 - a. Planting and preservation of trees in the street right-of-ways
 - b. Continuous sidewalks along both sides of all arterial, collector, and local streets. Sidewalks should connect to side streets and adjacent sidewalks and buildings. Pervious sidewalk treatments should be considered.
 - c. Landscaped buffer separating travel lanes from sidewalks
 - d. Direct and logical pedestrian crossings at transit stops and marked crossings at major transit stops.
 - e. Short and direct public right-of-way routes to connect residential uses with nearby commercial services, schools, parks and other neighborhood facilities.
 - f. Street design elements that discourage traffic infiltration and excessive speeds on local streets, such as curb extensions, on-street parking, and wider sidewalks and narrowed travel lanes.
 - g. Secure bicycle storage facilities such as bicycle racks and other park and lock accommodations at major destination points including the town center, transit center, recreation areas and office, commercial and employment centers.
 - h. Minimize impervious area and utilize the natural drainage system where practical.
 - i. Designing bridges to serve as civic gateways or focal points in the community. Establishing guidelines to help determine most appropriate stream crossing solution for each individual crossing.
 - j. Locating road and multi-use path stream crossing alignments to have the lowest level of impact on a stream or ESRA. Locational considerations shall include crossings perpendicular to the

stream and along narrow stream segments. Trail crossings shall consider the needs of equestrians, where appropriate, and pedestrian and bicycle travel.

3. Adopt a local street network plan that includes functional classifications for streets, street design types, connectivity plan and standards and a bike and trail plan for the plan district. The local street network plan will:
 - a. Consider opportunities to incrementally extend streets from nearby areas.
 - b. Limit the use of cul-de-sac designs and other closed end street systems to situations where barriers such as existing development, topography and environmental constraints prevent full street connections.
 - c. Provide bicycle and pedestrian accessways where full street connections cannot be provided.
 - d. Investigate off-street bike and pedestrian connections where needed to link major community destinations, such as the town center, transit center, recreation areas and office, commercial and employment centers.
4. Realign 172nd Avenue as it passes through Kelley Creek ESRA to not follow creek and reduce impact area by keeping it as far west of confluence as practical and minimizing the bridge footprint in the creek and adjacent riparian area.
5. The plan district will allow for and encourage:
 - a. Efficient use of on-street parking to help reduce off-street parking needs
 - b. Shared parking agreements to reduce the size and number of parking lots
 - c. Shared driveways between adjacent development projects
 - d. Minimizing impervious area when developing parking lots
6. Educate business groups, employees, and residents about trip reduction strategies, and work with business groups, residents, and employees to develop and implement travel demand management programs, such as carpool matching, vanpool matching, flexible work hours, transit subsidies, parking management, bikes on transit and telecommuting to reduce peak-hour single occupant vehicle in Pleasant Valley.
7. Gresham, in coordination with Portland, will work with Metro, ODOT, Multnomah County, Clackamas County and other agencies as appropriate to:
 - a. Investigate needed safety and capacity improvements to address future travel demand in the Foster Road and Powell Boulevard corridors and implement study recommendations.
 - b. Evaluate the long-term need for an arterial connection between 172nd Avenue and 190th Avenue as part of urban area planning that responds to future urban growth boundary decisions.
 - c. Implement needed transportation improvements to serve Pleasant Valley and correct existing safety issues.
 - d. Implement regional corridor study recommendations and projects identified in Regional Transportation Plan for key gateway routes, such as Sunnyside Road, Foster Road, Powell Boulevard, 172nd Avenue and 190th Avenue.
8. Expand the Tri-Met service boundary to include areas within Clackamas County to allow Tri-Met to serve this area.

Work with Tri-Met to develop a transit plan for Pleasant Valley that:

- a. Establishes a transit hub within the town center zoning district that provides transfer opportunities between regional and community transit routes
 - b. Implements recommended community and regional transit service.
 - c. Determines appropriate locations and design of bus loading areas and transit preferential treatments such as reserved bus lanes and signal pre-emption to enhance transit usage and public safety and to promote the smooth flow of traffic.
 - d. That, with other transit service providers, and employers and social service agencies' efforts enhances access for elderly, economically disadvantaged, and people with disabilities.
9. Work with emergency service providers to designate emergency access routes.
10. Develop and implement a public facility and capital improvement plan that identifies, prioritizes and adequately funds transportation improvement, operation and maintenance needs.
- a. Consider system development charges, traffic impact fees, local improvement district fees, parking fees, street utility fees and other fee mechanisms to help pay for transportation improvements, including transit.
 - b. Apply for federal, state and regional funds through the Metropolitan Transportation Improvement Program (MTIP).
 - c. Encourage creative partnerships (e.g., federal, state, regional, multiple jurisdiction, private) to fund transportation improvements.
 - d. Develop a right-of-way preservation strategy for 172nd Avenue, Giese Road, 190th Avenue, Clatsop Street extension to Cheldelin Road.
11. Work with Metro to amend the Regional Transportation Plan to reflect Pleasant Valley Plan District recommendations, including:
- a. Motor vehicle functional classification system, transit system, pedestrian system, bicycle system and street design classification system
 - b. Transportation improvements and rough cost estimates

Chapter 5. Land Use

Introduction

The land use chapter begins with a brief description of the Pleasant Valley Plan District by summarizing:

- The overall vision and future land use patterns for Pleasant Valley.
- The major elements of the Pleasant Valley Plan District Map (Plan Map). The Plan Map is included as Figure 1 and will amend Volume 2 – Community Development Plan Policies as map Appendices E.
- Tables that show the assumptions used in calculating housing and job capacity.
- The major elements of the proposed Pleasant Valley Plan District Development Code.

This land use chapter then includes the proposed Pleasant Valley Plan District Development Code. This will amend Volume 3 – Community Development Code. The format of the proposed development code amendments has a left side *commentary* page and an opposite right side proposed code page. The *commentary* provides brief explanation or findings for the proposed code.

Future Land Use Patterns

The Pleasant Valley Plan District provides the basis for a land use plan that is consistent with the goals of the Concept Plan. The central theme of creating an urban community through the integration of land use, transportation, and natural resource protection is reflected by the following key elements of the Plan District:

- A mixed-use town center as the focus of retail, civic, and related uses.
- A variety of housing organized in eight neighborhoods. The variety includes low, medium and high-density housing with standards that guide how variety is planned within neighborhoods.
- Planned housing that is 50 percent attached, 50 percent detached, and has an overall density of 10 dwelling units per net residential acre. The estimated housing capacity is approximately 5,000 dwellings.
- Two 5-acre mixed-use neighborhood centers.
- Employment opportunities as provided in the town center, mixed-use employment district, and general employment districts, and as home-based jobs. Employment capacity is estimated at approximately 5,000 jobs.
- A framework for protection, restoration, and enhancement of the area’s streams, flood plains, wetlands, riparian areas, and major tree groves through the designation of areas as “environmentally sensitive/restoration areas” (ESRAs).
- Designation of a “neighborhood transition design area” adjacent to the ESRA so that neighborhood development is compatible with adjacent green corridors.
- A new elementary school and middle school located adjacent to 162nd Avenue.
- Nine neighborhood parks dispersed throughout and a 29-acre community park centrally located between the utility easements north of Kelley Creek.
- A “green” stormwater management system intended to capture and filter stormwater close to the source through extensive tree planting throughout the valley, “green” street designs, swale conveyance, and filtration of run-off, and strategically placed stormwater management facilities.
- A network of trails including east-west regional trails paralleling Kelley Creek and north-south regional trails following the BPA power line easement.

- A reorganization of the valley’s arterial and collector street system to create a connected network that will serve urban levels of land use and all modes of travel.
- Re-designation of Foster Road from arterial to local street status between Jenne Road and Pleasant Valley Elementary School. The intent is to preserve the two-lane tree-lined character of Foster Road and to support restoration efforts where Mitchell Creek and other tributaries flow into Kelley Creek.
- A network of transit streets that serve three mixed-use centers and seven nodes of attached housing.
- The location of major roads away from important historic resources and “park blocks” that connect the town center to the historic central section of Foster Road.

Pleasant Valley Plan District Map And Code

Plan District Map

The Pleasant Valley Plan District Map (Figure 1) will serve as the key regulatory map for land use in Pleasant Valley. The Plan District Map includes the following land use types: residential, mixed use and employment areas, park-schools-other overlays, and environmentally sensitive/restoration areas. These land use designations are estimated to provide a capacity for approximately 5,000 dwellings and 5,000 jobs. The housing distribution is planned as a 50/50 split of attached and detached dwellings that average 10 dwelling units per net residential acre. Highlights of the Plan District map include the following.

- *Residential Lands.* The Concept Plan classified residential lands into two general types: Attached and Detached Residential. The Plan Map refines this classification to carry it one step closer to zoning by creating *three* types of residential sub-districts: Low Density Residential, Medium Density Residential and High Density Residential.
- *Mixed Use and Employment Areas.* The Town Center Sub-District is intended to primarily serve the needs of the local community and to include a mix of retail, office, civic, and housing opportunities. The Neighborhood Center Sub-District is intended to provide for a mix of local retail, service, office, and live-work uses for adjacent neighborhoods. The Mixed-Use Employment Sub-District is intended to provide support services for the town center as well as local service and is primarily office and retail uses. Housing is allowed in mixed-use buildings. The Employment Center Sub-District is primarily intended to provide for business/office park, medical, and other employment opportunities. Emphasis is placed on business suited to high environmental quality setting.
- *Parks, Schools, and Other Overlays.* The Plan Map includes five “overlay sub-districts”: Elementary School, Middle School, Neighborhood Park, Community Park, and Neighborhood Transition Design Areas (NTDA). These overlays are consistent with the designations of the same names that were endorsed on the Concept Plan.

The use of the term “overlay” means that each area has underlying base zoning which is integrated with the standards in an overlay subdistrict. For schools and parks, the base zoning is Low Density Residential. The effect of the overlay is to indicate where a park or school is intended. The Plan District Map overlay does not bind the property to only a park or school use.

The NTDA is established for the purpose of establishing design guidelines and encouraging (but not requiring) certain uses in the 100-foot wide area adjacent to the Environmentally Sensitive/Restoration Areas.

- *Environmentally Sensitive/Restoration Areas.* The ESRA sub-district follows the ESRA designation as it was endorsed on the Concept Plan. The area shown as ESRA will need to be reconciled with the outcome of the Goal 5 ESEE analysis.
- *How the Sub-district Boundaries Were Established.* Most of the work on the Plan Map focused on the conversion of the Attached and Detached Residential Concept Plan designations into Low, Medium, and High Density Residential Sub-district designations. The following guidelines were used:
 - The plan district boundaries should follow property lines where they are close enough to the Attached-Detached boundaries to be consistent with the overall direction of the Concept Plan.
 - If a property needs to be split-zoned to implement the Concept Plan, the boundary should occur at the midpoint of the parcel, at a point that is an even proportion, or at a logical dimension from one of the sides. Like uses should face each other along streets whenever possible.
 - High-density residential areas should be carefully dimensioned and located so they are nodal, generally not larger than about 5-6 acres (except at the town center), and support transit corners and centers as focal points.
- *Housing and Employment Capacity Estimates.* The Pleasant Valley Plan Map has an estimated housing and employment capacity that is very close to the Concept Plan. It implements the key capacity estimates developed for the Concept Plan of approximately 5,000 dwelling, 5,000 jobs, a 50/50 split of attached to detached housing, and an average of 10 dwelling units per net residential acre. The following tables illustrate assumptions used arriving at the capacity estimates.

Table 1 - Pleasant Valley Buildable Lands Gross Buildable Acres by Classification	
Gross Buildable Acres	Plan Data Estimates
Environmentally Constrained ¹	498.2
Committed Lands ²	85.3
Utility Easements ³	42.9
Collector and arterial roadway ⁴	73.9
Parks	46.1
Elementary School	19.1
Middle School	17.8
Detached Residential (Low Density)	456.3
Attached Residential (Medium Density)	154.3
High Density Residential	30.6
Town Center	16.9
Employment	45.0
Mixed-Use Employment	34.7
Mixed-Use Neighborhood	8.7
Total	1529.8

¹ Includes ESRA and Metro Open Space

² Reflect high-value parcels that are likely to remain as existing use

³ BPA and Northwest Gas Utility Easements

⁴ Proposed collector/arterial right-of-way

**Table 2 - Pleasant Valley Buildable Lands Analysis
Gross to Net Adjustment Assumptions**

Uses	Gross Buildable Acres ⁵	Deduct for		Net Buildable Acres
		Local Streets	Churches Fraternal ⁶	
Low Density (Detached Residential)	456.3	22%	2%	346.8
Medium Density Residential	154.3	22%	4%	114.1
High Density Residential	30.6	22%	2%	23.3
Town Center	16.9	15%	0%	14.4
Employment	45.0	15%	0%	38.3
Mixed-Use Neighborhood	8.7	15%	0%	7.4
Mixed-Use Employment	34.7	15%	0%	29.5
Total	641.2			484.2

⁵ Reflects land net of committed lands

⁶ Assumes 1.4 acres per 1,000 population and 2.3 people per attached dwelling and 2.7 people per attached dwelling.

**Table 3 - Pleasant Valley Buildable Lands Analysis
Density Assumptions**

<i>Low Density Residential</i> (6.2 DU/Acre)	Range (SF)	Assumed Avg. (SF)	Distribution of Land	Distribution of Acres	Distribution of DUs	New Dwellings	Distribution of All DUs	Goal
Large Lot	7,500- 10,000	8,750	37%	128	30%	639	13%	
Standard Lot	5,000-7,500	6,250	63%	218	70%	1,523	31%	
I. Total	--	--	100%	346.8	100%	2,161	44%	50%

II.

<i>Medium Density Residential</i> (18.5 DU/Acre)	Range (DUs/Ac.)	Assumed Avg. DUs/Ac.	Distribution of Land	Distribution of Acres	Distribution of DUs	New Dwellings	Distribution of All DUs	Goal
Small Lot	3,000-5,000	8	30%	34	13%	274	6%	
Rowhouses/Plexes	15-20	18	25%	29	24%	514	11%	
Condos	20-30	22	14%	16	17%	352	7%	
Apartments	20-30	24	24%	27	31%	657	14%	
Senior	20-60	40	7%	8	15%	320	7%	
III. Total	--	--	100%	114.1	100%	2,116	43%	40%

IV.

High Density Residential (10.6 DU/Acre)	Range DUs/Ac.	Assumed Avg. (DUs/Ac.)	Distribution of Land	Distribution of Acres	Distribution of DUs	New Dwellings	Distribution of All DUs	Goal
Rowhouses/Plexes	15-20	18	5%	1	5%	21	0%	
Condos	20-30	22	35%	8	30%	179	4%	
Apartments	20-30	24	45%	10	43%	251	5%	
Senior	20-60	40	15%	3	24%	140	3%	
Total	--	--	100%	23.3	100%	591	12%	10%
						25.4		
Grand Total (All Dwellings)				484		4,869	100%	100%

Mixed-Use Neighborhood – Housing	Floor Area (SF)	Average SF/DU	Dwelling Units
Retail Floor Area	29,000	--	--
Upper Level Housing	9,570	950	10

*Assumes 33% of commercial retail floor area includes upper level housing

Town Center – Housing	Floor Area (SF)	Average SF/DU	Dwelling Units
Retail Floor Area	113,000	--	--
Upper Level Housing*	37,290	950	39

*Assumes 33% of commercial retail floor area includes upper level housing.

<i>Town Center – Jobs</i>	Range (FAR/Ac)	Assumed (FAR/Ac)	Distribution of Land	Distribution of Acres	Floor Area (SF)	Floor Area SF Per Job	New Jobs	Dist. of Jobs
Retail	0.20 – 0.30	0.30	60%	9	113,000	550	205	32%
Office	0.35 – 0.70	0.70	30%	4	131,000	350	375	59%
Civic	0.20 – 0.70	0.70	10%	1	44,000	750	58	9%
V. Total	--	--	100%	14.4	288,000	--	639	100%

VI.

<i>Employment Center – Jobs</i>	Range (FAR/Ac)	Assumed (FAR/Ac)	Distribution of Land	Distribution of Acres	Floor Area (SF)	Floor Area SF Per Job	New Jobs	Dist. of Jobs
Light Industrial	0.20 – 0.30	0.30	50%	19	250,000	500	500	32%
Office	0.35 – 0.50	0.50	40%	15	333,000	350	952	60%
Other	0.20 – 0.40	0.35	10%	4	58,000	450	130	8%
VII. Total	--	--	100%	38.3	641,000	--	1,582	100%

<i>Mixed-Use Neighborhood – Jobs</i>	Range (FAR/Ac)	Assumed (FAR/Ac)	Distribution of Land	Distribution of Acres	Floor Area (SF)	Floor Area SF Per Job	New Jobs	Dist. of Jobs
Retail	0.20 – 0.30	0.30	30%	2	29,000	550	53	17%
Office	0.30 – 0.40	0.40	70%	5	90,000	350	258	83%
VIII. Total	--	--	100%	7.4	119,000	--	310	100%

<i>Mixed-Use Employment</i>	Range (FAR/Ac)	Assumed (FAR/Ac)	Distribution of Land	Distribution of Acres	Floor Area (SF)	Floor Area SF Per Job	New Jobs	Dist. of Jobs
Office	0.45 – 0.55	0.50	90%	27	578,000	350	1,652	94%
Other	0.20 – 0.40	0.35	10%	3	45,000	450	100	6%
IX. Total	--	--	100%	29.5	623,000	--	1,752	100%

<i>Mixed-Use Employment – Housing</i>	Floor Area (SF)	Average SF/DU	Dwelling Units
Office Floor Area	578,000	--	--
Upper Level Housing*	115,600	950	122

*Assumes 20% of commercial retail floor area includes upper level housing

Table 4 - Pleasant Valley Buildable Lands Analysis	
Summary of Development Capacity	
New Dwelling Capacity	
Low Density Residential (new)	2,161
Medium Density Residential (new)	2,116
High Density Residential (new)	591
Town Center (new)	39
Mixed-use Neighborhood Center (new)	10
Mixed-use Employment (new)	122
	Subtotal
	5,040
Less Displaced Dwellings	100
	Total New Dwellings at Buildout
	4,940
Plus Existing Dwellings	126
Total Dwellings/HHs at Buildout	5,066
Net New acres of Residential Land	484
New Dwellings Per Net Acre*	10.06
Net New Population Estimate	11,913
Total Population at Buildout	12,217
Avg. Household Size**	2.41
New Job Capacity***	
Retail/Other	487
Office	3,237
Light Industrial	500
Civic	58
Schools	130
Work at Home Jobs****	507
	Subtotal
	4,919
Plus Existing Jobs	50
	Total Jobs
	4,969

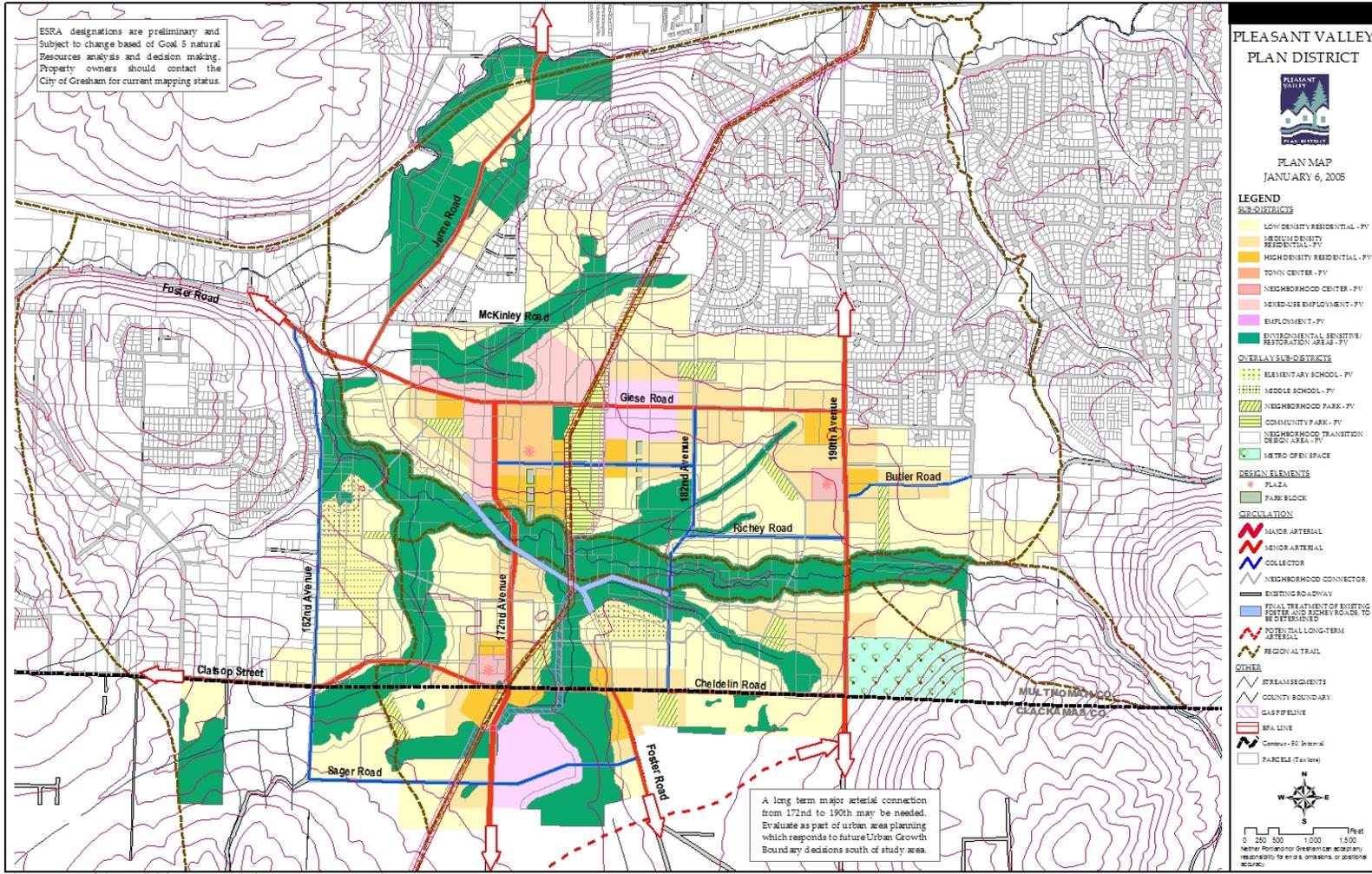
* Does not include dwellings in mixed-use zones.

** Assumes 2.7 people per attached dwelling and 2.3 people per attached dwelling. Derived from 2000 Census for Clackamas County.

*** Assumes 50 staff at elementary school and 80 staff at the middle school.

**** Assumes 10% of total dwellings each have one work-at-home job.

Figure 1 – Pleasant Valley Plan District Plan Map



Plan District Code

The draft Pleasant Valley Plan District code implements the Concept Plan map and associated goals, policies, and action measures. The format generally follows that of Gresham's Community Development Code due to the large area that will be under Gresham's jurisdiction as lands are annexed.

- *The Pleasant Valley Plan District is the term used to describe the code chapter and the entire Pleasant Valley area.* It has eight Sub-districts (zones) that correspond to the Plan District Map. Three Sub-districts (LDR-PV, MDR-PV, HDR-PV) are residential districts. Three Sub-districts are commercial and mixed-use (TC-PV, NC-PV and MUE-PV). A seventh Sub-district is employment (EC-PV), and the eighth Sub-district is environmental (ESRA-PV). A detailed report on the ESRA-PV subdistrict is contained in the Natural Resources chapter. Each of the sub-districts includes a purpose and characteristics section. These statements were originally established as part of the Pleasant Valley Concept Plan Implementation Strategies. They establish a direction for future land uses in each sub-district.
- *There are "permitted uses" tables for the residential sub-districts and for the commercial/mixed-use and employment sub-districts.* Land use standards are based on Gresham's existing land use nomenclature, updated to respond to the unique standards needed for Pleasant Valley. Permitted uses (types of housing, densities, types of commercial and mixed-use uses, and employment uses) are intended to reflect uses identified in the Pleasant Valley Concept Plan. Live-work units are proposed in the MDR-PV, HDR-PV, TC-PV, NC-PV, and MUE-PV sub-districts.
- *There are development standards tables for the residential Sub-districts and for the commercial/mixed-use and employment Sub-districts.* Development standards generally are based on Gresham's existing land use nomenclature, updated to respond to the unique development standards needed for Pleasant Valley. The development standards (lot sizes, setbacks, height, design, landscaping, etc.) are intended to reflect development characteristics identified in the Pleasant Valley Concept Plan.
- *There are five overlay Sub-districts covering Schools, Parks, and the Neighborhood Transition Design Areas (NTDA).* The use of the term "overlay" means that each area has underlying base zoning. For schools and parks, the base zoning is Low Density Residential. The effect of the overlay is to indicate where a park or school is intended. This approach does not bind the property to only a park or school use. The NTDA is established for the purpose of establishing design guidelines and encouraging (but not requiring) certain uses in the 100-foot wide area adjacent to the Environmentally Sensitive/Restoration Areas.
- *Green Development Practices.* Green development practices are a toolbox of techniques 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 green development practices enhances water quality and controls the stormwater flow utilizing techniques of retention, infiltration, and evapotranspiration to treat runoff and reduce the volume of stormwater.
- *Pleasant Valley Master Plan.* A unique aspect of the Pleasant Valley Plan District is a master plan requirement. Master plans would be required concurrent with applications for annexation and zoning (plan map amendment). A purpose of the master plan requirement is to help ensure that the Pleasant Valley Plan District Map is implemented consistent with the adopted policies, and in a way that allows for cohesive and livable neighborhoods and the provision for public infrastructure and services. A petitioner for annexation would be required to prepare a master plan for approval prior to the City annexing and zoning the property.

- *Cross-references* to existing code sections and other codes/plans are incorporated where applicable. Examples include standards for the street network plan, green development practices, design review, parking, and signage.
- *A set of illustrations* is included in the draft code and is intended as a guideline for development standards. See example below.



Illustrative plan for three neighborhoods.

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Code commentary provides a brief explanation of various proposed Development Code (Volume 3) amendments. Code commentary is placed on the left side page opposite the proposed development code amendments.

The format of this draft code follows the Gresham Community Development Code because the majority of land within Pleasant Valley will be annexed to Gresham. Proposed draft code language is based on the Implementation Strategies including land use characteristics that were adopted as part of the Pleasant Valley Concept Plan project.

Creating an urban plan for land use in Pleasant Valley utilized six major principles that are summarized below:

1. **Compact and Mixed-use Neighborhoods.** *Pedestrian communities should have stores, offices, homes, and parks placed close to each other. A five to 10 minute walk from center to edge defines the neighborhood boundaries. Neighborhood needs should be within walking distance. Transit should be within walking distance.*
2. **Neighborhood Edges and Centers.** *Neighborhoods should have edges and centers. The edge marks transition from one neighborhood to another and might be a natural area or a tree-line arterial street. Bus stops, schools, and other uses are located at the edge of a neighborhood. Neighborhood centers are a main gathering space. Parks, plazas, important intersections with pedestrian improvements, meeting halls, and mixed-use buildings are examples of centers.*
3. **Variety of Housing Options.** *Places for people of all ages and incomes to live. Locate different dwelling types in the same neighborhoods. Locate housing in relation to public spaces and infrastructure. Variety of housing includes small apartments, row houses, housing over shops, live-work units, co-housing, small lot housing, and large lot housing. Accessory dwellings can increase affordable housing opportunities.*
4. **Increase Transportation Options.** *Provide transportation alternatives such as transit, bicycle lanes, and sidewalks. New development is designed with transit in mind. Land use patterns should lead transit planning. Dwellings and jobs need to be concentrated near transit lines. Walkable mixed-use neighborhoods within walking distance of transit. Provide pedestrian-oriented patterns served by transit as part of strategy to preserve natural resources areas. Development should be safe for bike use – especially for children.*
5. **Provide Buildings that are Pedestrian Friendly.** *By presenting a friendly face to the street, individual buildings can contribute to a safer, more conducive walking environment. Alleys can allow housing and commercial buildings to be closer to street with off site parking in rear. Street trees are easier to provide for when driveways are not present. Street trees provide stormwater management, urban design, place setting, and energy conservation benefits.*
6. **Incorporate the Natural Environment into the Design of the Community.** *The network of streams and wetlands is critical to the sense of place for Pleasant Valley. Developing in a way that minimizes impacts on natural resources while using the presence of natural features to enhance the urban environment is critical. Provide multi-use trails adjacent to streams and wetlands as part of a pedestrian/bicycle network. Design neighborhoods to incorporate existing natural features. Design the roadway system to minimize impact on natural resources. Pedestrian bridges enhance neighborhood connectivity.*

The planning process to date has focused on land use patterns for designing neighborhoods. Land use characteristics for major use types were identified as part of the Concept Plan Implementation Strategies. However there has been limited opportunity for follow-up work to address additional design opportunities. The proposed code can be considered a placeholder for future work to address additional design issues. The proposed draft code does include new code specific to Pleasant Valley but in many cases uses current Gresham standards. Future work on design issues would correspond to the current Gresham Land Use Task Force project, the industrial/employment comprehensive plan update project, and a future town center design charrette.

Section 4.1400
Pleasant Valley Plan District

General Provisions

- 4.1401 Purpose
- 4.1402 Plan Map
- 4.1403 Sub-Districts

Pleasant Valley Residential Sub-districts

Purpose and Characteristics

- 4.1404 Low-Density Residential - Pleasant Valley (LDR-PV)
- 4.1405 Medium-Density Residential - Pleasant Valley (MDR-PV)
- 4.1406 High-Density Residential - Pleasant Valley (HDR-PV)

Permitted Uses

- 4.1407 Uses

Standards

- 4.1408 Development Standards Table
- 4.1409 Building Height and Height Transition Standard
- 4.1410 Duplexes in the LDR-PV Sub-district
- 4.1411 Safe Neighborhood Design Performance Standards
- 4.1412 Public Facilities and Supplementary Requirements

Pleasant Valley Mixed-Use and Employment Sub-districts

Purpose and Characteristics

- 4.1416 Town Center - Pleasant Valley (TC- PV)
- 4.1417 Neighborhood Center - Pleasant Valley (NC-PV)
- 4.1418 Mixed-Use Employment - Pleasant Valley (MUE-PV)
- 4.1419 Employment Center - Pleasant Valley (EC-PV)

Permitted Uses

- 4.1420 Uses

Standards

- 4.1421 Development Standards Table
- 4.1422 Minimum Floor Area Ratio
- 4.1423 Setbacks
- 4.1424 Building Height
- 4.1425 Transit Design Criteria and Standards
- 4.1426 Landscaping
- 4.1427 Commercial Uses
- 4.1428 Architectural Design Review
- 4.1429 Public Facilities and Supplementary Requirements

The major use types (Residential, Mixed Use, etc.), are formatted so that the purpose statements, uses, and standards are all together. This format diverges somewhat from other Plan Districts in the Gresham Community Development Code, but is recommended due to the relatively large number of sub-districts and categories of standards that apply in Pleasant Valley.

Pleasant Valley Overlay Sub-districts

General

- 4.1460 Overlay Sub-districts in General
- 4.1461 Sub-districts Location and Boundaries

Purpose and Characteristics

- 4.1462 Elementary School and Middle School Overlay Sub-districts
- 4.1463 Neighborhood Park Overlay
- 4.1464 Community Park Overlay
- 4.1465 Neighborhood Transition Design Area Overlay Sub-district

Additional Pleasant Valley Standards

- 4.1468 Green Development Practices
- 4.1469 Tree Planting Requirements

Pleasant Valley Master Plans

General

- 4.1470 Purpose
- 4.1471 Applicability
- 4.1472 Master Plans and Refinements of Sub-district Boundaries

Submittal Requirements and Standards

- 4.1473 Level of Detail
- 4.1474 Size of Master Plan
- 4.1475 Neighborhood Design Guidelines
- 4.1476 Housing Variety
- 4.1477 Density Transition
- 4.1478 Neighborhood Transition Design Areas
- 4.1479 Circulation Network
- 4.1480 Parks, Open Space, and Natural Areas
- 4.1481 Storm Water Facilities and Green Practices
- 4.1482 Water and Sanitary Sewer Systems

Master Plan Procedures

- 4.1483 Procedures
- 4.1484 Approval Criteria
- 4.1485 Duration and Implementation

Planned Development

- 4.1490 Purpose
- 4.1491 Applicability
- 4.1492 Approval Criteria

Section 4.1401 establishes the overall purposes of the Plan District code provisions. The reference to the Comprehensive Plan links the code to the underlying goals and policy basis for Pleasant Valley.

In summary, the purposes of the Plan District code is to:

- 1. Implement the Comprehensive Plan's goals, policies, and action measures for Pleasant Valley,*
- 2. Create a complete urban community as defined by the Comprehensive Plan, and*
- 3. Further the central theme of the Pleasant Valley vision to integrate land use, transportation, and natural resources.*

The Pleasant Valley Plan District chapter is focused on uses, development standards, and master planning annexations. Other procedures are covered in other sections of the code.

4.1402. The Pleasant Valley Plan District Map serves as the comprehensive plan map for the area. The Plan Map establishes the generalized sub-district and overlay sub-district boundaries at a parcel-specific level. It will be the basis for amending the Gresham Community Development Plan Map.

The key terms are:

Plan District – refers to the entire Pleasant Valley area and this section of code.

Sub-districts – refers to specific land use designations, e.g. Low Density Residential (LDR – PV).

Overlay Sub-districts – refers to supplemental designations, e.g. Neighborhood Park Overlay Sub-district.

General Provisions

4.1401 Purpose

This section of the Community Development Code implements the Pleasant Valley Plan District (Plan District). The purposes of the Plan District are to: (1) implement the Comprehensive Plan's goals, policies, and action measures for Pleasant Valley; (2) create a complete urban community as defined by the Comprehensive Plan; and, (3) further the central theme of Pleasant Valley's vision to integrate land use, transportation, and natural resources. Pleasant Valley is intended to be a complete community made up of neighborhoods, a town center, neighborhood centers, employment districts, parks and schools, open spaces and trails, a range of transportation choices, and extensive protection, restoration, and enhancement of the natural resources.

The Plan District is intended to:

- (A) Implement the overall Plan District purposes stated above,
- (B) Guide the use, development, conservation, and environmental restoration of land within Pleasant Valley,
- (C) Establish standards that are intended to guide individual land use decisions and development to result in a cohesive community,
- (D) Create a harmonious and sustainable relationship between urban development and the unique natural landscape of Pleasant Valley and the surrounding region, and
- (E) Establish the land use framework from which the logical and efficient provision of public facilities and services may occur.

4.1402 Pleasant Valley Plan District Plan Map

The purpose of the Pleasant Valley Plan District Plan Map (Plan Map) is to establish land use designations for Pleasant Valley. The Plan Map designations are to be used as the basis for amending the Community Development Plan Map. The Community Development Plan Map is amended at time of annexation and in conjunction with a master plan. Once the Community Development Plan Map is amended it becomes the basis for all land use decisions and development permits.

The Plan Map identifies the general boundaries for Sub-districts and Overlay Sub-districts. Circulation and design elements are also shown to provide context and promote the integration of land use, transportation, and natural resources, and implement the goals, policies, and recommended action measures in the Comprehensive Plan. Amendments to the Community Development Plan and master plans must be consistent with the Plan Map and other applicable codes and regulations of the City.

4.1403 Pleasant Valley Sub-districts In General

The Plan District Sub-districts listed below apply to land in the Plan District. They are intended to work together to result in a complete community that includes attractive places to live, work, shop, and recreate, together with natural resource areas that are integrated into the urban environment, consistent with the purposes in Section 4.1401 and the Comprehensive Plan.

A Residential Land Use/Neighborhoods Goal action measure is to “Create principles and strategies to ensure that the scale and design of dwellings, especially in the high and moderate density districts, are compatible with the compact, pedestrian-oriented, and smaller scale of Pleasant Valley. Consider a process for developing a design vocabulary (a variety of specific architectural elements) for the Pleasant Valley community.” The proposed residential Sub-districts are intended to achieve the variety of housing and neighborhood form consistent with the Pleasant Valley planning process. The proposed codes begin to address design issues but are generally using the standards found in current Gresham residential land use districts. Staff recommends these proposed residential codes as placeholders.

The Pleasant Valley Concept Plan Implementation Strategies stated a general purpose and expected characteristics for detached Sub-districts as follows:

Purpose: *Primarily to provide detached dwelling opportunities for a wide range of housing types in a neighborhood within the density anticipated in district. Such housing can be mixed into detached residential areas and have a positive effect on value, livability and safety.*

Characteristics

- *The capacity analysis done for the Concept Plan assumed a mix of detached residential lot sizes with 7,500 - 10,000 square foot lots (14% of all dwellings); 5,000 - 7,000 square foot lots (31% of all dwellings), and 3,000 - 5,000 square foot lots (5% of all dwellings). The capacity analysis shall be a starting point for establishing a desired mix and density of housing. Strategies shall be established to accomplish those desired mixes and densities.*
- *The small 3,000 - 5,000 square foot lots are especially appropriate on and near transit streets.*
- *Housing shall contribute to a safe and pedestrian/bicycle safe environment.*
- *Alleys shall be encouraged in order to allow housing to be closer to the street and parking at the rear. This will make it easier to provide a continuous canopy of street trees, as driveways are not present. Standards for alleys shall be established to address safety and community livability issues.*
- *The planting of (and preservation of existing) trees shall be emphasized. Trees provide a number of benefits, including a more interesting community design, a sense of place, storm water management, water quality enhancement, and energy (shading) conservation.*
- *The design of neighborhoods shall incorporate natural features in a way that enhances the aesthetic environment while minimizing impacts. Neighborhood and individual buildings shall be encouraged to have a public face to the Environmentally Sensitive and Restoration Areas (ESRA).*
- *A public park is an important feature of each neighborhood.*

4.1404 Low-Density Residential (LDR – PV) consists of detached and two-unit attached dwellings at an average density of 5.3 – 7.9 residential dwelling units per net acre. It is intended to provide for standard (5,000 - 7,500) and large lot (7,500-10,000) opportunities. The mix of lot sizes is one tool to implement Pleasant Valley’s policies that promote a variety of housing choices.

The Sub-districts in Pleasant Valley are:

Full Name (Short Name/Map Symbol)

- Low-Density Residential - Pleasant Valley (LDR - PV)
- Medium-Density Residential - Pleasant Valley (MDR - PV)
- High-Density Residential - Pleasant Valley (HDR - PV)
- Town Center - Pleasant Valley (TC - PV)
- Neighborhood Center - Pleasant Valley (NC - PV)
- Mixed-Use Employment - Pleasant Valley (MUE - PV)
- Employment Center - Pleasant Valley (EC - PV)
- Environmentally Sensitive/Restoration Areas - Pleasant Valley (ESRA-PV)

All land use approvals and development must be consistent with approved master plans, per Section 4.1470.

Pleasant Valley Residential Sub-districts

4.1404 Low-Density Residential – Pleasant Valley (LDR-PV)

This designation affects land primarily intended for single-family detached dwellings, manufactured homes, and two-unit attached dwellings on a wide range of lot sizes. Development in this Sub-district shall be arranged to form part of an individual neighborhood, invite walking to gathering places, services and conveniences, and a neighborhood park, and connects to the larger community by a pattern of streets, blocks, trails, and pedestrian ways and linkages to the Environmental Sensitive and Restoration Areas.

The overall intended mix of lot sizes within LDR Sub-district areas in the Plan District as a whole and generally in individual neighborhoods is:

- LDR lots less than 7500 square feet 70%
- LDR lots greater than 7500 square feet 30%

The specific mix and variety of housing for properties and groups of properties shall be guided by an approved master plan. The approved master plan shall provide for an average density of 5.3 to 7.9 dwellings per net residential acre in this Sub-district.

The Pleasant Valley Concept Plan Implementation Strategies stated a general purpose and expected characteristics for attached Sub-districts as follows:

Purpose: *The attached residential districts are primarily intended to provide attached residential dwellings opportunities. A variety of housing types including apartments, apartment houses, townhomes, rowhouses, duplexes, senior housing and mixed-use rowhouses are appropriate for these zoning districts.*

Characteristics

- *The capacity analysis done for the Concept Plan assumed a mix of attached dwelling housing types and densities with rowhouses at 15-20 dwelling units per acre (8% of all dwellings), condominiums at 20-30 dwelling units per acre (10% of all dwellings), apartments at 20-40 dwelling units per acre (23% of dwellings), and senior housing at 20-60 dwelling units per acre (9% of all dwellings). The capacity analysis shall be a starting point for establishing a desired mix and density of housing. Strategies shall be established to accomplish those desired mixes and densities.*
- *Higher density and senior housing should be distributed along streets with more frequent transit service and in the vicinity of the town center.*
- *Housing shall contribute to a safe and pedestrian/bicycle safe environment.*
- *Alleys shall be encouraged in order to allow housing to be closer to the street and parking at the rear. This will make it easier to provide a continuous canopy of street trees and unencumbered growth of the trees, in part, because driveways are not present and also because underground utility lines can be placed in alley (with an additional benefit of removal of visual clutter). Standards for alleys shall be established to address safety and community livability issues.*
- *The planting of (and preservation of existing) trees shall be emphasized. Trees provide a number of benefits including a more interesting community design, a sense of place, storm water management, water quality enhancement, and energy (shading) conservation.*
- *The design of neighborhoods shall incorporate natural features in a way that enhances the aesthetic environment while minimizing impacts. Neighborhood and individual buildings shall be encouraged to have a public face to the Environmentally Sensitive and Restoration Areas (ESRA).*

4.1405. Medium Density Residential (MDR – PV) consists of detached and attached dwellings at an average density of 12-20 dwelling units per net acre. It is intended to provide for small lot (3,000-5,000) opportunities as described above. It is also Pleasant Valley’s district for townhomes and garden apartments.

4.1406 High-Density Residential (HDR-PV) is intended to accommodate the highest density housing in Pleasant Valley with densities of 20-60 dwelling units per acre. HDR-PV is Pleasant Valley’s zone for townhomes, apartments, condominiums, elderly housing, and live-work units.

The Plan Map distributes HDR designations so as to support transit, complement the neighborhood and town centers, and not concentrates too much density in any one location.

“Elderly housing”, as used here, is the same as the “senior housing” referenced in the comprehensive plan policies. Elderly housing is defined in the Gresham code as housing for individuals 55 years or older, retirement housing, congregate housing, assisted living housing, immediate care facility, nursing home, and continuing care retirement community. It does not include single-family non-attached dwellings or residential facilities or homes. They are allowed as a community service use in the MDR-PV and HDR-PV Sub-districts.

4.1405 Medium-Density Residential – Pleasant Valley (MDR-PV)

The Medium-Density Residential (MDR) Sub-district provides a range of detached and attached dwelling units. Development in this sub-district shall be arranged to form part of an individual neighborhood, as well as serve as a transition between low density residential and employment and high-density housing types and Sub-districts. The specific mix and variety of housing for properties and groups of properties shall be guided by an approved master plan. The overall intended mix of housing types in the MDR Sub-district in the entire Plan District is as follows:

Detached dwellings Lots	3,000 - 5000 sq. ft.	13%
Attached housing – Generally	15-20 du/net acre	24%
	20-30 du/net acre	48%
Attached housing – Elderly	20-62 du/net acre	15%

The approved master plan shall provide for an average density of 12-20 dwelling units per net residential acre in this Sub-district. Elderly housing is not included in the average density provision but is allowed pursuant to Section 8.0100, Community Services.

4.1406 High-Density Residential - Pleasant Valley (HDR-PV)

The High Density Residential (HDR) Sub-district is intended to accommodate the highest density housing in Pleasant Valley. As with the LDR and MDR Sub-districts, HDR contributes to completing a variety of housing within, and as part of, individual neighborhoods. Two types of HDR areas, “attached housing” and “town center housing,” are provided to create a complete community with housing choices that reflect differing needs and opportunities within Pleasant Valley. Elderly housing is recognized as a special housing need within Pleasant Valley that helps create a complete community. The specific mix and variety of housing for properties and groups of properties shall be guided by an approved master plan consistent with the following:

(A) Attached Housing Areas in HDR

The HDR attached housing areas allow attached housing, including for rent and owner occupied housing, at 20-30 dwelling units per net acre. Elderly housing at 20-62 dwelling units per net acres is also allowed pursuant to Section 8.0100, Community Services.

(B) Town Center Housing Areas in HDR

The HDR area located generally south of the town center (west of the BPA power line and north of Kelley Creek) allows attached housing at 30-40 dwelling units per net acre. The higher minimum and maximum densities are intended to support the town center area as the lively, pedestrian-oriented, transit-supportive center within Pleasant Valley. Elderly housing at 20-62 dwelling units per net acres is also allowed pursuant to Section 8.0100, Community Services.

The overall intended mix of housing types in the HDR Sub-district across the entire Plan District is as follows:

Attached housing – Generally	20-30 du/net acre	30%
	20-40 du/net acre	45%
Elderly	20-62 du/net acre	25%

Commentary

This section explains the use of “P”, “L”, and “NP” as used in the current Community Development Code. It clarifies that a use category not permitted in any of the Sub-districts in the table is not listed but is not permitted.

4.1407 Permitted Uses

The types of land use, which are permitted in the Pleasant Valley Residential Sub-districts, are listed in Table 4.107. Permitted uses are designated with a “P”. An “L” in this table indicates a use that may be permitted in that district, but which is limited in the extent to which it may be permitted. An “NP” means that use is not permitted in the specified Sub-district(s). “NP” is only used if the use category is “P” or “L” in another Sub-district in the table. A use category not listed in this table is “NP.” Each of these uses must comply with the land use district standards of this section and all other applicable requirements of the Community Development Code.

Commentary

Manufactured home parks was not identified as a needed housing type in the Plan District area and are not found as a permitted use in any Sub-district.

Live-work units are intended to be units that can allow a commercial office or retail space under a living unit. The Concept Plan anticipated that allowing live-work units would promote mixed-use pedestrian districts especially around the town center and the neighborhood centers. Where allowed in the MDR-PV and HDR-PV Sub-districts, the proposed standards address compatibility, limiting the scale of the commercial activity and access/parking issues.

Community Services. Uses referenced here as not allowed are generally of a scale not appropriate or are not needed in Pleasant Valley. Elderly housing was not identified as needed in the LDR-PV and is not allowed.

Table 4.1407 Residential Permitted Uses			
Use Categories:	LDR-PV	MDR-PV	HDR-PV
(A) Single-Family Detached Dwelling	P	P	NP
(B) Manufactured Homes on Individual Lots	P	P	N
(C) Attached Dwellings on a Single Lot	NP	P	P
(D) Single Family Attached Dwellings	L ¹	P	P
(E) Two-unit Attached Dwellings	L ²	P	P
(F) Accessory Dwellings	P	P	NP
(G) Community Services	L ³	L ⁴	L ⁴
(H) Accessory Structures	P	P	P
(I) Home Occupations	P	P	P
(J) Temporary Uses	P	P	P
(K) Residential Facility	P	P	P
(L) Residential Home	P	P	NP
(M) Live-Work ⁵	NP	P	P

Key:
P = Permitted
L = Limited
NP = Not Permitted

Table 4.1407 Notes:

- ¹ Maximum of two attached units allowed; lot size may be reduced to 3,500 square feet.
- ² Duplexes are permitted under the provisions of section 4.1410.
- ³ Community Services Type II (I) and Type III (C)(D)(E)(G)(I)(J)(M)(N)(O)(P)(T)(U)(V) are not allowed.
- ⁴ Community Services Type III (D)(E)(G)(I)(J)(W) are not allowed.
- ⁵ For purposes of Table 4.1407, a live-work unit is a structure that combines a limited office, retail services, and/or business services use with a residential living space. The commercial space may be used by anyone residing at the unit and by no more than two non-resident employees. The commercial portion of the structure shall face the street front, is limited to the first floor, and garage access must be from the alley. A fascia, awning, or painted wall sign limited to 32 square feet is permitted per each unit.

Pleasant Valley Residential Sub-district Standards

4.1408 Development Standards Table

The development standards listed in Table 4.1421 are applicable to all development within the Pleasant Valley Residential Sub-districts. Development within these Sub-districts shall also be consistent with all other applicable requirements of the Community Development Code.

The table in Section 4.1408 has references that indicate that the standards are either described in a section following the table or in an existing city code section).

In many cases the proposed standards utilize the standards of specific existing land use districts. When a specific land use district is referenced it is intended that all the standards including notes that apply to that land use district also apply to the Pleasant Valley Sub-district.

Standards from the LDR District are used for many of the LDR-PV Sub-district standards as the allowed uses, lot sizes, and density requirements have similarities. However, there are proposed standards unique to the LDR-PV that are generally intended to achieve the walkable neighborhoods anticipated for Pleasant Valley. Commentary specific to those sections is provided. Although the dimensional standard in the LDR-PV are the same as in the city-wide LDR, the master requirements later in the code will result in a mix of large >7,500 square feet lots and standard 5,000 to 7,500 square feet lots.

Both the MDR-PV and the HDR-PV Sub-districts are pedestrian districts. As such, development must have a strong orientation to the pedestrian and be transit-supportive. Standards from the Transit Low Density Residential (TLDR) are used for detached dwelling lots permitted in the MDR-PV as TLDR also allows small lot developments. Standards from the Corridor Multi-Family (CMF) are used for the attached dwellings in the MDR-PV and the HDR-PV as the CMF is also primarily an attached dwelling district.

Table 4.1408 - Development Standards in Pleasant Valley Residential Sub-districts				
Use Categories:		LDR-PV	MDR-PV	HDR-PV
Residential Density: Minimum – Maximum (dwelling units per net acre)		Per approved master plan 4.1470	Per approved master plan 4.1470	Per approved master plan 4.1470
Minimum Lot Size (square feet)				
Detached dwelling unit/manufactured home Single-family attached dwellings Two-unit attached dwellings Attached dwellings (3 or more units)		LDR applies LDR applies LDR applies ⁷ Not applicable	TLDR applies CMF applies CMF applies CMF applies	Not applicable CMF applies CMF applies CMF applies
Minimum Lot Dimensions		LDR applies	TLDR applies to detached dwelling / manufactured home; Others not applicable	Not applicable
Minimum Lot Width / Depth Ratio		Not applicable	Detached dwellings / manufactured home not applicable; CMF applies to all others	CMF applies
Minimum Street Frontage		LDR applies	TLDR applies to detached dwelling / manufactured home; CMF applies to all others	CMF applies
Building Height	Building Height Maximum	35 ft	35 ft	45 ft, except for elderly housing and transition required adjacent to LDR
	Building Height transition required adjacent to LDR (Section 4.1409)	No	No	Yes

⁷ See Section 4.1411 for additional duplex standards.

Table 4.1408 (continued) - Development Standards in Pleasant Valley Residential Sub-districts			
Use Categories:	LDR-PV	MDR-PV	HDR-PV
Buffering Required	See Buffer Matrix, Section 9.0100	See Buffer Matrix, Section 9.0100	See Buffer Matrix, Section 9.0100
Minimum Off-Street Parking Required	As provided in Section 9.0851	As provided in Section 9.0851	As provided in Section 9.0851
Maximum Off-Street Parking Required	As provided in Section 9.0851	As provided in Section 9.0851	As provided in Section 9.0851
Site Design Criteria (Section 7.000)	Yes	Yes	Yes
Safe Neighborhood Design Performance Standards Apply (Section 4.1412)	Yes	Yes	Yes
Transit Design Criteria and Standards Apply	Not applicable	CMF applies	CMF applies
Minimum Yard Setbacks	LDR applies, per Table 4.0130E	Detached dwellings / manufactured TLDR applies per Table 4.0130E; CMF applies to all other	CMF applies
Maximum Yard Setbacks	Not Applicable	Detached dwellings / manufactured Not applicable; CMF applies to all others	CMF applies
Clear Vision Area Required (Section 9.0200)	Yes	Yes	Yes

Commentary

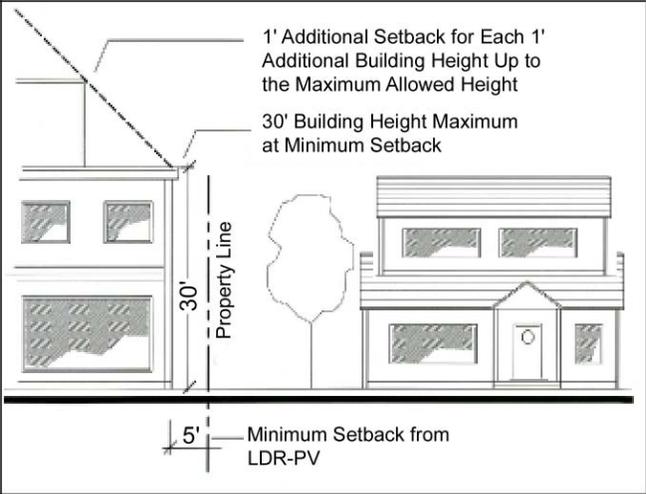
This standard (4.1409) would replace Gresham code Section 9.0600 in Pleasant Valley. The proposed standard is more flexible than the existing code, which is oriented to infill situations while still providing for separation between uses based on height.

Standard 4.1410 applies only to small lots as a way to address the problem of near-continuous driveways along local streets. It encourages street trees and alley access.

4.1409 Building Height and Height Transition Standard

Where buildings are required to step-down in elevation adjacent to single-family residential districts, the building wall shall be setback as illustrated in Figure 4.1409 below:

Figure 4.1409 Building Height Transition



Commentary

4.1410 limits duplex development in the LDR-PV to corner lots. This provision emphasizes the importance of the street facing façade and provides continuity with single attached dwellings, as each unit would face a separate street.

4.1411 applies the safe neighborhood design standards, as they seem appropriate for Pleasant Valley's plan for neighborhood design that emphasizes walkability and safety.

4.1410 Duplexes in the LDR-PV Sub-district

This standard allows duplexes in locations where their appearance and impact will be compatible with the surrounding houses. Duplexes are allowed when the following provisions are met:

- (A) Duplexes shall only be on corner lots.
- (B) Each unit of the duplex must have its address and main entrance oriented towards a separate street frontage.

4.1411 Safe Neighborhood Design Performance Standards

These provisions are intended to help create safer neighborhoods and a high quality pedestrian environment by incorporating crime prevention design that emphasizes linkages and surveillance between the dwelling and the street.

- (A) Street Pedestrian Connection Options. At least one of the following shall be provided:
 - (1) Separate Walkway. A separate, minimum three-foot wide hard surfaced walkway directly from the public sidewalk to the front door; or
 - (2) Combined Walkway. A minimum three-foot wide hard surfaced walkway directly from the public sidewalk to the front door combined at the edge of the driveway, as measured from the edge of the garage door.
- (B) Street Surveillance Options. At least one of the following shall be provided:
 - (1) Ground Level Outdoor Surveillance Area. A minimum 40 square foot covered hard surfaced entry area is placed at or immediately adjacent to the front door; or
 - (2) Upper Level Outdoor Surveillance Area. A minimum 30 square foot second story covered or open porch, balcony, or deck is placed on the front of the dwelling; or
 - (3) Dwelling Front Location. The front of the dwelling (not including the garage) or of a covered entry has maximum setback of 16 feet; or
 - (4) Dwelling and Garage Front Location. The front of the garage is flush with the front of the dwelling or is recessed back from the front of the dwelling.
- (C) Front Yard Fence Height. The maximum height of a fence forward of the minimum front yard setback shall be 4 feet.
- (D) Rear Yard Fence Height on Alley. The maximum height of a fence along an alley lot line shall be 6 feet provided that the maximum height of sight-obscuring fencing shall be 4 feet and that above 4 feet, the fencing shall be at least 40% open.

4.1412 Public Facilities and Supplementary Requirements

All developments shall also be subject to the applicable requirements of Article IX – Common Requirements and Appendix 5.000 – Public Facilities Standards.

A town center action measure suggests developing “a strategy to help ensure the town center’s survival in the marketplace. Marketplace design standards and principles can be combined with pedestrian-oriented design standards to create a unique Pleasant Valley Town Center. Consideration shall be given to future public involvement strategies including a design charrette with property owners and developers and the public to create specific design standards, street layouts, and a scheme for a mix of retail, service, and housing uses. Develop techniques, such as shadow platting, to provide for future infill at desired density. Shadow platting requires placement of buildings in a way that allows future infill at the desired minimum density.” Another provides “Develop a strategy that allows for a town center master plan review process. Such a master plan included more detail than found in the Plan District regulations and would guide development of the town center.”

The proposed development code for the town center generally utilizes the current applicable Civic Neighborhood code. Like the Pleasant Valley Town Center, the Civic Neighborhood emphasizes mixed-uses, pedestrian-oriented design, transit supportive development, and civic spaces. Also like the TC-PV, the Civic Neighborhood is new, greenfield development as opposed to infill development. Staff recommends the proposed town center codes as placeholders until the above action measures can be carried out.

The Pleasant Valley Concept Plan Implementation Strategies stated a general purpose and expected characteristics for the town center as follows:

Purpose. The town center land use district is intended to be the civic and commercial heart of the Pleasant Valley community with a focus on retail and related services to provide for local needs. The town center shall also provide for needed civic uses and for public gathering spaces. Primary uses shall include retail, office buildings and services, and civic uses. A range of higher density housing types shall be allowed as a mixed-use development.

Characteristics

- The character of the Pleasant Valley town center is to have a “village feel.” The town center will be the major commercial/business district for the community. Elements to help create a “village feel” include:
 - A main street that acts as the ‘spine’ of the town center that is connected to a grid street system that acts as the ‘bones’ of the town center. The main street and adjoining arterial streets shall be appealing to both vehicular and pedestrian traffic and signal entering a high activity area.
 - Having the highest intensity of mix of uses and buildings in the concept plan area.
 - Having a high concentration of quality shopping anchored by a grocery store. Examples of other uses include a bookstore, drug store, bank, real estate office, gas station, and entertainment, and restaurants. Durable goods shopping opportunities shall be provided at the level required by Pleasant Valley and nearby market areas.
 - Having a full range of retail, service, and professional uses to provide for the frequently occurring needs of Pleasant Valley residents.
 - Building intensity can be accomplished by having two-three story buildings up to the sidewalk, on-street parking, street trees (for canopy), and pedestrian scaled lighting and other street furniture.
 - Having shared parking (separate uses that allow use of same parking area as they may use the spaces at different times) that encourages multiple activity trips and reducing land needed for parking, thus allowing more for buildings.
 - Having a sense of place by celebrating Pleasant Valley cultural and natural resource history by utilizing techniques such as place/name markers and informational signs.
- The capacity analysis done for the Concept Plan assumed an acreage mix of 60% retail, 30% office use, and 10% civic use at a floor area ratio of 0.3, 0.7, and 0.35, respectively, in this zoning district. The capacity analysis shall be a starting point for establishing a desired mix and density of land uses. Strategies shall be established to accomplish those desired mixes and densities.
- Buildings generally shall be two stories and may be up to three stories. A variety of techniques shall be considered for achieving this characteristic. Housing is allowed and encouraged on the second and third stories. Buildings will be developed in a compact form around a grid of streets with on-street parking. View corridors from surrounding hillside properties will be considered in the design.
- Buildings will present a friendly face to the street so that individual buildings can contribute to a safer, more conducive walking environment. Methods to accomplish a friendly face include transparent front building facades, street facing main entrances, and limited distances between street and building.

Pleasant Valley Mixed-Use and Employment Sub-districts

4.1416 Town Center - Pleasant Valley (TC-PV)

- (A) Purpose. The town center is intended to be the heart of the Pleasant Valley community. It will contain a mix of retail, office, and civic uses, and housing opportunities in a pedestrian oriented area. The town center shall be the focus of retail, civic, and office related uses, and services that serve the daily needs of the local community. It shall be served by a multi-modal transportation system with good access by vehicular, pedestrian, bicycle, and transit traffic.
- (B) Characteristics. The Town Center (TC-PV) Sub-district shall have the following characteristics:
- (1) The Town Center Sub-district permits a wide range of housing types, including live-work uses, mixed-use buildings, and adjacent townhouses and apartments.
 - (2) Streets and buildings shall be designed to emphasize a lively, pedestrian-oriented character where people feel safe by day and night.
 - (3) A “main street” environment, a minimum three blocks in length, that is visually stimulating, and that is designed to encourage people to linger and explore shall be created along at least one street in the town center. The main street is illustrated on Figure 4.1416. All streets will be pedestrian friendly in design.
 - (4) A central green or plaza(s) shall be provided as a community gathering space(s). One potential location for a town green is illustrated on Figure 4.1416. Alternative locations may be suggested as part of a town center master plan. The minimum plaza size shall be 10,000 square feet. There shall be good linkage to the central-park space to the east and to Kelley Creek to the south. Linkage design to Kelley Creek shall include consideration of a park block design.
 - (5) The town center shall have strong connections to adjacent neighborhoods and include commercial services that are centralized and convenient to pedestrian-oriented shopping.
 - (6) Commercial and mixed-use development shall be focused on the area north of the main street, south of Giese Road, and east of the 172nd extension. The area south of the main street shall have a focus on mixed-use and housing.
 - (7) The expectation for the town center is a highly pedestrian-oriented place with a dense mix of shopping, service, and civic and mixed-use buildings.
 - (8) It is anchored (at least) by a grocery store. Smaller buildings for retail and service uses, civic uses and mixed commercial/residential uses will be oriented on pedestrian main streets(s) and plaza(s).
 - (9) It will be an easy and attractive place to walk, bike, and use transit. It will be a convenient and attractive place to drive.

- *The street system shall be designed as the framework of a walkable-scaled pedestrian district that feels safe by day and night.*
- *Linkage and proximity of open space are important to town center character and design. Linkage to the community park to the east and the Kelley Creek system to the south are desirable. A “park block” linkage to Kelley Creek through residential land to the south is one possibility.*
- *Shall have a town center plaza/square with other public or semi-public spaces. There are a number of design possibilities for a town center plaza. One would be a small hardscaped plaza or series of plazas immediately adjacent to retail uses. These spaces should accommodate pedestrian traffic, allow for seating and weather protection, and have a focal point.*
- *Residential and other uses shall provide a buffer between the town center and natural areas.*

Section 4.1416 describes the vision of the Pleasant Valley Town Center to be the civic and commercial “heart” of the community, an attractive pedestrian-oriented and mixed-use place with plazas and transit-supportive. This section provides the standards for mixed use in the town center. An applicant has the choice of establishing the mix of uses at the time of master plan approval or during a subsequent site design review.

This (C) flexibility enables an applicant to apply for annexation and a Master Plan approval, and therefore increase the ability to attract prospective tenants and/or a town center developer (who will subsequently propose a mix of uses tied to a “real” development plan).

The “range of uses” approach in (D) strikes a balance between certainty and flexibility.

For reference, the Pleasant Valley capacity estimates for the Town Center were:

Retail – 60% of land, 113,000 sq. ft. of floor area.

Office – 30% of land, 131,000 square feet of floor area.

Civic – 10% of land, 44,000 square feet of floor area.

Residential – 39 units estimated on upper levels.

Figure 4.1416 illustrates the design guidelines for the town center.

(C) When the Mix of Uses are Determined

The mix of uses for the TC-PV may be established either at the time of master plan approval or during the subsequent design review.

(D) Ranges of Permitted Mixed Use

The mix of uses shall fall within the following minimums and maximums. The percentages cited here are percentages of net buildable land. As used here net buildable includes net of unbuildable natural features, green practices facilities, plaza, and public streets.

	Minimum	Maximum
Residential	10%	50%
Retail	20%	60%
Office	20%	60%
Other Permitted Uses	None	40%

The minimum residential and/or office components of the mix may be satisfied, in whole or in part, by provision of dwellings and/or offices on upper levels of mixed-use buildings. Provision of 40 upper level residential units satisfies the minimum required residential component. Provision of 50,000 square feet of upper level office satisfies the minimum required office component.

Provision of a civic use is encouraged in the town center.

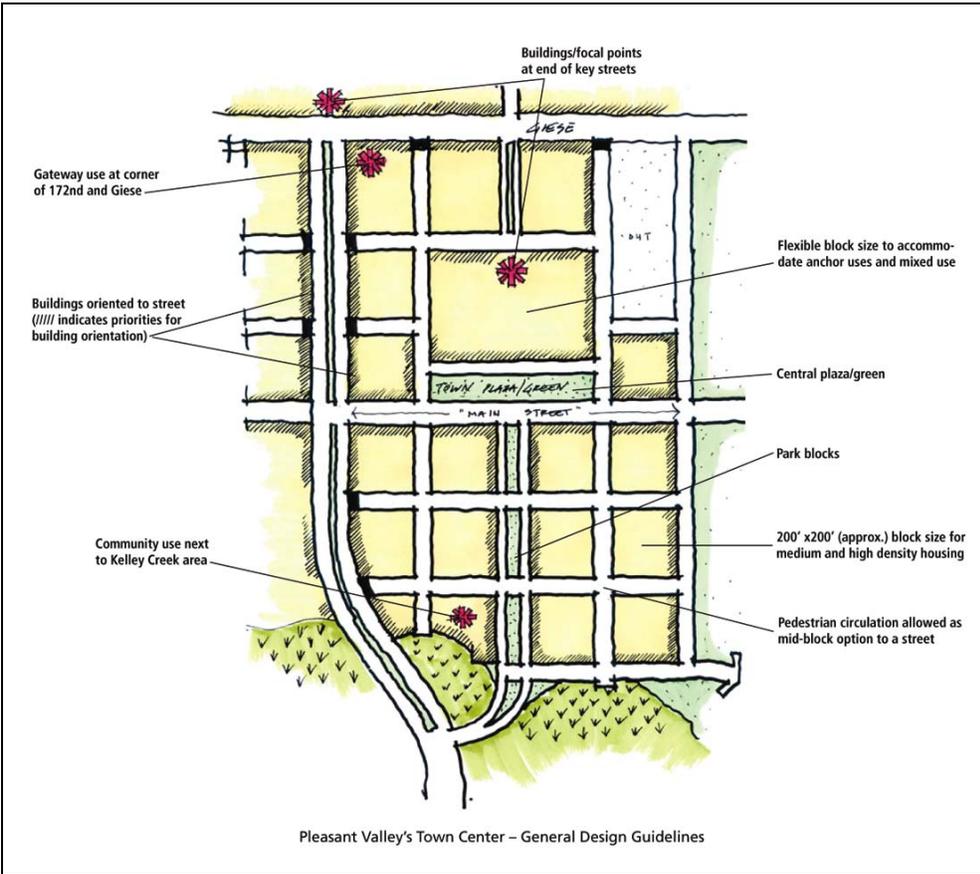


Figure 4.1416

The Mixed-Use Employment (MUE-PV) district is a necessary component of the town center and was included as part of the Implementation Strategies for the town center. Like the town center, the proposed development code for the MUE-PV generally utilizes the current applicable Civic Neighborhood code for the same reasons discussed earlier in the commentary for the town center. And like town center staff recommends the proposed MUE-PV codes as placeholders until the action measures described earlier in the town center commentary can be carried out.

The Concept Plan Implementation Strategies stated a general purpose and expected characteristics for the mixed-use employment district as follows:

Purpose

The mixed-use employment district is intended to provide support services for the town center as well as local service needs, plus provide employment opportunities. Primary uses shall include offices, services, and retail. Housing shall be allowed within a mixed-use building.

Characteristics

- *The mixed-use employment district is located next to the town center district.*
- *The capacity analysis done for the Concept Plan assumed a mix of 90% office use and 10% other uses at a floor area ratio of 0.5 and 0.35, respectively, in this zoning district. The capacity analysis shall be a starting point for establishing a desired mix and density of land uses. Strategies shall be established to accomplish those desired mixes and densities.*
- *Provides services needed by businesses in the town center. Inversely, the town center will provide service and retail opportunities for employees in the mixed-use employment area. Strategies to promote strong pedestrian connection between the two areas shall be established. Offices and other uses are not limited to those dependent on the town center.*
- *Buildings can be up to three stories high. Housing is permitted on the second and third stories, but not as stand-alone buildings.*

Section 4.1417, Mixed-Use Employment (MUE-PV) Sub-district describes it as located adjacent to the town center. It is service-oriented with smaller scale offices and retail uses within an easy drive and walking distance to more vibrant town centers. It allows housing as part of a mixed-use building.

4.1417 Mixed-Use Employment – Pleasant Valley (MUE-PV)

Purpose and Characteristics

The Mixed-Use Employment (MUE-PV) Sub-district is intended to provide support services for the town center as well as local service needs, plus provide employment opportunities. Primary uses shall include offices and services and retail. Housing shall be allowed within a mixed-use building.

The MUE-PV Sub-district shall have the following characteristics:

- (A) The MUE-PV Sub-district is located next to the town center.
- (B) The MUE-PV Sub-district provides services needed by businesses in the town center. Inversely, the town center will provide service and retail opportunities for employees in the mixed-use employment area. Offices and other uses are not limited to those dependent on the town center.
- (C) Strong pedestrian connections will be established between the MUE-PV areas and the town center. Examples include direct and convenient pedestrian routes, alignment of driveways, streets and blocks, building orientation that frames streets between the MUE-PV and town center, consistent streetscape elements, and other techniques.
- (D) Buildings can be up to three stories high. Housing is permitted on the second and third stories, but not as stand-alone buildings.

Like the Corridor Mixed-Use (CMU) District the Pleasant Valley Neighborhood Commercial (NC-PV) is located on transit streets and permit small scale commercial uses and mixed-use developments that are primarily intended to serve the day-to-day needs of residents in the nearby residential and/or business neighborhoods. Unlike CMU NC-PV does not permit stand-alone residential development; instead moderate/high residential sub-districts are clustered around the two NC-PV areas. The neighborhood centers are much smaller in scale than the town center so that the transit design standards from the CMU are more appropriate than the Civic Neighborhood standards. However, specific architectural design guidelines are appropriate.

The Pleasant Valley Concept Plan Implementation Strategies stated a general purpose and expected characteristics for the Neighborhood Commercial as follows:

Purpose

The mixed-use neighborhood district is primarily intended to provide local retail, service, and employment opportunities. Primary uses shall include small-scale retail and service and office buildings. Housing shall be allowed as part of a mixed-use building and live-work opportunities are emphasized.

Characteristics

- 1. The capacity analysis done for the Concept Plan assumed a mix of 30% retail use and 70% office use at a floor area ratio of 0.30 and 0.40, respectively, in this zoning district. The capacity analysis shall be a starting point for establishing a desired mix and density of land uses. Strategies shall be established to accomplish those desired mixes and densities.*
- 2. The retail, service and office uses are concentrated (nodal form) and located on transit streets with opportunities for good retail corners.*
- 3. Supports the neighborhood structure with local service opportunities within a short walking, biking, or driving distance, e.g., short trip for groceries, haircuts, and video rental.*
- 4. Office uses provide both employment opportunities for living and working in the same community and local service opportunities, e.g., dentist and accountant.*
- 5. Housing in mixed-use buildings is allowed and live-work buildings are encouraged.*
- 6. Higher/moderate density housing is located near the mixed-use neighborhood center.*
- 7. Contributes to the comfort and safety of the pedestrian/bike environment.*
- 8. Includes small plaza/public space for public gatherings.*

The purpose section (4.1418) for the Neighborhood Center (NC-PV) Sub-district describes a mix of smaller scale retail, service, and office uses within walking distance or a short bus ride of surrounding single-family neighborhoods. Neighborhood Centers are pedestrian-oriented as realized by inviting storefronts, comfortably scaled sidewalks, and a rhythm of repetitive elements including benches, fountains, planting strips, and street trees.

4.1418 Neighborhood Center – Pleasant Valley (NC-PV)

Purpose and Characteristics

The Neighborhood Center (NC-PV) Sub-district provides for a mix of local retail, service, office, and live-work uses that encourages short walking, biking, and driving trips from adjacent neighborhoods.

The Neighborhood Center Sub-district shall have the following characteristics:

- (A) Neighborhood centers are small (approximately 3-5 acres) and provide uses that serve the adjacent neighborhoods.
- (B) The retail, service and office uses are concentrated (nodal form) and located on or near transit streets with opportunities for good retail corners.
- (C) Site design supports compatibility with the adjacent neighborhood through the orientation of buildings along streets, provision of pedestrian amenities, and design of a pedestrian-friendly streetscape, and other techniques.
- (D) A small plaza/public space is provided for public gatherings.

The employment center action measure suggests to:

- *Develop a strategy to preserve employment center areas and to test its viability in the marketplace. The preservation strategy would include developing a list of prohibited uses. A cited example of a potential prohibited use is mini-storage facilities.*
- *Develop a strategy for economic development recruitment and incentives to locate businesses that will enhance the compact nature and pedestrian scale orientation of Pleasant Valley and its environmental features.*
- *Local participating jurisdictions and others are strongly encouraged to participate in actions and to take steps to solve employment issues on a community, citywide basis, and regional basis.*

The Pleasant Valley Concept Plan Implementation Strategies stated a general purpose and expected characteristics for the e employment district as follows:

Purpose

The employment center district is primarily intended to provide business/office park and medical and other employment opportunities. Primary uses shall include knowledge-based industries (graphic communications, creative services, etc.), research and development facilities, office uses, medical facilities, and other business park uses. Emphasis is placed on business suited to a high environmental quality setting.

Characteristics

- (1) *The capacity analysis done for the Concept Plan assumed a mix of 50% light industrial (business park), 40% office, and 10% other at a floor area ratio of 0.30, 0.50, and 0.35, respectively, in this zoning district. The additional employment evaluation recommended a capacity of 35 employees per acre. The capacity analysis and additional employment evaluation shall be a starting point for establishing a desired mix and density of land uses. Strategies shall be established to accomplish those desired mixes and densities.*
- (2) *On a major arterial street.*
- (3) *Employees have access to transit.*
- (4) *A mixed-use neighborhood center or town center located nearby.*
- (5) *Site size opportunities of at least 5-20 acres.*
- (6) *Access to high-speed Internet communications system.*
- (7) *Good relationship to ESRA to promote high quality environment and stewardship opportunities.*
- (8) *High design standards that focus on multi-story development and cost effective green development practices.*
- (9) *A list of potential uses includes: offices; flex-space business/office parks; health care facilities, including research and development; and small “start-up” creative businesses (such as software development). Flexible office/business park can be defined as 1-3 stories often with extensive glass with heavy office build-out. It can include high-end production facilities and laboratory space and grade level “roll-up” doors.*

4.1419 The Employment Center (EC-PV) Sub-district is intended to provide employment uses. The EC-PV Sub-district is a key tool for providing employment land and jobs within the community. Employment can be thought of as the type of land uses that fall between “industrial” and “commercial”. There is some similarity with aspects of the existing Business Park (BP) district. However, the BP district is an older district dating to late 1980s. Instead of strictly using the BP district the proposed permitted uses will reflect those uses most discussed during the Concept Plan project as a placeholder. See the commentary for Table 4.1420(B) for further discussion. There is a current project to update the City’s industrial districts to better reflect new technologies. Additionally the Springwater project is researching sustainable “green” industrial development that can be a good steward in environmental areas. These two projects should be used to inform an updated employment center district for Pleasant Valley.

The proposed development standards for the EC-PV recognize the importance of the EC-PV site that is near the town center and suggest that the same architectural standards be implemented for that EC-PV site.

4.1419 Employment Center – Pleasant Valley (EC-PV)

Purpose and Characteristics

The Employment Center (EC-PV) Sub-district is primarily intended to provide business/office park and medical and other employment opportunities. Primary uses shall include knowledge-based industries (graphic communications, creative services, etc.), research and development facilities, office uses, medical facilities, and other business park uses. Emphasis is placed on business suited to a high environmental quality setting.

Characteristics for the Employment Center Sub–district include:

- (A) EC-PV areas shall be located on a major arterial street where there is access to transit.
- (B) EC-PV areas shall be near a neighborhood center or the town center.
- (C) Parcels are intended to range from approximately five to approximately 20 acres.
- (D) EC-PV areas shall have access to high-speed Internet communications systems.
- (E) EC-PV areas adjacent to ESRA areas shall be designed to provide a compatible relationship to the ESRA, high quality environment, and stewardship opportunities.
- (F) Design will create pedestrian-friendly areas and utilize cost effective green development practices.

Commentary

This section explains the use of “P”, “L”, and “NP” as used in the current Community Development code. It clarifies that a use category not permitted in any of the Sub-districts in the table is not listed but is not permitted.

4.1420 Permitted Uses

The types of land use that are permitted in the Pleasant Valley Town Center, Neighborhood Center, and Mixed-use Employment Sub-districts, are listed in Table 4.1420(A) and in the Employment Center Sub-district in Table 4.1420(B). Permitted uses are designated with a “P”. An “L” in this table indicates a use that may be permitted in that district, but which is limited in the extent to which it may be permitted. An “NP” means that use is not permitted in the specified Sub-district(s). “NP” is only used if the use category is “P” or “L” in another Sub-district in the table. A use category not listed in this table is “NP.” Each of these uses must comply with the land use district standards of this section and all other applicable requirements of the Community Development Code.

Housing in the Town Center and the Neighborhood Center Sub-districts is allowed as part of a mixed-use development. Generally it can occur in a mixed-use building with limitations of residential use on the ground floor. A stand-alone residential building is allowed only as part of horizontal mixed-use development when the residential building is separated from the street by a commercial or civic use development. There is no limitation on residential units above the ground floor. This supports the intention of these two districts to have a mix of uses but to be primarily commercial development. The adjacent and nearby High and Moderate housing Sub-districts provide the housing needed to support these areas.

Only above-ground residential units are allowed in the Mixed-Use Employment Sub-district. It is primarily intended to provide office and commercial services in conjunction with the town center.

Table 4.1420 (A) Commercial and Mixed Use Permitted Uses			
Use Categories:	TC-PV	NC-PV	MUE-PV
Commercial Uses			
(A) Offices	P	L ¹ ,	L ²
(B) Clinic	P	L ¹	L ²
(C) Retail Trade	P	L ¹	L ^{2, 3}
(D) Retail Service	P	L ¹	L ^{2, 3}
(E) Business Services	P	L ¹	L ² .
(F) Auto-Dependent Use	NP	L ¹	L ²
(G) Outdoor Commercial	L ³	P	L ⁴
(H) Mini-Storage Facilities	NP	NP	P
Residential Uses:			
(A) Attached Dwellings on a Single Lot	L ⁵	L ⁵	L ⁷
(B) Single Family Attached Dwellings	L ⁵	L ⁵	L ⁷
(C) Mixed Use Development	P ^{5, 6}	P ^{5, 6}	P ^{6, 7}
(D) Live-Work ⁸	P	P	P
(E) Community Services	L ⁹	L ⁹	L ⁹
(F) Temporary Uses	P	P	P
(G) Home Occupations	P	P	P

Table 4.01420(A) Notes:

¹The maximum building footprint for any building occupied entirely by a commercial use or uses shall be 10,000 square feet.

²The maximum building footprint size permitted for any building occupied entirely by a commercial use or uses shall be 40,000 square feet.

³Limited to mixed-use buildings (retail and non-retail or residential uses). Retail may be no more than 50% of the total floor area of the building.

⁴The maximum site size for an outdoor commercial use is two acres. Certain types of outdoor commercial uses may be prohibited. See Section 4.1434.

⁵Ground floor housing shall conform to the following standards:

- (a) A maximum of 50% of ground floor space in a building may be for residential use, or
- (b) More than 50% of ground floor housing allowed if separated from the street by a commercial or civic building.

⁶For the purposes of Table 4.1420(A), a Mixed-Use Development is the combination on a site of commercial uses with residential uses and/or the combination or retail and non-retail commercial uses. A Mixed-Use Building is the combination within a building of commercial uses with residential uses and/or the combination or retail and non-retail commercial uses.

⁷Residential uses permitted only as part of a mixed-use building and are not permitted on ground floor.

⁸For purposes of Table 4.1420, a live-work unit is a structure that combines a limited office, retail services, and/or business services use with a residential living space. The commercial space may be used by anyone residing at the unit and by no more than two non-resident employees. The commercial portion of the structure shall face the street front, is limited to the first floor, and garage access must be from an alley. A fascia, awning, or painted wall sign limited to 32 square feet is permitted per each unit.

⁹Community Services Type III (D)(E)(F)(J)(V)(W) are not allowed.

Table 4.1420(B) lists those uses permitted in the Employment Center – Pleasant Valley Sub-district.

The employment studies and focus group session identified challenges and opportunities for employment development in Pleasant Valley. One issue identified is the need for flexibility. The office manufacturing/tech-flex use definition recognizes that certain types of “industrial” uses tend to take place in office and flexible space formats. These formats allow changes to internal functions or uses of spaces to respond to changing market conditions and corporate priorities.

Three use categories -- information, ambulatory health care services, and professional, scientific and technical – use the North American Industrial Classification System (NAICS) as a reference. NAICS replaces the traditional Standard Industrial Classification (SIC) code. It better reflects the modern economy and has broad use elsewhere in North America. Information industries were frequently mentioned as an appropriate employment use in Pleasant Valley. The ambulatory health care service is the NAICS equivalent of a medical clinic use that was highly discussed as desired and appropriate for Pleasant Valley. The range of services detailed in the professional, scientific, and technical sector allows the office/business park type uses that would seem appropriate for Pleasant Valley, especially with its emphasis on businesses suited to a high environmental quality setting.

The use of NAICS sector descriptions seem appropriate for industrial categories and should be considered as Gresham undertakes citywide industrial studies as well as in the Springwater considerations.

Laboratories/Research and Development are currently defined in the Gresham code as “firms which undertake scientific, medical and/or high tech research, development and product or equipment design activities in a setting which combines offices and laboratories and may include small-scale manufacturing.” Although such firms tend to want to cluster and therefore may not want to be in Pleasant Valley they do seem to be appropriate uses for the area.

Commercial services and retail sales are allowed but are limited to a percentage of the total floor area of a development. The Business Park district is currently using these provisions. The footnote limited a building to 60,000 square feet is also a footnote that reflects retail restrictions in Metro’s Urban Growth Management Functional Plan for employment lands and is similar to a footnote currently used in the City’s industrial districts for the same reason. It is unlikely, although possible, that total floor areas of any one development would be so large as to allow a 60,000 square foot retail building or development.

Table 4.1420(B) Employment Center Permitted Uses	
Use Categories:	EC-PV
Office Manufacturing/Tech-Flex ¹	P
Information ²	P
Ambulatory Health Care Services ³	P
Professional, Scientific, and Technical Services ⁴	P
Laboratories/Research and Development	P
Commercial Services ⁵ (up to 30% of total floor area)	L ⁶
Retail Sales (up to 20% of total floor area)	L ⁶
Community Services	L ⁷
Temporary Uses	P

Table 4.1420(B) Notes:

¹For purposes of Table 4.1420(B) office manufacturing/tech-flex refers to building types that can include any combination of administrative, research and development, production, assembly, and testing functions.

²For purposes of Table 4.1420(B) information are uses engaged in the following processes: (a) producing and distributing information and cultural products, (b) providing the means to transmit or distribute these products as well as data or communications, and (c) processing data as used by the North American Industry Classification System (NAICS) Sector 51, United States, 2002.

³For purposes of Table 4.1420(B) Ambulatory Health Care Services are industries that provide health care services directly or indirectly to ambulatory patients and do not usually provide inpatient services. Health practitioners provide outpatient services as used by the North American Industry Classification System (NAICS) Sector 621, United States, 2002. Activities can include emergency treatment, diagnostic services, training, and administration.

⁴For purposes of Table 4.1420(B) Professional, Scientific, and Technical Services comprises establishments that specialize in performing professional, scientific, and technical activities for others. These activities require a high degree of expertise and training. Activities performed includes legal advice and representations; accounting, bookkeeping and payroll services; architectural, engineering, and specialized design services; computer services; consulting services; research services; advertising services; photographic services; translation and interpretation services; veterinary services; and other professional, scientific, and technical services as used by the North American Industry Classification System (NAICS) Sector 54, United States, 2002.

⁵Commercial services include uses such as building maintenance, restaurants, childcare, banks, and recreational facilities.

⁶Retail uses which include the sale, lease, or rent of new or used products to the general public, or the provision of product repair or services for consumer and business goods, are limited to a maximum of 60,000 square feet of gross leasable area in a single building or a single lot or parcel, or on contiguous lots or parcels, including those separated only by transportation right-of-way. A variance from this size limitation is prohibited. Where this size limitation conflicts with the commercial service and retail total floor area allowances of Table 4.1420(B), the more restrictive size limitation shall govern.

⁷See section 8.0121(C) for the list of Community Services prohibited in the EC-PV sub-district.

Standards

4.1421 Development Standards Table

Table 4.1421 summarizes development standards, which apply within the Pleasant Valley Town Center, Neighborhood Center, Mixed Use Employment, and Employment Sub-districts. The standards contained in this table are supplemented by the referenced subsections, which provide additional clarification and guidance.

Table 4.1421 Mixed-Use and Employment Sub-districts				
	TC-PV	NC-PV	MUE-PV	EC-PV
(A) Minimum Lot Size	None	None	None	None
(B) Minimum Average Floor Area Ratio (FAR) (Section 4.1422)	.50:1	.35:1	.50:1	.40:1
(C) Minimum Residential Density	None	None	None	Not Applicable
(D) Maximum Residential Density	None	None	None	Not Applicable
(E) Minimum Building Setbacks (Section 4.1423)	0 feet	0 feet	0 feet	15 feet front; 10 feet rear; 0 feet interior side; 15 street side
(F) Maximum Building Setbacks (Section 4.1425)	5 feet front and street side; none for interior side and rear. ¹	10 feet front and street side; none for interior side and rear. ¹	10 feet front and street side; none for interior side and rear. ¹	20 feet on arterial or collector frontage; 0 feet on all other frontages
(G) Minimum Building Height (Section 4.1424)	2 stories ²	None	2 stories ²	22 feet
(H) Maximum Building Height (Section 4.1424)	45 feet	45 feet	45 feet	45 feet
(I) Minimum Off-Street Parking Required	1 space/unit for residential; all others as provided in Section 9.0851	As provided in Section 9.0851	1 space/unit for residential; all others as provided in Section 9.0851	As provided in Section 9.0851
(J) Maximum Off-Street Parking Permitted	As provided in Section 9.0851	As provided in Section 9.0851	As provided in Section 9.0851	As provided in Section 9.0851
(K) Transit Design Criteria and Standards Apply (Section 4.1425)	Yes ³	Yes ³	Yes ³	Yes
(L) Screening & Buffering Required (Section 9.0100)	No, except where abutting LDR-PV	No, except where abutting LDR-PV	No, except where abutting LDR-PV	No, except where abutting LDR-PV ⁴
(M) Landscaping (Section 4.1426)	Yes	Yes	Yes	Yes
(N) Commercial Uses (Section 4.1427)	Yes	Yes	Yes	Yes
(O) Architectural Design Review Guidelines (Section 4.1428)	Yes	No	Yes	Yes, for the Giese Road site; No for the 172 nd Avenue site ⁵

Table 4.1421 Notes:

¹The maximum front or streetside setback of up to 20 feet may be permitted when enhanced pedestrian spaces and amenities are provided.

²Any required building must have a habitable floor.

³Ground floor window standards for commercial buildings on transit streets (Section 7.0210) do not apply to ground floor residential development.

⁴For the purposes of screening and buffering a use permitted in the EC-PV shall be consider an office use.

⁵The Giese Road EC-PV area is the northern EC-PV area on the north and south sides of Geise Road. The 172nd Ave. EC-PV area is the southern EC-PV area on the east side of 172nd Avenue.

The FAR's in Table 4.1421 are those estimated in the Concept Plan capacity estimates, rounded to the nearest .05 FAR.

The proposed setbacks help create attractive and pedestrian-oriented streets. The setbacks in Table 4.1421 are generally the setbacks required for the corridor districts.

The building height standards in Table 4.1421 are generally those required in the corridor districts. Minimum building heights encourage compact but high FAR development along with developing attractive and safe pedestrian-oriented streets.

4.1422 Minimum Floor Area Ratio

(A) Minimum floor area ratios (FAR) are a tool for achieving the intensity of development anticipated in Pleasant Valley. They help ensure that the most intensive forms of building development will occur in those areas appropriate for multi-story commercial and mixed-use buildings. These more intensive levels of development will encourage and enable transit use. They are also a tool for increasing job opportunities.

(B) The minimum floor area ratios contained in Table 4.1421(A) apply to all non-residential building development. In mixed-use developments, residential floor space is included in the calculations of floor area ratio to determine conformance with minimum FAR.

4.1423 Setbacks

Required minimum and maximum setback standards are specified in Table 4.1421(A)

(A) Minimum setback distances shall be determined in conformance with the definition for “Setback” as specified in Section 3.0010.

(B) Conformance with maximum setback distance is achieved for a commercial or mixed-use building when at least one primary entrance located on the façade facing the street is placed no farther from the property line than the distance specified for Maximum Building Setback in Table 4.1421(A). Maximum building setbacks may be exceeded when a development incorporates enhanced pedestrian spaces and amenities in the setback area. Enhanced pedestrian spaces and amenities consist of features such as plazas, arcades, courtyards, outdoor cafes, widened sidewalks, benches, shelters, street furniture, public art, or kiosks. In addition, on sites with more than one building, the maximum setback may be exceeded, provided conformance is achieved with the maximum setback distance for at least one building.

4.1424 Building Height

Minimum and maximum building heights are specified in Table 4.1421(A). Any required building story must contain a habitable floor.

(A) The minimum building height standard applies, with the following exceptions, to new commercial, residential, and mixed-use buildings. It does not apply to community service buildings, accessory structures, or to building with less than 1,000 square feet of floor area.

(B) In addition to conforming to the Ground Floor Windows requirements of Section 7.0210, for any new commercial or mixed-use building subject to a two-story height minimum, at least 20% of the upper façade area shall be made up of display areas or windows for all facades facing a street.

(C) The maximum building height for any building containing dwelling units shall be reduced when located adjacent to the LDR-PV district, as provided in Section 7.0201(K).

Commentary

Similar to the corridor districts, transit design standards apply to those developments with frontage on transit streets. Transit design standards encourage pedestrian-oriented streets and transit use.

This establishes the landscaping standards that would apply to these Sub-districts. What is proposed is to require landscaping standards applicable to comparable corridor, town center, and employment (BP) districts. Stormwater management standards (see Section 4.1468) will require green development techniques that use landscaping feature to management stormwater. Those landscaping features will count towards required landscaping.

4.1425 Transit Design Criteria and Standards

These Sub-districts are pedestrian districts. As such, new development must have a strong orientation to the pedestrian and be transit-supportive, as well enhance the appearance and functioning of these Sub-districts.

(A) In order to achieve these purposes, the provisions of Section 7.0201 apply to new residential development, and Section 7.0201(A) apply to new commercial, mixed-use, and employment development requiring site design approval in these Sub-districts, along with other applicable standards and criteria.

(B) Incidental Drive Through Uses.

Drive through uses as defined in Section 3.0010 are not permitted in TC-PV, except when such use is incidental to a primary site use and when the incidental drive through use is limited to one service window, which is part of a primary use structure, and to no more than two queuing lanes. Vehicular service bays or islands are not permitted.

4.1426 Landscaping

(A) Section 7.0202(A) regarding site design review landscaping criteria and standards for commercial and mixed-use development is amended as follows:

- (1) A minimum of 15% of the gross site area: MUE-PV, NC-PV.
- (2) A minimum of 20% of the gross site area: EC-PV.
- (3) Setback areas shall be landscaped or provided with enhanced pedestrian spaces such as benches and drinking fountains: TC-PV, MUE-PV, NC-PV.
- (4) Any site area not developed for structures paving or enhanced pedestrian spaces shall be improved with landscaping: TC-PV.

(B) Landscaping for stormwater management shall count towards total percentage of required landscaping.

4.1427 Commercial Uses

(A) At least 85% of business activities in connection with commercial uses permitted in Table 4.1421 shall be conducted within a completely enclosed structure, except for outdoor commercial uses. No more than 15 percent of the area devoted to buildings may be used for outdoor business activities, product display, or storage. However, in the TC-PV Sub-district, the amount of site area used for outdoor business activity, product display, or storage may be up to 50 percent of the amount of floor area on the site.

(B) No outdoor business activities, product display, or storage shall be located within yard setback or buffering and screening areas. Areas devoted to on-site outdoor business activities, product display, or storage shall be located so that they do not interfere with pedestrian circulation.

Table 4.1421 suggests the use of architectural guidelines for the town center, the related mixed-use employment center, and the nearby employment center. These Sub-districts, along with adjoining HDR-PV land, are the core “center” of Pleasant Valley. The draft guidelines are those used by the Civic Neighborhood. The Pleasant Valley Implementation Strategies anticipate a follow-up design charrette to develop architectural design standards that would be used instead of the Civic Neighborhood’s. This section should be considered “interim.”

It may be desirable in the future to add a master plan provision that would allow a public process that would develop alternatives to these guidelines.

These are proposed as guidelines in keeping with the current approach in the Downtown and Civic Neighborhood Districts. It would be desirable to provide a mandatory standard if a mechanism for that approach is provided.

4.1428 Architectural Design Review

(A) Purpose

The standards contained in this section are intended to ensure good quality design in new building construction within the Plan District. Good design results in buildings that are visually compatible with one another and adjacent neighborhoods contributing to a district that is attractive, stimulating, active, and safe. These qualities in turn contribute to the creation of mixed-use areas, which facilitate easy pedestrian movement and establishment of a rich mixture of uses. A diversity of architectural styles is encouraged in the Town Center Sub-district.

(B) Provisions of this section shall apply to proposals for the following types of building construction within the Plan District:

- (1) New attached dwellings (three or more units);
- (2) New commercial buildings;
- (3) New mixed-use buildings;
- (4) New buildings connected to a community service use;
- (5) Substantial improvement (as defined in Section 3.0010) of any of the building types specified in this subsection.

(C) Provisions of this section shall not apply to new accessory structures with less than 1,000 square feet of floor area, or to alternations of existing accessory structures with less than 1,000 square feet of floor area.

(D) In addition to other application materials required for a development permit, the applicant shall submit exterior building elevation drawings for the proposed construction at a minimum scale of one-eighth inch equals one foot. These plans shall show the size, location, materials, colors, and characteristics of all proposed exterior building features.

(E) A development permit application for construction subject to architectural design shall be referred to the Architectural Review Committee for review. In its review, the Committee shall make findings and recommendations concerning conformance with the guidelines of this section. The findings of the Committee shall be considered advisory only, and not binding upon the applicant.

F) Review of plans by the Architectural Review Committee shall take place in accordance with Section 11.0213 for referral and review of development permit applications.

(G) General Guidelines for Architectural Design Review

- (1) Buildings should promote and enhance a comfortable pedestrian scale and orientation. Facades should be varied and articulated to provide visual interest to pedestrians. Within larger projects, variations in facades, floor levels, architectural features, and exterior finishes are encouraged to create the appearance of several smaller buildings.
- (2) Upper stories should be articulated with features such as bays and balconies.
- (3) To balance horizontal features on longer facades, vertical building elements, such as stairs to upper stories and building entries, should be emphasized.
- (4) Buildings should incorporate features such as arcades, roofs, porches, alcoves, porticoes, and awnings to protect pedestrians from the rain and sun.
- (5) Special attention should be given to designing a primary building entrance, which is both attractive and functional. Primary entrances should be clearly visible from the street, and incorporate changes in mass, surface, or finish to give emphasis to the entrance. All building entrances and exits should be well lit.
- (6) Certain buildings, because of their size, purpose, or location should be given special attention in the form of ornamental building features, such as towers, cupolas, and pediments. Examples of these special buildings include theaters, hotels, cultural centers, and civic buildings.
- (7) Buildings located at the intersection of two streets should consider the use of a corner entrance to the building.
- (8) Exterior building materials and finishes should convey an impression of permanence and durability. Materials such as masonry, stone, stucco, wood, terra cotta, and tile are encouraged. Windows are also encouraged, where they allow views to interior activity areas or displays. However, glass curtain walls, reflective glass, and painted or darkly tinted glass should not be used.
- (9) Where masonry is used for exterior finish, decorative patterns (other than running bond pattern) should be considered. These decorative patterns may include multi-colored masonry units, such as brick, tile, stone, or cast stone, in a layered or geometric pattern, or multi-colored ceramic tile bands used in conjunction with materials such as concrete or stucco.
- (10) Preferred colors for exterior building finishes are earthtones, creams, and pastels of earthtones. High-intensity primary colors, metallic colors, and black should be avoided.
- (11) All roof and wall-mounted mechanical, electrical, communications, and service equipment, including satellite dishes and vent pipes, shall be removed or screened from public view by parapets, walls, fences, dense evergreen foliage, or by other suitable means.
- (12) For buildings designed to house most types of retail, service, or office businesses, traditional storefront elements are encouraged for any façade facing a primary pedestrian street. These elements include:

- a) Front and side building walls placed within 10 feet of abutting street right-of-way boundaries;
 - b) Clearly delineated upper and lower facades;
 - c) A lower facade containing large display windows and a recessed entry or entries;
 - d) Smaller, regularly spaced windows in upper stories;
 - e) Decorative trim, such as window hoods, surrounding upper floor windows;
 - f) A decorative cornice near the top of the facade;
 - g) Piers or pilasters, typically of masonry.
- (13) Individual windows in upper stories should conform with the following guidelines:
- a) Glass area dimensions should not exceed 5 feet by 7 feet (The longest dimension may be taken either horizontally or vertically.)
 - b) Windows should have trim or molding at least two inches wide around their perimeters.
- (14) Ornamental devices, such as molding, entablature, and friezes, are encouraged at the roofline. Where such ornamentation is present in the form of a linear molding or board, the band should be at least 8 inches wide.
- (15) Arbors or trellises supporting living landscape materials should be considered for ornamentation of exterior walls.

4.1429 Public Facilities and Supplementary Requirements

All developments shall also be subject to the applicable requirements of Article IX – Common Requirements and Appendix 5.000 – Public Facilities Standards.

The school and park overlays are intended as holding zones. They mark the desired location for schools and parks in Pleasant Valley, but recognize that:

- 1. The final locations for parks and schools may change as specific site acquisitions occur, and*
- 2. Underlying base zoning is needed so that the use of the property is not limited to a school or park.*

Section (1a) identifies potential sites for the ESO-PV and MSO-PV overlay. The section then goes on to show that the school overlay does not bind the property to only school uses. Legal review is needed for this section. Also, there may be additional tools, other than notice, to encourage coordination with the school district.

Pleasant Valley Overlay Sub-districts

General

4.1460 Overlay Sub-districts in General

Overlay Sub-districts apply land use designations and standards that combine with the underlying zone. Where a conflict exists between the overlay and the underlying zone, the overlay zone applies.

The Elementary and Middle School Overlays, Neighborhood Park Overlay, and Community Park Overlay are intended to indicate the general location of schools and parks, consistent with the Plan Map and Comprehensive Plan.

4.1461 Sub-district Location and Boundaries

The locations and boundaries of the Overlay Sub-districts are initially established on the Plan Map. Modifications of Sub-district boundaries shall be consistent with Sub-district characteristics and location criteria provided below.

Purpose and Characteristics

4.1462 Elementary School Overlay – Pleasant Valley (ESO-PV) and Middle School Overlay – Pleasant Valley (MSO-PV)

(A) Purpose and Characteristics

- (1) The Elementary and Middle School Overlay Sub-districts mark the location of existing schools and the desired location of potential new schools in Pleasant Valley, consistent with the Comprehensive Plan. This overlay does not preclude the submittal and review of applications for any use permitted in the base zone. The applicable school district shall be provided notice of any proposed permit or pending land use decision in this overlay sub-district.
- (2) Elementary schools serve grades K through 6 and serve 600 students. Elementary school sites are typically 10 acres or smaller where recreational play fields can be shared by more than one school or between a school and park.
- (3) Middle schools serve grades 7 and 8 and serve between 750 and 1,000 students. Middle school sites are typically 10 acres or smaller where recreational play fields can be shared by more than one school or between a school and park.

Section 4.1459 (1) identifies potential sizes for the NP-PV overlay. The section then goes on to state that the park overlay does not bind the property to only park uses. Legal review is needed for this section. The Pleasant Valley Public Facility Plan provides a description of the neighborhood parks shown on the Plan Map.

The master plan section includes a provision that requires park and open space locations to be shown as part of the master plan submittal. Hence, the master plan should either establish the park location, or alternatively, result in a condition for it to be determined in a subsequent review.

(B) Location Criteria

Schools should be sited as shown on the Plan Map. Where an alternate school location or configuration is proposed, the following criteria apply:

- (1) All schools shall have frontage onto a collector street for school bus service.
- (2) Student walking distance is one mile, and students residing within ¼ mile of the school should be able to walk to school without crossing an arterial street.
- (3) Public schools and public parks should be located next to one another, with the park located adjacent to the school fields whenever practicable. Such parks should be at least 2-3 acres in size, and larger parks are encouraged to allow more opportunity for school and community events.
- (4) Elementary and middle schools should not be located in a Town Center, Neighborhood Center, or Employment Sub-district, but a school location next to such a district is acceptable when it would allow for dual-purpose trips, the possibility of shared parking, and other efficiencies.

4.1463 Neighborhood Park Overlay

(A) Purpose

The Neighborhood Park Overlay Sub-district marks the desired location of new neighborhood parks in Pleasant Valley, consistent with the Comprehensive Plan. This overlay does not preclude the submittal and review of applications for any use permitted in the base zone. All land use reviews where the subject property or area-wide master plan affects the potential site of the park will include a determination of how the park can be incorporated into the land use decision, including potential acquisition or dedication of the park site.

(B) Location Criteria

In general, Pleasant Valley's neighborhood parks are intended to serve each neighborhood as described in the characteristics cited above. It is recognized that the final location and size of parks will be determined as part of land use reviews, considering site specific conditions, availability of land for dedication or sale, proposed area master plans, and other factors. Locational criteria for Neighborhood Parks are described in the Parks section of the Plan District.

4.1464 Community Park Overlay

(A) Purpose

The purpose of Pleasant Valley's community park is to provide active and/or passive recreational opportunities for all area residents and accommodate large group activities. Community parks are intended to serve several neighborhoods, rather than the whole city. They provide a variety of accessible recreation opportunities for all age groups, environmental education opportunities, serve recreation needs of families, and provide opportunities for community social activities.

The Community Park Overlay Sub-district marks the desired location of a community park in Pleasant Valley, consistent with the Comprehensive Plan. This overlay does not preclude the submittal and review of applications for any use permitted in the base zone. All land use reviews where the subject property or area-wide master plan affects the potential site of the park will include a determination of how the park can be incorporated into the land use decision, including potential acquisition or dedication of the park site, or portions of it.

The purpose of the community park designated east of the town center is to provide a wide variety of recreational opportunities in a central location of the community.

(B) Location Criteria and Characteristics

In general, Pleasant Valley's community park is intended to provide a wide variety of recreational opportunities in a central location of the community as described in the characteristics cited above. It is recognized that its final location and size will be determined as part of land use reviews, considering site specific conditions, availability of land for dedication or sale, proposed area master plans, and other factors. Locational criteria for the Community Park are described in the Parks section of the Plan District.

Commentary

The Neighborhood Transition Design Area (NTDA) targets transition between environmentally sensitive land areas and adjoining land uses. The idea of NTDA was a result of the public design charrette done during the Concept Plan project with a notion that interface between the environmental areas and developed areas should be designed so that the community benefits from the adjacent ESRA.

4.1465 Neighborhood Transition Design Area Overlay Sub-district**(A) Purpose**

The neighborhood transition design area provides a transition between the ESRA-PV and adjoining land uses. Careful design and site planning can ensure that schools, residences, businesses, and other uses reduce their impact on the natural resources while enjoying the benefits of adjoining these natural areas.

(B) Characteristics

- (1) The Neighborhood Transition Design area is a 100-foot transition area bordering the ESRA-PV. This area contains, as appropriate, a mix of uses including open space, trails, infrastructure (e.g. stormwater treatment), parkways and boulevards, residences, community centers and ESRA-oriented facilities such as a nature center or interpretative kiosk.
- (2) Residential areas are oriented towards and present a “friendly face” to the ESRA-PV. Such areas may be accessed via an alleyway. The rear yard of a dwelling in the NTDA may not face the ESRA. The City may allow exceptions to this standard due to topography, existing development, street layout, or other reasons that make this requirement impractical.
- (3) Where appropriate, local green streets follow the edges of the residential community as part of the transition area bordering the ESRA.

(C) Standards

To the extent practicable development within the NTDA shall be consistent with the characteristics described above and the following standards. These standards are intended to promote careful design and site planning so that uses and development within the NTDA reduce their impact on, and benefit from, the adjacent ESRA areas.

Master plans must consider the following in designs for NTDA:

- (1) Location of compatible uses, such as open space, trails, infrastructure (e.g., stormwater treatment), parkways and boulevards, residences, community centers, and ESRA-oriented facilities such as a nature center or interpretative kiosk.
- (2) Residential areas that are oriented towards and present a friendly face to the ESRA. Such areas may be accessed via an alleyway.
- (3) Where appropriate, local green streets follow the edges of the residential community as part of the transition area bordering the ESRA.

The model designs in Figure 4.1465 illustrate four ways to create good transitions between neighborhoods and the ESRAs.

(A) Community Uses – With appropriate access, the neighborhood edge can be an ideal location for community uses such as day care centers, schools, environmental learning centers, and community centers. The new elementary school planned for Pleasant Valley is adjacent to the confluence of Clatsop Creek and Kelley creeks.

(B) *Street Edge* – The street edge model places a public green street in the transition area. Homes along the street face the green street and the ESRA, making the ESRA a visible and valued part of the neighborhood. On the homes side of the street, there is a typical sidewalk. On the ESRA side of the street, pedestrian access can be provided on a soft surface trail.

(C) *Pedways* – It will not always be feasible to place a community use, street, or open space along all ESRA. In cases where the backs of lots are in the transition area, pedestrian ways should be provided. The pedestrian ways should be space similar to the street network, i.e., one pedway about every 400 to 500 feet.

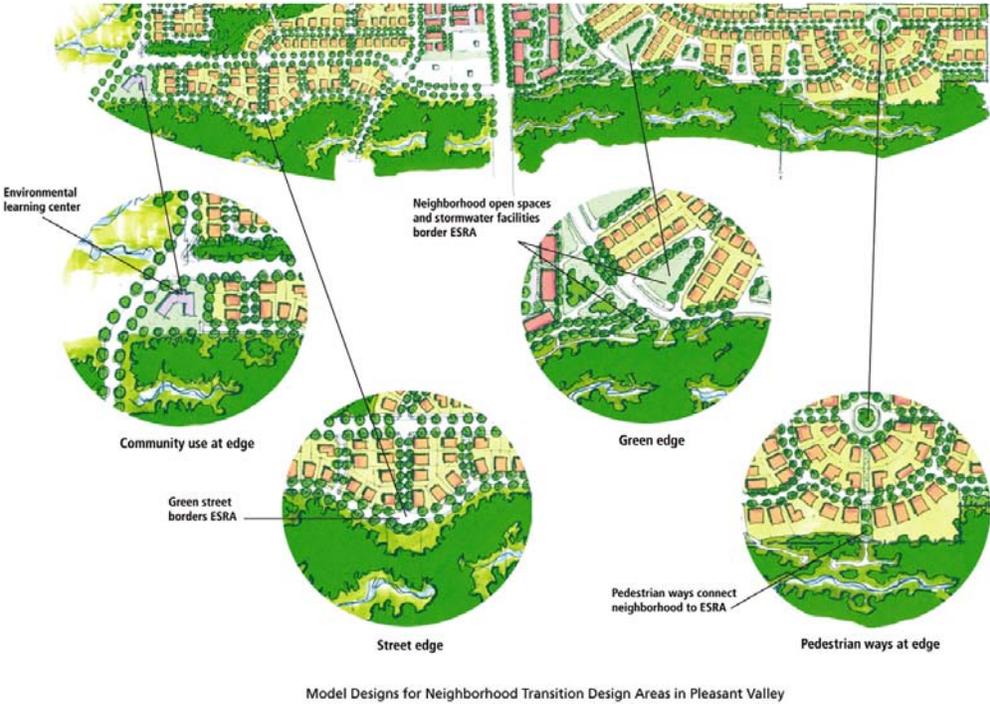


Figure 4.1465 – Neighborhood Transition Design

Commentary

Green Development practices are a key part of the overall strategy to manage stormwater in Pleasant Valley. The provisions in this section are intended to work in combination with Gresham's public works standards and manuals for stormwater.

Additional Pleasant Valley Standards

4.1468 Green Development Practices

Green development practices are a toolbox of techniques that mimic and incorporate the predevelopment hydrology of a site into future development through two processes. The first is to create a site design that minimizes disturbance to existing soils, tree canopy, and other sensitive natural resource features and minimizes impervious surfaces to reduce the production of surface runoff. The second is to manage runoff through techniques that use natural areas and landscaping to treat, retain, attenuate, and infiltrate stormwater on the development site instead of using traditional piped collection and conveyance systems. Often traditional piped systems fail to adequately treat and reduce the volume of stormwater runoff before it is discharged into waterbodies. In addition, traditional piped systems fail to infiltrate stormwater and recharge groundwater. This impacts nearby streams by reducing summertime flows and magnifying wintertime flows, often exacerbating flooding, eroding stream channels and aquatic habitat, and contributing to excess siltation. In addition, untreated pollutants are washed into streams compromising water quality. Conversely, green development practices treat and manage stormwater runoff as close as possible to its source and mimic natural processes such as retention, infiltration, and evapotranspiration to treat and reduce the overall volume of stormwater runoff that drains into waterbodies.

This section is intended to assure that stormwater is managed as close to the source as possible.

Stormwater management plans provide mechanism for the City to review how applicants' proposals for stormwater facilities meet the requirements of this code. The intention is that the stormwater management plans be submitted and approved along with site plan or preliminary subdivision plat approval so that the applicant can design lots that can accommodate on-site/on-lot facilities that utilize green development practices of infiltration and evapotranspiration.

Prescriptive option for detached single-family dwellings and duplexes are to be specified in manuals referenced in the Gresham Water Quality Manual chapter for Pleasant Valley. Will include landscape planter, ecoroof, and "other facilities" options.

Performance option to be determined and located in the aforementioned manuals.

Manuals to also include approval criteria for use of alternative methods.

Section 4.1468(c)(5) is intended to provide a record of location of facilities in case they are removed or damaged, ensuring that future property owners are made aware of the facilities on their property.

Require in manuals that design plan be placed on file at DES.

Stormwater Management

(A) Definitions

- (1) **Green Development Practices.** Green development practices are defined as stormwater management techniques that utilize the processes of retention, infiltration, and evapotranspiration to treat runoff and reduce the volume of stormwater.
- (2) **On-site/On-lot Stormwater Management.** On-site/on-lot stormwater management techniques utilize facilities that the City has determined reduce net stormwater runoff from an improved property and reduce pollution entering surface water and groundwater. On-site/on-lot stormwater management facilities must be designed and constructed to City standards and be located as close to the source of runoff as possible. These facilities shall be located on private property and shall be privately owned and maintained. Acceptable on-site/on-lot facilities shall be identified by the City.

(B) **Purpose and Scope.** The regulations of this chapter implement the management of stormwater runoff from all new development in ways that minimize impacts on localized and downstream flooding and protect water quality and aquatic habitat through the use of green development practices. The guiding principal of green development practices is to mimic the natural hydrology of watersheds to manage stormwater drainage and water quality, moderate air and water temperatures, and provide aesthetic value.

(C) Stormwater runoff from new development shall be managed on-site. Applicants for new development must submit a stormwater management plan. The stormwater management plan, as required by the Gresham Water Quality chapter for Pleasant Valley, shall provide details for developing in a manner that eliminates adverse impacts to water quality and aquatic habitat in downstream water bodies, with a particular focus on water quality parameters that are listed under Section 303(d) of the Clean Water Act and species that are listed as threatened or endangered under the Endangered Species Act. The stormwater management plan shall be approved by the manager or his/her designee and include the following.

- (1) The location and areas of all impervious surfaces.
- (2) The location of all facilities for managing stormwater runoff from new impervious surfaces.
- (3) All facilities shall comply with the standards set forth in the Gresham Water Quality chapter for Pleasant Valley.
- (4) Applicants seeking exemptions for on-site stormwater management requirements listed in section C must follow the procedures outlined in the Gresham Water Quality chapter for Pleasant Valley.
- (5) A site plan showing the location of stormwater facilities and the accompanying property deed must be recorded with Multnomah County. The site plan shall also reference the applicable development permit file number and indicate that the approved design plans and maintenance agreement/plan for the facilities are on file with the City of Gresham Department of Environmental Services/Stormwater Division.

Need to make sure that landscaping is appropriate size and specified to manage diverted runoff.

Need to make sure that designs specify how facilities discharge into conveyance facilities.

Important area for future study is to determine the appropriate opportunities for using pervious pavements in parking lots. DEQ has a threshold for parking lot size where runoff must be pre-treated before draining into pervious pavement due to high vehicle loads. It may be appropriate to allow/require pervious pavement for parking lots that are under this size threshold as well as for sidewalks, overflow parking, and public plazas. The work team needs more feedback on this before adding any language into this code.

Larger storm events will overwhelm on-site/on-lot facilities. To prevent flooding of individual properties, discharge from larger events must be conveyed away from private property and into public conveyance facilities.

The Gresham Water Quality Manual chapter for Pleasant Valley will have specific O&M plans for property owners to follow. The actual O&M plans should be placed on file with DES so that the records are available to subsequent property owners.

O&M needs to include a combination of approaches including inspections, stormwater rate reduction incentives, stormwater quantity reduction incentives, inserts/reminders in sewer bills, and a strong education program to ensure long-term maintenance of facilities.

Contract provides mechanism for City to hold homeowner association accountable if facilities are not maintained. Need to ensure that change in ownership does not result in the loss of accountability.

The intention is to prevent any conflict between stormwater and landscaping code.

- (6) For development with special landscaping requirements stormwater may be directed into other required landscaping provided that the facilities listed in the Gresham Water Quality chapter for Pleasant Valley are used for stormwater management.
- (D) Parking lot landscaping may be used as the water quality treatment facility for parking lots.
 - (1) Purpose: This section is enacted with the purpose of achieving multiple functions from parking lot landscaping by using it for on-site/on-lot stormwater facilities for water quality treatment.
 - (2) Appropriate designs are contained in the Gresham Water Quality chapter for Pleasant Valley.
 - (3) Landscaping for stormwater management within parking lots will count towards total percentage of landscaping required on site.
- (E) Stormwater discharges from private property must be discharged into an approved conveyance facility.
- (F) A grading or building permit may not be issued for a property unless a stormwater management plan has been approved that is consistent with this chapter.
- (G) Operations and maintenance requirements.
 - (1) The property owner, its successors or assigns, including any homeowner association, shall adequately maintain the on-site/on-lot stormwater management facilities according to the operations and maintenance specifications for those facilities outlined in the most recent version of the Gresham Water Quality chapter for Pleasant Valley. The applicant shall enter into a maintenance agreement/plan with the City, which specifies those measures necessary to ensure proper maintenance and performance of the facilities. As required by paragraph C.5 of this section, the recorded site plan showing the location of the stormwater facilities shall indicate that a City approved maintenance agreement/plan is on file with the City of Gresham Department of Environmental Services Stormwater Division and that the facilities must be operated and maintained in a manner consistent with the agreement/plan.
 - (2) A homeowners association may take over maintenance of on-site stormwater facilities provided that the homeowners association enters into a contract with the City agreeing to take over operations and maintenance from the property owner(s) and provided that provisions for financing necessary maintenance are included in deed restrictions or other contractual agreements. In lieu of a contract with the homeowners association, the City may adopt code provisions regarding a property owner's ultimate responsibility to adequately maintain on-site stormwater facilities if the homeowner association fails to do so.
- (H) Landscaping
 - (1) This section is enacted with the goal of utilizing required landscaping for the purpose of protecting and enhancing water quality and aquatic habitat by providing for the infiltration, storage, and treatment of surface water runoff.

It is important to protect existing tree canopy because trees provide numerous benefits. These include intercepting rainwater to aid in the process of evapotranspiration, providing wildlife habitat, stabilizing soils, removing air pollutants, mitigating heat islands, enhancing property values, enhancing aesthetics, and protecting public health and safety.

It is important to protect existing trees both during and after construction because it takes up to 20 years for new trees to grow mature enough to produce significant hydrologic and natural resource benefit.

A tree planting list needs to be developed and would utilize elements of the Metro WQRA plant list already adopted by the City and Metro's Trees for Green Streets guide.

The Tree Preservation Committee reviewed these requirements. Although they took no formal action they noted that they have discussed proposing similar standards for the City as a whole. There are currently no tree requirements for single-family dwellings except for street trees. These standards are similar to those that are in place in the City of Portland and have been working.

The City of Portland has a Tree Fund operated by its City Forester. Their idea is to use money to plant trees in public locations such as parks and open spaces. The City of Portland has little experience with this option as it has had little use. Gresham would have to establish a mechanism for doing this, as it does not have a City Forester. Could possibly be a DES Parks function.

Landscaping and setback trees standards already in place for multi-family development were deemed sufficient for Pleasant Valley.

Commercial, mixed-use, and employment development would require new or preserved trees based on lot area. Although street trees and buffering/screening trees could not be used for this standard, required parking lot trees or any other required trees would count.

- (2) Landscaping for stormwater management will count towards total percentage of landscaping required on site.

4.1469 Tree Planting Requirements

(A) Purpose and scope

This section is enacted with the goal of enhancing and protecting the existing tree canopy within the community to improve water quality, habitat, and aesthetics, and to minimize urban heat island effects. The tree-planting standard is a requirement for all new development. It encourages the planting and protection of trees, minimizes the impact of tree loss during development, and ensures a sustained tree canopy.

(B) Tree planting requirements

Applicants must submit a tree preservation or planting plan indicating how they will meet the following requirements. All planted trees shall be selected from the Pleasant Valley Tree List.

- (1) Single Family Dwellings and Duplexes. The applicant shall meet any one of the three options below. The applicant may choose to meet one or more of these options.
 - a) Tree preservation. At least 2 inches of existing tree diameter per 1,000 square feet of site area must be preserved. On lots that are 3,000 square feet or smaller, at least 3 inches of existing tree diameter must be preserved per lot.
 - b) Tree planting. At least 2 inches of tree diameter per 1,000 square feet of site area must be planted. On lots that are 3,000 square feet or smaller, at least 3 inches of tree diameter must be planted per lot.
 - c) Tree Fund. This option may be used where site characteristics or construction preferences do not support the planting or preservation of trees. Proceeds from the tree fund may be used only in designated open space areas in Pleasant Valley. The applicant must contribute the cost to purchase and plant the required number of trees before a building permit will be issued:
 - For lots with 3,000 square feet or more of area, the cost to purchase and plant at least 2 inches of tree diameter per 1,000 square feet of site area; or
 - For lots with less than 3,000 square feet of area, the cost to purchase and plant at least 3 inches of tree diameter per lot.
- (2) Attached Residential Dwellings. As required in Section 7.0201.
- (3) All Other Development. At least 2 inches of tree diameter per 1,000 square feet of site area must be preserved or planted. This is in addition to any trees used to satisfy street tree or buffering and screening requirements.

Commentary

The master plan process is established as a way of ensuring that the desired land use patterns, street patterns, environmental patterns, and the efficient and timely provisions of public infrastructure occur.

As proposed the master plan application will be made as part of an annexation request. This will likely be tied to annexation phasing and other annexation criteria that will be established as part of a separate annexation comprehensive plan amendment process (CPA 04-1481).

Section 41472 guides the refinement of Sub-district boundaries at time of annexation. The criteria cited here protects the integrity of the plan while providing needed flexibility to fine-tune the Sub-district boundaries

Pleasant Valley Master Plans

General

4.1470 Purpose

Master plans in Pleasant Valley are intended to:

- (A) Guide the design and development of land to create a livable community in Pleasant Valley in accordance with the Comprehensive Plan.
- (B) Ensure that land proposed for annexation is planned with an overall intent to create cohesive and livable neighborhoods, mixed use centers, employment areas, open spaces, and other parts of the Pleasant Valley community, and
- (C) Provide a tool for review and refinement of Sub-district boundaries at the time of annexation of properties.
- (D) Figure 4.1470 illustrates the master plan concept and is intended as a guideline.

4.1471 Applicability

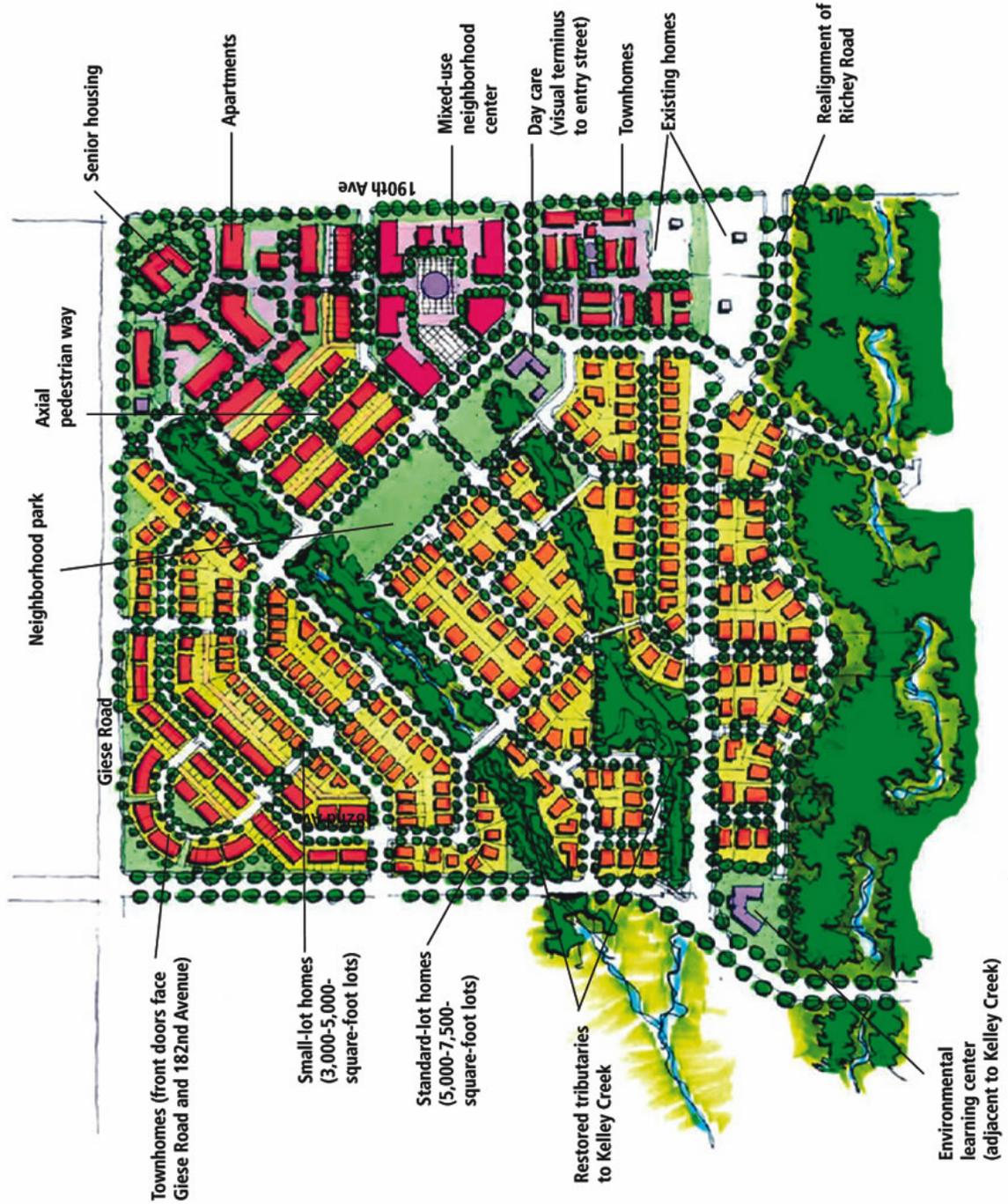
Master plan approvals are required concurrent with annexation. Subsequent land use approvals must be consistent with the master plan.

4.1472 Master Plans and Refinements of Sub-district Boundaries

The Plan District Map establishes the general location of Sub-districts to be used in master plans and applied upon annexation. Applicants may propose refinements of the Sub-district boundaries as part of the master plan review process. Refinements of Sub-district boundaries may be approved if they:

- (A) Do not result in increases in density, and;
- (B) Are consistent with the Comprehensive Plan's goals and policies for Pleasant Valley, and
- (C) Are consistent with and provisions of the Plan District and this chapter, or
- (D) Are necessary in light of a physical condition (e.g. topography) that makes the original sub-district designation impractical for the site.

Figure 4.1470
Nursery Neighborhood Illustrative Plan



Nursery Neighborhood Illustrative Plan

The size of the master plan is a key policy judgment for the City. A 40-acre threshold encompasses about 25-50% of the Pleasant Valley neighborhoods, providing a relatively large and cohesive area. The 40-acre minimum is proposed based on a review of ordinances that provide for establishing Traditional Neighborhood Development (TND) or similar new community area development. TNDs are similar to the Pleasant Valley area in that they provide for establishing land use codes that foster the careful integration of diverse, walkable neighborhoods, and mixed-use areas. The reviewed ordinances had minimum area requirements for establishing a TND that range from 40 to 125 acres. The low end is appropriate here, as the Plan District has established conceptually the mix of land uses. A minimum threshold is also desirable to ensure an ability and efficiency in building new Pleasant Valley infrastructure system.

This does allow for smaller 20-acre minimum when requiring a larger area could hinder orderly/efficient development – for example an “island” annexation where three or more sides are already in the City. Could also allow smaller 20-acre minimum due to physical or other constraints as long as it does preclude compliance with the master plan and other code requirements.

At this time it appears that it will be feasible to allow smaller parcels as it does not appear that there will be opportunity to “tie into” existing infrastructure lines. This means that Pleasant Valley systems will need to be built in order to accommodate development.

The neighborhood design guidelines are introduced as being “guiding but flexible” in light of the variety of site conditions that the neighborhoods have. However, the word “shall” is used here because that is how the residential policies read that were used as source material for this section. These guidelines are intended to reflect important organizing land use principles developed for the Pleasant Valley plan.

Submittal Requirements and Standards

4.1473 Level of Detail

Master plans are intended to display conceptual designs for land use, transportation, natural resource areas, and other physical attributes of the subject property. Similarly, public facility information is intended to be submitted at a conceptual level of detail sufficient to demonstrate compliance with the approval criteria.

4.1474 Size of Master Plan

The purpose of this requirement is to provide a tool to meet the purpose statement above. By requiring minimum areas for master plans, the City intends to avoid incremental and uncoordinated development in Pleasant Valley.

Master plans must cover a minimum of 20 acres. The City may allow a master plan of less than 20 acres when the following are met:

- (A) Full compliance with this requirement will preclude the orderly and efficient development of an area within Pleasant Valley, or
- (B) Full compliance with this requirement cannot be achieved due to a unique physical condition, parcel pattern, or other similar constraint, and
- (C) Will not result in substantial development that could preclude compliance with applicable code provisions and comprehensive plan policies.

4.1475 Neighborhood Design Guidelines

The concept of neighborhoods as the organizing format for residential land use is an essential part of the vision for Pleasant Valley. The development of individual properties is intended to fit together into complete, cohesive neighborhoods. Master plans must demonstrate compliance with the following guidelines, which are intended to be guiding but flexible in application.

- (A) Pleasant Valley shall have walkable neighborhoods with a defined center and edges. The edge of the neighborhood marks the transition from one neighborhood to another. An edge might be a natural area, a transit stop, or a tree-lined arterial street. The neighborhood center should be a main gathering space with priority given to public spaces, such as parks and civic buildings. From the center to the edge should be a comfortable walking distance of one-quarter to one-half mile radius (5 to 10 minute walk).
- (B) Pleasant Valley neighborhoods shall be designed to increase transportation options. Neighborhoods shall be bike and walking friendly, especially so that children can travel safely. Neighborhoods shall be designed with transit in mind. A transit stop(s) should be located within walking distance of a neighborhood.

Commentary

The 30 percent and 70 percent thresholds mirror the proportion of dwelling units in the capacity estimate for LDR (lots > 7500 square feet comprising 30 percent of all LDR lots). Requiring lots in the same district to meet different size thresholds will contribute to the design and development of different housing types.

The other options are intended to provide some flexibility to this standard while promoting housing diversity.

(C) Neighborhoods shall be designed to incorporate the existing natural features in a way that enhances the aesthetic environment while minimizing impacts. A compact, mixed-use neighborhood with transit options is one strategy for preserving open space and natural resource areas.

(D) Parks shall be located next to or near higher density areas. They shall also serve to provide a sense of place for the neighborhood and be accessible via sidewalks, pathways or trails to the whole neighborhood. This enhances the quality of life for nearby residents and will help ensure a higher quality of higher density housing.

(E) Neighborhoods shall have strong connections to the Kelley Creek and Mitchell Creek open space systems. The design and function of neighborhoods shall facilitate preserving, enhancing, and restoring Pleasant Valley's open space system.

4.1476 Housing Variety

The purpose of this element is to: (a) assist in meeting the housing mixes intended for Pleasant Valley, as described in the Comprehensive Plan, (b) avoid over-repetition of the same building type/lot size, and (c) promote housing choices.

All master plans shall conceptually map and describe the proposed housing mix to demonstrate that a variety of lot sizes and/or building types have been provided.

- (A) In the LDR-PV Sub-district, this standard is met by providing a housing mix that meets one of the following:
- (1) A variety of lot sizes for detached dwellings where at least 30 percent of the proposed lots are greater than 7500 square feet and the remaining lots are either less than 7500 square feet or are attached dwellings, or
 - (2) At least 15 percent of the dwellings have accessory dwellings, or
 - (3) Other techniques found to be consistent with the purpose of this standard.

Commentary

Building type in the MDR-PV is suggested only for large (40 or more) developments, as it may not be practical for smaller developments.

No housing variety mix is suggested for the HDR-PV, as these are limited to relatively few areas in the Plan area with their higher densities being crucial to the mix of housing in neighborhoods.

Density transition areas result in a more unified housing pattern by outlining logical points of separation between uses.

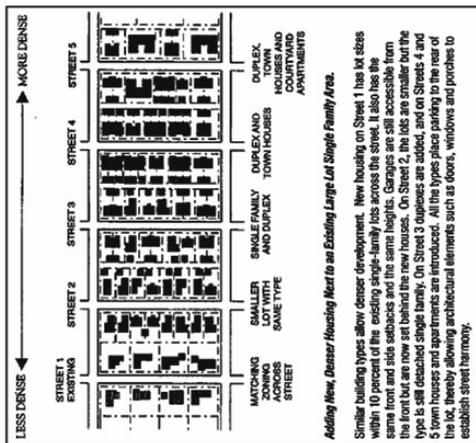
- (B) In the MDR-PV Sub-district, the housing variety standard is met by providing a housing mix that complies with the requirements listed below.
- (1) For development of 40 dwelling units or less, a mix of housing types must include at least two of the following: detached dwellings, attached dwellings, single family attached dwellings, two-unit attached dwellings, live-work units, and residential community service uses. If two housing types are provided, one must be at least 30% of the total dwellings. If three or more housing types are provided, two of them must comprise at least 30% of the total dwellings;
 - (2) For development of more than 40 dwelling units, a mix of housing types must include at least three of the following: detached dwellings, attached dwellings, single family attached dwellings, two-unit attached dwellings, live-work units, and residential community service uses. If three or more housing types are provided, two of them must comprise at least 30% of the total dwellings;
 - (3) For developments of more than 40 dwelling units, a mix of building types, within the same housing type, is required. Building types may vary according to number of units per building, orientation of front entries (street versus courtyard), and number of stories. Live-work units count as a separate building type. A minimum of three building types must be provided, with two of them comprising at least 30% of the dwellings.
 - (4) Other techniques approved by the review body, which are found to be consistent with the purpose of this standard.

4.1477 Density Transition

The planned variety of housing types and mix of densities in Pleasant Valley will benefit from carefully planned transitions between the various building types and lot sizes. Transitions of housing types and density shall consider the following guidelines in annexation master plans:

- (A) Similar uses, lot sizes, and building sizes should be located opposite each other on the same street.
- (B) For adjoining uses, similar street-side setbacks shall be used.
- (C) Appropriate locations for a change in use, lot size, or building type are:
 - (1) The mid-point of blocks and or along alleys
 - (2) Block ends
 - (3) On lots that face neighborhood parks, private open spaces and/or ESRAs.
- (D) The same attached building type (e.g., apartments) should not extend more than 2 blocks or 900 feet (whichever is less) along the same street.
- (E) Figure 4.1477 illustrates the density transition concept and is intended as a guideline.

Figure 4.1477
Density Transitions



Source: Smart Development Code Handbook, Oregon Transportation and Growth Management Program, 1997

Commentary

The Pleasant Valley Transportation System Plan and Public Facility Plan are references as they important and specific guidance to implementation of these public facilities.

4.1478 Neighborhood Transition Design Areas

Master plans shall address the NTDA as provided for in Section 4.1465.

4.1479 Circulation network

The master plan shall display a conceptual lay out of streets, alleys, pedestrian routes, bicycle routes and transit facilities, and other applicable elements to illustrate a complete transportation network. The circulation network shall comply, on a conceptual level, with the Pleasant Valley Transportation System Plan.

4.1480 Parks, open space and natural areas

The master plan shall display proposed locations for parks, open spaces, trails, and natural areas, consistent with those shown on the Plan District Map and the Pleasant Valley Public Facility Plan. The master plan may propose refinements in the location and size of neighborhood and community parks and schools. The master plan may also propose additional open space areas, greenways and trail networks as part of the overall master plan design.

Section 4.1485 introduces the term “substantial conformance” as a way to bridge the gap between conceptual master planning and more detailed development reviews.

4.1481 Stormwater and green practices

A stormwater plan consistent with the Pleasant Valley Master Plan and Section 4.1468 – Green Practices shall be described.

4.1482 Water and sanitary sewer system

General routings and locations of proposed water and sanitary sewer facilities consistent with the Pleasant Valley Public Facility Plan shall be described.

Master Plan Procedures

4.1483 Procedures

Master plans shall be submitted concurrent with annexation and Community Plan Map amendments, so that the three-land use decision can be reviewed as a coordinated package. The package of requests will be processed as a Type IV procedure. Upon receipt of complete applications for the annexation, plan map amendment and master plan review, the City shall review the applications concurrently as a package.

The City may delay the requirement for submitting of a master plan when it is shown that such action will not result in substantial development that could preclude compliance with applicable code provisions and comprehensive plan policies. Master plans that are submitted following annexation will be reviewed as a Type III procedure.

4.1484 Approval Criteria

In approving a master plan, the approving authority shall find compliance with applicable sections of the Community Development Code and the following:

- All applicable master plan elements and standards have been addressed and met.

4.1485 Duration and Implementation

An approved master plan remains in effect until development allowed by the plan has been completed or the plan is revised. Subsequent to the approval of the master plan, all development permits must be in substantial conformance with the master plan. As used here, substantial conformance means the development permit reasonably implements the conceptual direction of the master plan, recognizing that flexibility is needed to respond to more detailed site information and engineering that is available at the time of the development permit review and approval. Where proposed development permits are not in substantial compliance with the master plan, the applicant shall seek a revision through a separate application or in conjunction with the development application under review. A master plan revision is reviewed under the Type III procedure and must comply with Section 4.4184.

Planned Development

4.1490 Purpose

The purpose and intent of this section is to allow an alternative to the traditional subdivision and to allow for alternative land division patterns consistent with City policies in new community areas that encourage conservation of natural features by relating design to the existing landscape, efficient use of land and public services (particularly, but not limited to, situations where the existence of slopes, drainageways, or

other natural features may preclude traditional subdivision design), and the creation of public and private common open space. A Planned Development (PD) is such a method of applying alternative development standards for residential developments.

4.1491 Applicability

A Planned Development is required for any master plan or subsequent land division that includes single-family detached lots of between 3,000 and 5,000 square feet in the MDR-PV sub-district, or any lots between 5,000 and 5,999 square feet in the LDR-PV sub-district. PD approval is required concurrent with any Master Plan proposal that would include these lot sizes. Only those housing types permitted as allowed uses in each sub-district are allowed in Planned Developments.

4.1492 Approval Criteria

In approving a Planned Development, the approving authority shall find compliance with the following criteria:

- (A) The proposal implements the purpose of the section (see 4.1490).
- (B) The project design, building heights, bulk and scale is appropriate for this section, considering such elements as surrounding development and housing types, street system network and capacity, utility availability and the physical and/or natural features of the site. Such project design shall include transitioning measures (lower to higher height, bulk, scale and density) or buffers, so that perimeter structures of the PD are both comparable and compatible with adjacent residential development.

(C) Open Space Areas

The approval authority shall evaluate proposed open space areas based on the following criteria:

- (1) For sites with no specified ESRA sub-district designation as per subsection (2), a minimum of 25% of the gross land area within the PD shall be allocated as an open space area and shall be in public or private common ownership. This may include dedicating land for public parks consistent with Section 4.1480.
- (2) For sites with an ESRA sub-district designation, a minimum of 30% of the gross land area within the PD shall be allocated as an open space area and shall be in public or private common ownership. Open space that conserves steep slopes and/or natural areas shall allow limited access to preserve its natural features.
- (3) Proposed natural open spaces areas shall be located to maximize the preservation of the features identified in Subsection (7).
- (4) The open space areas may be either public open space or private common open space.
 - i. Public open space must comply with requirements of Section 5.0500 of the Community Development Code. Wherever there is a conflict with Pleasant Valley Plan District provisions, the Pleasant Valley provisions will prevail.
 - ii. Private open space shall comply with the following criteria:

1. Open space easements transferring development rights are dedicated to the public;
 2. A conservation/maintenance plan is provided; and
 3. There is a financial mechanism that ensures maintenance of any private open space area.
- (5) The approval authority may approve the dedication of open space areas or of open space easements in concurrence with an approved land division.
- (6) Open space areas that are not located in an ESRA sub-district may be improved with active recreation uses or landscaping/passive recreation uses. Active recreation areas shall include, but are not limited to: swimming pools; tennis, basketball, volleyball and badminton courts; children's play areas; baseball and soccer fields, etc. Landscaping or passive recreation uses shall include, but are not limited to: picnic and barbecue facilities; reflections parks; lawn and other landscaped areas; and community gardens, etc. Active open space areas shall be of a sufficient size for the proposed active use. Non-ESRA active and passive open space areas shall be made accessible to all residents of the development.
- (7) Proposed open space areas shall be located so as to encourage the conservation of natural features and the protection of steep slopes. The following topographic features, natural resources and other features shall be mapped and identified as part of the application:
- i. Significant natural and cultural features:
 1. Water resources, streams, drainageways, ponds, lakes, fish habitat or wetlands;
 2. Historically or culturally significant sites.
 3. Ecological or scientifically significant areas, such as Hogan Cedar trees;
 4. Significant trees and significant tree groves;
 5. Land areas within the ESRA sub-district;
 6. Land areas with slopes greater than 35%.
- (8) Other natural features:
- (a) Trees with a circumference of 25 inches or greater measured at a point 4.5 feet above the ground on the upslope side of the tree;
 - (b) Geologic features;
 - (c) Scenic views and landscapes.

- (D) If a PD is proposed as part of a Master Plan submittal per Section 4.1470 of the Pleasant Valley Community Plan, the PD must be processed together with the Master Plan and tentative plan approval obtained as part of any Master Plan approval.
- (E) If a PD is proposed subsequent to the approval of a Master Plan and Annexation, in addition to the PD requirements of this section, the proposal must demonstrate general consistency with the approved Master Plan, or submit and obtain approval for a Revised or Refined Master Plan together with the PD approval.
- (F) Alleyway vehicular access is required for a PD in the MDR-PV district and/or for any lots in the LDR-PV district proposed with less than 50 lineal feet of public street frontage.
- (G) A PD in the Pleasant Valley Community Plan area is required to demonstrate consistency with the density range requirements of the district within the proposed PD. (This may require a mix of small and larger lots or all lots being larger than the minimum permitted lot size.)
- (H) Where a PD is proposed in the LDR-PV sub-district, the applicant may process the PD together with any other required approvals (such as a larger or adjacent standard subdivision) where the combined land division is proposed to be developed together.
- (I) Where a PD is proposed in the MDR-PV sub-district and the overall project includes a mix of housing types, the applicant may process the PD together with any other required approvals (such as Site Design Review), or may elect to apply for the PD as a separate action.

Chapter 6. Natural Resources

INTRODUCTION

The intent of Oregon Statewide Planning Goal 5 is “To protect natural resources and conserve scenic and historic areas and open spaces. Local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. These resources promote a healthy environment and natural landscape that contributes to Oregon's livability.”¹

This report documents the Goal 5 process for Pleasant Valley that was begun during the *Concept Plan* and completed during the *Implementation Plan* project. The Natural Resources task completes one of the three central elements in the effort to create an urban community through the integration of land use, transportation, and natural resources. It consists of the following:

- ***Natural Resource Inventory*** - The inventory included here was largely based on information collected during the Concept Planning phase. The purpose of the inventory was to document the quantity and quality of the characteristic vegetation, wildlife habitat, streamside areas, sensitive species, and other natural features in the Pleasant Valley study area.
- ***Significance Determination*** – This section evaluates and determines which resources identified in the inventory are significant. A set of mapping criteria was developed and a computer mapping exercise was used to assist in the process. Nine different basic functions were used to provide the foundation for the significance determination.
- ***ESEE Analysis*** - An ESEE analysis describes the different types of land uses that impact 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 areas (Environmentally Sensitive Restoration Area (ESRA)).
- ***ESRA Funding Strategy*** – This section provides preliminary costs estimates and strategies for acquisition, conservation easements, habitat restoration and maintenance of ESRA lands. It includes a set of potential funding strategies and a list of federal, state, regional and local programs.
- ***ESRA Development Code*** – This is proposed development amendments to Volume 3 – Community Development Code that establishes an environmental land use district for the Pleasant Valley Plan District. This proposed amendment implements the natural resources regulatory protection plan for the identified Goal 5 resources in Pleasant Valley.

Supplementing this report is the Natural Resources Goal (10.705) that is included in Chapter 4. It was adopted by the Pleasant Valley Steering Committee and then refined during the Implementation Plan. It includes a background, a summary of major issues and proposed goals, policies and action measures.

¹ OAR 660-015-0000(5)

NATURAL RESOURCE INVENTORY

This section describes the Goal 5 inventory and significance determination process for Pleasant Valley. The inventory was conducted by a team of consultants, Metro, cities and counties as part of the Pleasant Valley Planning process (2000-2002). The purpose of the inventory is to identify the location, quality and quantity of significant natural resources within the Pleasant Valley planning area.

SITE LOCATION

The Pleasant Valley resource site (the site) spans the southeast corner of the City of Portland, portions of unincorporated Multnomah and Clackamas Counties, and areas along the western edge of the City of Gresham (See Map 1). The site's western boundary roughly follows SE 162nd Avenue. Its northern boundary follows the edge of developed portions of the City of Gresham and extends north of Foster Road to include portions of Johnson Creek. The eastern boundary of the site extends past SE 190th Drive to Rodlun Road, and the southern boundary generally parallels Sager and Cheldelin Roads.

The Pleasant Valley site is approximately 1,527 acres in size and includes most of the Kelley Creek Basin and a small area along Johnson Creek. To facilitate the inventory and analysis process, seven site subareas were created based on natural subwatershed boundaries.² These subareas include: Jenne Creek, Clatsop Creek, Mitchell Creek, the Saddle, Gresham South Slope, Lower Kelley Creek Headwaters, and Powell-Jenne Valley (Johnson Creek) (See Map 1). Each subarea was named for its primary stream, tributary, or other distinguishing feature. Analysis at the subarea scale allowed a focused assessment of the resources within the site, including the vegetation and wildlife habitat characteristics of individual Kelley Creek tributaries, associated wetlands and riparian corridors, and upland wildlife resources.

NATURAL RESOURCE INFORMATION

The following information (maps, GIS data, reports) was collected to inventory natural resources within the site:

- **Water Areas:**

- Orthophotos, 1999 (Metro).

- Stream data (Metro; City of Portland Bureau of Planning).

- Wetland data (Metro; National Wetland Inventory).

- Floodplain data (FEMA).

- 1996 Flood Inundation Area data (Metro).

- Developed Floodplain data (Metro).

- Pleasant Valley Subarea Wildlife Habitat Assessments, Dec. 2000 – Jan. 2001 (City of Portland Bureau of Planning).

- Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2000 (Oregon Department of Fish and Wildlife; City of Portland Bureau of Environmental Services).

- Subwatershed Planning: Evaluation of Aquatic and Upland Habitat for the Kelley Creek Watershed, May 2002 (City of Portland Bureau of Environmental Services; Pleasant Valley project staff).

- Kelley Creek Watershed Stream Habitat Assessment, Sept 2002 (City of Portland Bureau of Environmental Services).

² An eighth subarea, Upper Kelley Creek Headwaters, was also surveyed but is located outside of the Planning Area upstream of the Lower Kelley Creek Headwaters subarea.

Johnson Creek Predesign: Wildlife Habitat Assessments, Wetlands Delineation, and Functional Value Assessment, 2002 (City of Portland Bureau of Environmental Services).

Johnson Creek Water Quality Assessment, Feb. 2000 (HARZA Engineering Co.).

“Standard Methods for identifying Channel Migration Zones and Bankfull Channel Features”,
March 2000 (Washington State Forestry Department).

Stream Classification Maps (Oregon Department of Forestry).

- **Fish Habitat:**

Stream data (Metro; City of Portland Bureau of Planning).

Floodplain data (FEMA).

1996 Flood Inundation Area data (Metro)

Pleasant Valley Subarea Wildlife Habitat Assessments, Dec. 2000-Jan 2001 (City of Portland Bureau of Planning).

Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2000
(Oregon Department of Fish and Wildlife and City of Portland Bureau of Environmental Services).

Subwatershed Planning: Evaluation of Aquatic and Upland Habitat for the Kelley Creek Watershed, May 2002 (City of Portland Bureau of Environmental Services, Pleasant Valley project staff)

Kelley Creek Watershed Stream Habitat Assessment, Sept 2002 (City of Portland Bureau of Environmental Services).

Johnson Creek Predesign: Wildlife Habitat Assessments, Wetlands Delineation, and Functional Value Assessment, 2002 (City of Portland Bureau of Environmental Services).

Johnson Creek Water Quality Assessment, Feb. 2000 (HARZA Engineering Co.).

“Standard Methods for identifying Channel Migration Zones and Bankfull Channel Features”,
March 2000 (Washington State Forestry Department).

Stream Classification Maps (Oregon Department of Forestry)

- **Riparian Areas/Riparian Corridors:**

Orthophotos, 1999 (Metro)

10 foot, 5 foot, and 2 foot Elevation Contours

Stream data (Metro; City of Portland Bureau of Planning).

Floodplain data (FEMA).

1996 Flood Inundation Area data (Metro).

Developed Floodplain data (Metro).

Pleasant Valley Subarea Wildlife Habitat Assessments, Dec. 2000-Jan 2001 (City of Portland Bureau of Planning)

Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2000
(Oregon Department of Fish and Wildlife; City of Portland Bureau of Environmental Services)

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Johnson Creek Predesign: Wildlife Habitat Assessments, Wetlands Delineation, and Functional Value Assessment, 2002 (City of Portland Bureau of Environmental Services).

Johnson Creek Water Quality Assessment, Feb. 2000 (HARZA Engineering Co.).

Stream Classification Maps (Oregon Department of Forestry)

- **Wetlands:**

Wetland Data (Metro/National Wetland Inventory).

Orthophotos, 1999 (Metro).

Pleasant Valley Subarea Wildlife Habitat Assessments, Dec 2000-Jan 2001 (City of Portland Bureau of Planning).

Johnson Creek Predesign: Wildlife Habitat Assessments, Wetlands Delineation, and Functional Value Assessment, 2002 (City of Portland Bureau of Environmental Services)

- **Threatened, Endangered or Sensitive Wildlife Species:**

Threatened or endangered plants or animals within a 2-mile radius of the site (Oregon Natural Heritage Program).

Pleasant Valley Subarea Wildlife Habitat Assessments, Dec. 2000-Jan 2001 (City of Portland Bureau of Planning).

Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2000 (Oregon Department of Fish and Wildlife; City of Portland Bureau of Environmental Services).

Subwatershed Planning: Evaluation of Aquatic and Upland Habitat for the Kelley Creek Watershed, May 2002 (City of Portland Bureau of Environmental Services; Pleasant Valley project staff).

Kelley Creek Watershed Stream Habitat Assessment, Sept 2002 (City of Portland Bureau of Environmental Services).

Johnson Creek Predesign: Wildlife Habitat Assessments, Wetlands Delineation, and Functional Value Assessment, 2002 (City of Portland Bureau of Environmental Services).

- **Sensitive Bird Site Inventories**

Pleasant Valley Subarea Wildlife Habitat Assessments, Dec. 2000-Jan 2001 (City of Portland Bureau of Planning)

- **Wildlife Species of Concern or Habitats of Concern:**

Pleasant Valley Subarea Wildlife Habitat Assessments, Dec. 2000-Jan 2001 (City of Portland Bureau of Planning)

Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2000 (Oregon Department of Fish and Wildlife; City of Portland Bureau of Environmental Services).

Subwatershed Planning: Evaluation of Aquatic and Upland Habitat for the Kelley Creek Watershed, May 2002 (City of Portland Bureau of Environmental Services; Pleasant Valley project staff).

Kelley Creek Watershed Stream Habitat Assessment, Sept 2002 (City of Portland Bureau of Environmental Services).

Johnson Creek Predesign: Wildlife Habitat Assessments, Wetlands Delineation, and Functional Value Assessment, 2002 (City of Portland Bureau of Environmental Services).

Information gathered from landowners at Community Forums (Winter and Spring 2001)

- **Other information:**

USGS 7.5 minute quadrangle maps

Soil Conservation Survey information (Multnomah and Clackamas Counties)

Tax lot data

RESOURCE, QUALITY, QUANTITY, AND LOCATION

The Pleasant Valley site is defined by a series of volcanic buttes surrounding largely agricultural and residential areas. The buttes are typically forested and steep, and are divided by perennial and seasonal streams. The buttes were cleared in the early 1900's but are now covered mostly by mid-successional 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 uses. The majority of the lowland area has remained in agricultural and residential use and has also been tilled in many areas for agricultural drainage. The site contains forest types in the Willamette Valley vegetation zone (Franklin and Dyrness, 1988).

Pleasant Valley Subareas. The subareas contain a variety of aquatic and terrestrial habitats. The size and general characteristics of each subarea are noted below. Table 1 provides additional information on the characteristics of each subarea.

Jenne Creek. The Jenne Creek subarea is 364 acres in size (259 acres within the site) and is located on the south slope of Jenne Butte in the vicinity of McKinley Road. The subarea contains Jenne Creek, at approximately 9,850 feet in length, and a headwater forest and emergent wetlands complex with good connectivity to forested open space to the north. Jenne Creek's riparian corridor is relatively intact, except at Foster Road where the stream enters a long (>100 yard) culvert before discharging to Kelley Creek. Habitat types include conifer, hardwood and mixed forests (42.51 acres), shrub (5.36 acres), meadow (10.35 acres), and wetland (6.82 acres).

Clatsop Creek. The Clatsop Creek subarea is located along the western edge of the site, bordering 162nd Avenue. The Clatsop Creek subarea is 368 acres in size, however only the area along the lowest reach (28 acres) is contained within the site. Along this reach are important riparian and instream habitats, which are located within a well-defined canyon at the confluence with Kelley Creek. The primary habitat type within the subwatershed is mixed forest with western red cedar, Douglas fir, and red alder (13.47 acres); small areas of shrub (0.73 acre) and wetland (0.13 acre) habitat are also present.

Mitchell Creek. The Mitchell Creek subarea contains the largest tributary of Kelley Creek. The basin is 561 acres in size (206 acres within the site) and extends into Happy Valley, Portland, and Clackamas County. Mitchell Creek is approximately 16,425 lineal feet with a forested riparian corridor along much of its length. The basin contains significant habitat for wildlife, and supports state-listed sensitive fish and amphibian populations. Habitat types include conifer and mixed forests (103.83 acres), shrub (3.71 acres), meadow (13.70 acres), and wetland (2.92 acres).

The Saddle. The Saddle subarea is characterized by a broad valley floor along the dividing line between the Johnson Creek and Clackamas River basins. The subarea is 537 acres in size (392 acres within the site) and is located in the southern part of the site in the vicinity of Sager and Cheldelin Roads. This subarea contains the greatest diversity of wetland habitats, linked together by a small tributary to Kelley Creek that is approximately 7,415 feet in length. Habitat types include conifer, hardwood and mixed forests (7.15 acres), shrub (5.32 acres), meadow (7.53 acres), and wetland (39.51 acres).

Gresham South Slope. The Gresham South Slope subarea is dominated by agriculture, with Gresham residential development along the ridgetop. The subarea is 343 acres in size (305 acres within the site) and is located in the northwestern part of the site bordering Gresham. This subarea contains a tributary to Kelley Creek (approximately 6,900 feet in length) that flows through a nursery and forestland. The most significant habitat area within the subarea is located west of 182nd Avenue at the confluence of this tributary and the Kelley Creek mainstream. Habitat types include hardwood and mixed forests (19.17 acres), shrub (1.14 acre), meadow (8.87 acres), and wetland (5.28 acres).

Lower Kelley Creek Headwaters. The Lower Kelley Creek Headwaters subarea contains a narrow riparian corridor along the mainstem of Kelley Creek in the eastern part of the site. Though narrow, the corridor supports state-listed sensitive species (see Table). The forested corridor is bordered by pasture and hayfields and broadens to the east into high quality forest habitat. The subarea is 423 acres in size (201 acres within the site). This reach of Kelley Creek is approximately 8,435 lineal feet in length. Habitat types include hardwood and mixed forests (95.60 acres), shrub (2.48 acres), meadow (4.25 acres), and wetland (3.01 acres).

Powell-Jenne Valley. The Powell-Jenne Valley subarea is located north of the Kelley Creek basin along Johnson Creek in the vicinity of Jenne Lane. This subarea is situated in a narrow valley between Powell and Jenne Buttes. It contains a broad floodplain with varied wetland habitats. The subarea is 298 acres in size (136 acres within the site); this reach of Johnson Creek is approximately 4,170 lineal feet in length. The subarea contains a variety of wetland, riparian, and upland habitats, and provides high quality amphibian breeding sites. Habitat types include conifer, hardwood and mixed forests (115.07 acres), meadow (12.90 acres), and wetland (13.18 acres).

HABITAT SUMMARIES

What follows are summaries of habitat types found within the Pleasant Valley site. Table 1 breaks out this, and other information, by subarea and includes known sensitive species, Wildlife Habitat Assessment and Benthic Index of Biological Integrity ratings, special habitat features, and system stresses and sources.

Upland (Terrestrial) Habitat. Upland, terrestrial habitats within the site consist of meadow, shrub, and coniferous, hardwood and mixed forests. The forests are generally 60 to 100 year-old second growth and are in the mid-succession “conifer topping hardwood” stage. The forests include Douglas fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), and red alder (*Alnus rubra*) as dominant tree species. Other common tree species include Oregon ash (*Fraxinus latifolia*), big-leaf maple (*Acer macrophyllum*), and black cottonwood (*Populus balsamifera trichocarpa*). Shrub habitats include Himalayan blackberry (*Rubus discolor*) and Pacific willow (*Salix lasiandra*).

Riparian Habitat. Riparian areas are important because they contain water, cover, and food for aquatic and semi-aquatic species. They are transitional areas between aquatic and upland habitats, and provide habitat for plants and wildlife that exist in both environments. They can also provide migration corridors for wildlife. Riparian corridors generally have high structural diversity, due to the debris and sediment that often collects along streams and, therefore, often support diverse groups of plant and wildlife species.

Riparian habitats within the site consist primarily of mixed forest with some coniferous forest and shrub areas. Forested riparian areas include Douglas fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), black cottonwood (*Populus balsamifera trichocarpa*), and red alder (*Alnus rubra*) as dominant tree species. Other common tree species include Oregon ash (*Fraxinus latifolia*) and big-leaf maple (*Acer macrophyllum*). Shrub habitats include Himalayan blackberry (*Rubus discolor*) and Pacific willow (*Salix lasiandra*).

Aquatic Habitat. Aquatic habitats within the site include perennial streams (first and second order), intermittent streams, wetlands, and springs or seeps. Wetland classifications include forested, scrub-shrub, emergent, wet meadows, and open water. Forested wetlands are dominated by western red cedar (*Thuja plicata*), Oregon ash (*Fraxinus latifolia*), Pacific willow, or red alder (*Alnus rubra*). Scrub-shrub wetlands are dominated by Pacific willow, Piper’s willow (*Salix hookeriana*), or hardhack (*Spiraea*

douglasii). Emergent wetlands are dominated by common cattail (*Typha latifolia*), colonial bentgrass (*Agrostis capillaris*), reed canarygrass (*Phalaris arundinaceae*), stinging nettle (*Urtica dioica*), jewelweed (*Impatiens noli-tangere*), creeping spike-rush (*Eleocharis palustris*), common rush (*Juncus effusus*), or slough sedge (*Carex obnupta*). Wet meadows were dominated by common rush, creeping spike-rush, dagger-leaved rush (*Juncus endifolius*), reed canarygrass, or meadow foxtail (*Alopecurus pratensis*).

Sensitive Species and Habitats. One sensitive fish species was documented in the Pleasant Valley site: steelhead (*Oncorhynchus mykiss*) which is federally listed as threatened. Three other sensitive wildlife species were also documented: American peregrine falcon (*Falco peregrinus annatum*) is listed as endangered by the state of Oregon; and pileated woodpecker (*Dryocopus pileatus*) and red-legged frog (*Rana aurora aurora*) are both listed as sensitive-vulnerable by the state of Oregon. Tall bugbane (*Cimicifuga elata*), a plant species that is a candidate for state listing in Oregon, also occurs on the site.

Special habitat features were noted during field surveys done in December 2000 and January 2001. These features include high quality forested wildlife habitat; large wetland complexes; important wildlife corridors; confluence habitats, and habitat for sensitive species (including fish, birds, and amphibians). Stresses on sensitive species include fish passage barriers, wildlife access or passage impediments, erosion and sedimentation, native species suppression by invasive species, habitat disturbance, water quality stresses, habitat fragmentation, disrupted hydrology, and disconnected floodplains.

HABITAT RATING

Characteristic vegetation, wildlife habitat, riparian areas and corridors, streams, and other physical features were documented using the Wildlife Habitat Assessment (WHA) survey form. The WHA method has been acknowledged by the Oregon Land Conservation and Development Commission as complying with Goal 5 guidelines. The WHA form allows a “habitat score” to be calculated for each subarea, so that relative functional values can be compared. Field surveys were conducted on December 21, 2000, and January 3 and 9, 2001. WHA ratings for individual subareas ranged from 39 to 87 (out of a possible score of 108); these ratings are provided in Table 1. The Pleasant Valley site as a whole received a rating of 63. Generally, sites inventoried previously within the Johnson Creek basin have received WHA scores of 18 to 83.

TABLE 1. SUBAREA HABITAT SUMMARY

Sub Water-shed	Acres	Aquatic Habitats	Terrestrial Habitats	Sensitive, Threatened, Endangered Species	Habitat Value	Macro-invertebrates (BIBI)	Special Features	Stresses (Sources)
Jenne Creek	259 (364)	Perennial stream (1 st , 2 nd order); Intermittent stream Emergent wetland: TYLA Wet meadow: JUEF Open water wetland Springs/seeps	Mixed forest: PSME- THPL-ACMA, THPL-PSME, THPL-PSME-ALRU Hardwood forest: FRLA-ALRU, ACMA-ALRU Shrub: RUDI, SALU Meadow	<u>Fish:</u> <i>Oncorhynchus mykiss</i> <u>Wildlife:</u> <i>Dryocopus pileatus</i> <i>Rana aurora aurora</i> <u>Potential species:</u> <i>Cimicifuga elata</i> <i>Empidonax traillii brewsteri</i> <i>Onchorhynchus kisutch</i> <i>Sidalcea nelsoniana</i>	68 (of 108)	18 (of 50)	Largest grand fir in study area Headwater wetlands Functional link to Jenne Butte habitats for mammals, birds Pileated woodpecker Red-legged frog and pacific giant salamander Steelhead and cutthroat trout	Fish passage barrier (114 m. culvert, 1 m. step at gas station; steel dam; lower KC dams, steps, culverts) Wildlife access impediment (gas station, Foster Road) Erosion/sedimentation (agricultural runoff, high flows grazing-Kelley Creek Farm, vehicles crossing KC) Native flora/fauna suppression (invasive species)
Clatsop Creek	28 (368)	Perennial stream (1 st , 2 nd order); Intermittent stream	Mixed forest: THPL-PSME-ALRU	<u>Fish:</u> <i>Oncorhynchus mykiss</i> <u>Wildlife:</u> <i>Dryocopus pileatus</i> <i>Rana aurora aurora</i> <u>Potential species:</u> <i>Empidonax traillii brewsteri</i> <i>Onchorhynchus kisutch</i>	50 (of 108) Basin: 72	20 (of 50) mainstem Kelley Creek	Pileated woodpecker Steelhead and Cutthroat trout Red-legged frog and pacific giant salamander	Fish passage barrier (162 nd culvert; steel dam; lower KC dams, steps, culverts) Wildlife access impediment (162 nd Ave.) High erosion/sediment (Hawthorne Ridge storm discharge; grazing; vehicles crossing stream) Habitat disturbance (invasive species, waste, clearing, housing development)

Sub Water-shed	Acres	Aquatic Habitats	Terrestrial Habitats	Sensitive, Threatened, Endangered Species	Habitat Value	Macro-invertebrates (BIBI)	Special Features	Stresses (Sources)
Mitchell Creek	206 (561)	Perennial stream (1 st , 2 nd order); Intermittent stream Forested wetland: THPL Scrub/shrub wetland: SALU Emergent wetland: CAOB Open water wetland Springs/seeps	Coniferous forest: THPL, THPL-PSME Mixed forest: THPL-PSME-ALRU, PSME-THPL-ACMA Shrub: RUDI, SALU Meadow	<u>Wildlife:</u> <i>Falco peregrinus annatum</i> <i>Rana aurora aurora</i> <u>Potential species:</u> <i>Dryocopus pileatus</i> <i>Empidonax traillii brewsteri</i> <i>Montia howellii</i> <i>Myotis evotis</i> <i>Onchorhynchus kisutch</i> <i>Plecotus townsendii</i> <i>Sidalcea nelsoniana</i>	77 (of 108)	16 (of 50)	Highest quality fish habitat in study area (cutthroat trout) High quality forested wildlife habitat (upper basin and confluence) Red-legged frog Peregrine falcon Osprey	Fish passage barrier (162 nd culvert; dammed pools, steps) Water quality stresses (nutrient loading-residential discharges; high erosion, sedimentation, waste/ contaminants, <i>E. coli</i> mobile home park) Habitat disturbance (invasive species, waste, clearing, fill) Habitat fragmentation (roads, fences, farms, housing)

Sub Water-shed	Acres	Aquatic Habitats	Terrestrial Habitats	Sensitive, Threatened, Endangered Species	Habitat Value	Macro-invertebrates (BIBI)	Special Features	Stresses (Sources)
The Saddle	392 (537)	Perennial stream (1 st , 2 nd order); Intermittent stream Forested wetland: FRLA, FRLA-SALU, FRLA-ALRU, ALRU Scrub/shrub wetland: SAHO, SALU, SPDO Emergent wetland: AGCA-PHAR, CAO B, JUEF, PHAR Wet meadow: JUEF Open water wetland Springs/seeps	Coniferous forest: THPL-PSME Mixed forest: PSME-ALRU Hardwood forest: ALRU Shrub: RUDI, SALU Meadow	<u>Wildlife:</u> <i>Dryocopus pileatus</i> <u>Potential species:</u> <i>Empidonax traillii brewsteri</i> <i>Onchorhynchus kisutch</i> <i>Rana aurora aurora</i> <i>Sidalcea nelsoniana</i>	50 (of 108)	Not sampled	Largest wetland complex in study area, with link to Clackamas River habitats Good wildlife linkages, or potential linkages, to forested buttes east and west Pileated woodpecker	Habitat disturbance (farm and residential uses, roads, clearing, fill) Fish passage barrier (public and private culverts, steps) Water quality stresses (sewage plant discharge-PV Elementary School, erosion) Native flora/fauna suppression (invasive species)
Gresham South Slope		Perennial stream (1 st , 2 nd order); Intermittent stream Forested wetland: FRLA- ALRU Emergent wetland: CAO B Wet meadow: PHAR-ALPR Open water wetland Springs/seeps	Mixed forest: THPL-PSME-ALRU Hardwood forest: POBA-ALRU; ALRU; FRLA-ALRU Shrub: RUDI Meadow	<u>Potential species:</u> <i>Dryocopus pileatus</i> <i>Empidonax traillii brewsteri</i> <i>Onchorhynchus kisutch</i> <i>Rana aurora aurora</i> <i>Sidalcea nelsoniana</i>	39 (of 108)	26 (of 50)	Wet meadow/forested ash wetland complex Diverse confluence habitats	Disrupted hydrology (nursery/cropland irrigation) Water quality stresses (sediments, nutrients, contaminants from agriculture, erosion-impervious surfaces) Fragmented habitat (roads, housing, nursery, fences) Fish passage barrier (nursery, culverts) Native flora/fauna suppression (invasive species)

Sub Watershed	Acres	Aquatic Habitats	Terrestrial Habitats	Sensitive, Threatened, Endangered Species	Habitat Value	Macro-invertebrates (BIBI)	Special Features	Stresses (Sources)
Lower Kelley Creek Headwaters	201 (423)	Perennial stream (1 st order); Intermittent stream Forested wetland: THPL Emergent wetland: JUEF, PHAR Open water wetland Springs/seeps	Mixed forest: PSME-ALRU; THPL- PSME-ALRU Hardwood forest: ACMA-ALRU, ALRU Shrub: RUDI, SALU Meadow	<u>Wildlife:</u> <i>Rana aurora aurora</i> <u>Potential species:</u> <i>Dryocopus pileatus</i> <i>Empidonax traillii brewsteri</i> <i>Onchorhynchus kisutch</i> <i>Sidalcea nelsoniana</i>	70 (of 108)	16 (of 50)	Cutthroat trout Red-legged frog	Fish passage barrier (190 th culvert, 1.3 m. drop; 2 dammed pools) Low dissolved oxygen (pool sample) Water quality stresses (erosion/sedimentation-grazing; former dump east of 190 th) Native flora/fauna suppression (invasive species)
Powell-Jenne Valley	136 (298)	Perennial stream (Johnson Creek); Forested wetland: FRLA; FRLA-THPL Emergent wetland: PHAR; PHAR-URDI; PHAR-IMNO; ELPA (pond edge) Wet meadow: ELPA-JUEN Open water wetland Seeps/springs	<u>Hillslopes</u> Mixed forest: THPL-PSME-ACMA Shrub: RUDI <u>Lowlands</u> Hardwood forest: FRLA; POBA-FRLA Shrub: RUDI; SALU Meadow	<u>Fish:</u> <i>Onchorhynchus mykiss</i> <u>Wildlife:</u> <i>Rana aurora aurora</i> <u>Plant:</u> <i>Cimicifuga elata</i> <u>Potential species:</u> <i>Dryocopus pileatus</i> <i>Empidonax traillii brewsteri</i> <i>Myotis evotis</i> <i>Onchorhynchus kisutch</i> <i>Plecotus townsendii townsendii</i> <i>Sidalcea nelsoniana</i>	61 (of 108)	Not sampled	Amphibian breeding sites; streamside wetlands Wet meadow habitat Largest ash trees within study area (remnant ash wetland) Red-legged and tree frogs; northwestern and long-toed salamanders; chinook, coho salmon; steelhead, cutthroat trout; tall bugbane Travel corridors between Johnson Creek, Powell Butte, and Jenne Butte for birds, mammals, and amphibians	Amphibian/mammal passage (roads/traffic) Disconnected floodplain (rock-lined JC channel) Fragmented habitat (fences, roads, housing, mowed fields) Erosion, soil movement (forest/riparian clearing) Native flora/fauna suppression (invasive species)

Key to Alpha codes:

ACMA: *Acer macrophyllum* (big-leaf maple)
AGCA: *Agrostis capillaris* (colonial bentgrass)
ALPR: *Alopecurus pratensis* (meadow foxtail)
ALRU: *Alnus rubra* (red alder)
CAOB: *Carex obnupta* (slough sedge)
ELPA: *Eleocharis palustris* (creeping spike-rush)
FRLA: *Fraxinus latifolia* (Oregon ash)
IMNO: *Impatiens noli-tangere* (jewelweed)
JUEF: *Juncus effusus* (common rush)
JUEN: *Juncus ensifolius* (dagger-leaved rush)

PHAR: *Phalaris arundinaceae* (reed canarygrass)
POBA: *Populus balsamifera trichocarpa* (black cottonwood)
PSME: *Pseudotsuga menziesii* (Douglas-fir)
RUDI: *Rubus discolor* (Himalayan blackberry)
SAHO: *Salix hookeriana* (Piper's willow)
SALU: *Salix lucida lasiandra* (Pacific willow)
SPDO: *Spiraea douglasii* (hardhack)
THPL: *Thuja plicata* (western red cedar)
TYLA: *Typha latifolia* (common cattail)
URDI: *Urtica dioica* (stinging nettle)

*Score is based on Wildlife Habitat Assessment rating

**BIBI is "Benthic Index of Biological Integrity"

PLEASANT VALLEY SIGNIFICANCE CRITERIA

The determination of resource significance for the Pleasant Valley site reflects the relative quality and quantity, and the location of natural resources within the site. This section presents the significance criteria that were applied to identified natural resources within the Pleasant Valley site.

The natural resource significance criteria are based on fundamental elements, or “functions”, that must be present for natural systems to work properly. The functional elements selected for this project are based on recent scientific literature, the natural resource information collected for the Pleasant Valley inventory, and the subwatershed assessment conducted as part of the Pleasant Valley inventory. The functional elements are similar to those used by the City of Portland for its Natural Resource Inventory Update project and by Metro for its Regional Goal 5 project. However, the significance criteria were tailored to resource data and conditions specific to the Pleasant Valley site.

Riparian and Upland Habitat Functions. The following basic resource functions provide the foundation for the Pleasant Valley significance criteria:

- 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

Below are brief descriptions of these functions:

Water Quality. The roots, downed wood, and soils in the riparian area help to keep the water clean. Roots and wood help prevent too much dirt and mud from getting in the water by holding soil in place. Riparian vegetation acts as a barrier that slows floodwater or stormwater runoff down so that it does less damage to soil and also acts as a filter for pollutants. Water infiltrating into and through the soils is filtered and kept cool as it flows below ground surface into the stream.

Channel Dynamics and Morphology. Streams move or “meander,” and change over time. The location of the channel may change or the amount of water in the channel may change. Scientists call this type of change channel dynamics. These changes help create a variety of habitats in the channel such as pools, cascades, side channels, swift water areas, and slow water areas. The amount and speed of water changes over time and causes flooding in all or part of the riparian area. The area where this flooding occurs over time is called the floodplain. The stream and floodplain relationship is important for maintaining a successful riparian area because the floodwaters not only help cause channel changes they also wash the litterfall and bugs into the stream and improve the riparian area soil.

Trees and other vegetation in the riparian area also help with channel changes. When a tree, or a large part of it, falls into the stream it helps to create pools and slow water areas and can divert the channel to a

new location. Shrubs like willow—with many deep roots—hold some banks in place while nearby sections change. Together, this creates a variety of places for fish and other animals to live, feed, hide, and rest.

Water Quantity: Stream Flow, Sources, and Storage. Floodplains and riparian areas help to moderate and maintain streamflow. Active floodplains provide temporary storage of floodwaters which helps to reduce and delay peak flows throughout a stream system. Vegetated floodplains and riparian areas catch, store, and release water. The leaves, needles, and branches in the canopy and on the ground can block rain or snow and prevent it from reaching the ground, or slow its progress reducing the impact of rainfall. Dense evergreen forests have greater capability to catch and store water than a deciduous forest, shrubland, or grassland. This help controls how much and how quickly water makes its way back to a stream through the riparian area.

Different types of soil also influence the amount of water that gets back to streams over time. Soil with lots of leaves, twigs, bark, and needles will soak up more water and allow less water to run over the surface of the ground. This type of soil allows for more water to soak into the ground, which supports the riparian vegetation. It also provides water for the stream over a longer period of time because the water travels through the soil more slowly than if it had immediately runoff over the surface.

Microclimate.

Small areas that differ in climatic characteristics (such as temperature and humidity) from the general surrounding climate are described by scientists as having a microclimate. Vegetation can affect a microclimate in riparian areas and uplands. Plants can influence soil moisture and temperature, air temperature, water temperature, wind speed, and relative humidity. An example of this microclimate effect is the difference in temperature and humidity on a hot day between a shady forest and a parking lot in the full sun.

Fish and Aquatic Habitat. In-water habitat structure is important for fish and aquatic species. 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), and spawning gravel provide an important diversity of structural habitat. This variety of habitat structure supports species diversity and supports different life stages of individual species.

Organic Materials. Natural material from plants near streams and wetlands that falls into the stream or wetland or onto the ground provides food for fish and other animals. Scientists refer to this as organic inputs. This material is also known as litterfall and is important for riparian area success. Litterfall, such as leaves, twigs, bark, and needles, can fall to the ground or directly into the stream providing an important food source for insects and other bugs. Insects and bugs in the water, and on streamside vegetation, are also an important food source for fish, including young salmon, and other wildlife. Insects from streamside areas are known to make up to half of a young salmon's diet in the summer.

Riparian and Upland Wildlife Habitat Quality. Riparian and upland areas are important to wildlife for a number of reasons. Riparian areas, by definition, are close to the water sources on which wildlife depend. In riparian areas there also tends to be a greater variety of plants which means more places to hide, more places to nest or den, and a greater variety of food. Stream corridors provide a way for wildlife to access other habitat types and, in urban areas, provide places for them to move around safely. More wildlife species occur in and use riparian areas than other types of habitat in Oregon and Washington.

Non-riparian resource areas are also important to wildlife. Upland forests, and other natural areas provide sources for food, cover, nesting and denning. These areas also provide travel corridors and resting places

for species moving between habitats. Edge habitat occurs where one habitat type, such as a forest, meets a meadow, stream, or other habitat type.

Upland Sensitive Species. Habitat areas that provide the life-history requirements for known sensitive animal and plant species are important for maintaining these populations.

Upland Interior Habitat. Large intact habitat patches are important for specific wildlife populations. 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. While edge habitats often contain a high number of species, many sensitive species that need interior habitat are unable to survive in edge areas. The size of a habitat patch, as well as the shape, impact the amount of edge and interior habitat available for wildlife use.

Significance Matrix. Each of the resource functions described above is represented in the criteria developed for determining the relative importance or “significance” of the resource areas identified in the inventory. The Pleasant Valley Significance Matrix (Table 2) identifies the applicable resource functions, the landscape features that contribute to the function, and the criteria used to weigh the quality or relative importance of the function.

The significance criteria (or parameters) are divided into two categories called “primary factors” and “contributing factors.” Primary factors are characteristics that, when present, represent significant resource function in and of themselves. Primary factors are highly correlated with resource functionality as described in the scientific literature (e.g., areas of frequent flooding; hydrologically connected wetlands, etc.).

Contributing factors are characteristics that have limited or moderate importance in terms of resource function. Contributing factors are generally associated with riparian landscape features that are farther from streams or wetlands, or have lower habitat quality ratings, but which the scientific studies indicate have an important connection or functional relationship with the resource area. Contributing factors may establish a resource area as significant when considered in combination with other primary or contributing factors.

The significance criteria (and primary and contributing factors) are based on suggested buffer widths and/or other size or distance thresholds recommended in recent scientific literature pertaining to riparian and upland wildlife habitat functions. Table 3 provides a summary of these recommendations by function.

GIS-SUPPORTED SIGNIFICANCE MAPPING

A GIS-supported mapping process was developed to map the significant natural resources within the Pleasant Valley site. This process provides detailed information explaining why natural resources areas are deemed significant. The GIS program can easily and quickly incorporate new or updated data or criteria, and it produces a set of maps that can be easily accessed and distributed. The process also reflects a clear and logical set of steps that can be followed and repeated.

The GIS mapping process begins with the selection of specific data layers to represent landscape features that contribute to the identified riparian and wildlife habitat functions. Each GIS data layer represents a landscape feature that contributes to the riparian and upland wildlife functions. All of the natural resource information collected for the Pleasant Valley site (and described previously in this document) was converted into individual GIS data layers for use in the significance mapping process.

The GIS model searches for and maps features from each data layer that meet appropriate spatial parameters. Spatial parameters are also based on the factors set forth in the Pleasant Valley Significance Matrix. The GIS search area for primary factors generally extends to lower end of the range of buffer widths or distance thresholds found in the literature. However all areas within the first 50 feet of a water body were deemed significant. The GIS search area for features that serve as contributing factors extend from primary factor area out to the greatest distance found in the scientific literature. For example, vegetation, water bodies, and floodplains are those landscape features most essential to maintain the Organic Materials function. Vegetation contributes leaf litter, branches, logs, and other organic matter for fish and other wildlife to consume or utilize in other ways. The Pleasant Valley Significance Matrix identifies vegetation within 75 to 170 feet of a stream or water body as important for this function. The GIS mapping program maps all vegetation within 75 feet of a stream or wetland as a primary significant factor for the Organic Materials function, and vegetation between 75 feet and 170 feet of a stream or wetland as a contributing factor for this function.

Significance Determination. Areas with one or more primary factors were determined to be significant natural resources (see Map12). Areas with no primary factors were not determined to be significant because the number of contributing factors occurring together was not sufficient to warrant a significance determination. In no case did more than four (out of nine) contributing factors occur together at a particular location, and in most cases fewer than four contributing factors occur at a particular location. The area that has been deemed significant by this study is generally consistent with the resource areas that Metro has deemed regionally significant by Metro as part of the regional Goal 5 program development currently underway.

TABLE 2. PLEASANT VALLEY SIGNIFICANCE MATRIX

Resource Functions	Land Features with Functional Value	Land Features	Database Field	Representative GIS Data Layer (Year) [Source]	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	Wqual_veg	<ul style="list-style-type: none"> • Concept Plan Habitat¹ (2002) [METRO] • Concept Plan Wetland Inventory (2002) [METRO] • Slope (2001) [BOP] • Concept Plan Streams (2002) [METRO/BOP] 	– Vegetation within 50' of stream or wetland – Vegetation within 200' of stream or wetland if slope ≥ 25%	– Woody vegetation within 50' - 200' of a stream or wetland if slope < 25% (maximum 860')
	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.	Healthy Soil ²	Wqual_soil	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Concept Plan Wetland Inventory (2002) [METRO] • Slope (2001) [BOP] • Concept Plan Streams (2002) [METRO/BOP] 	– Healthy soils within 50' of stream or wetland – Healthy soils within 200' of stream or wetland if slope > 25%	– Healthy soils within 50' - 200' of a stream or wetland if slope < 25% (maximum 860')
	Riparian vegetation preserves uncompacted topsoil that is rich in organic materials and allows stormwater to infiltrate into the ground rather than flow over the surface (reduced surface erosion).	Water Bodies	Wqual_wat	<ul style="list-style-type: none"> • Concept Plan Streams (2002) [METRO/BOP] • Concept Plan Wetland Inventory (2002) [METRO] 	– All land within 50' of a stream – All inventoried wetlands	
	Wetlands and floodplains. Wetlands and vegetated floodplains help to purify water by removing sediments, excess nutrients, and chemical pollutants.	Floodplain	Wqual_fld	<ul style="list-style-type: none"> • Flood Area³ (2002) [METRO/BES] • Developed Floodplain (2002) [METRO] 	– All land within the "Undeveloped" floodplain	– All land within the "Developed" floodplain

Resource Functions	Land Features with Functional Value	Land Features	Database Field	Representative GIS Data Layer (Year) [Source]	Primary Factor	Contributing Factor
Channel Dynamics	<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>	Vegetation	Chdyn_veg	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Concept Plan Fish Presence Layer (2002) [METRO] • Concept Plan Fish Barriers Layer (2002) [METRO] • Concept Plan Channel Meander Zone (2002) [METRO] • Concept Plan Wetland Inventory (2002) [METRO] • Flood Area (2002) [METRO/BES] • Concept Plan Streams (2002) [METRO/BOP] 	<ul style="list-style-type: none"> – Vegetation within 50’ of a stream, stream meander zone, or wetland connected to a stream⁴ – Vegetation within the floodplain 	– Vegetation within 50-295’ of fish-accessible stream
		Water Bodies	Chdyn_wat	<ul style="list-style-type: none"> • Concept Plan Streams (2002) [METRO/BOP] • Concept Plan Wetland Inventory (2002) [METRO] • Flood Area (2002) [METRO/BES] 	<ul style="list-style-type: none"> – All land within 50’ of a stream – Wetlands within the floodplain 	

Resource Functions	Land Features with Functional Value	Land Features	Database Field	Representative GIS Data Layer (Year) [Source]	Primary Factor	Contributing Factor
Channel Dynamics CONT.		Floodplain	Chdyn_fld	<ul style="list-style-type: none"> Flood Area (2002) [METRO/BES] Developed Floodplain (2002) [METRO] 	– All land within the “Undeveloped” floodplain	– All land within the “Developed” floodplain
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	Wquan_veg	<ul style="list-style-type: none"> Concept Plan Habitat (2002) [METRO] 		– Vegetation within 984’ of stream
		Healthy Soil	Wquan_soil	<ul style="list-style-type: none"> Concept Plan Habitat (2002) [METRO] 		– Healthy soil within 984’ of a stream
		Water bodies	Wquan_wat	<ul style="list-style-type: none"> Concept Plan Streams (2002) [METRO/BOP] Concept Plan Wetland Inventory (2002) [METRO] 	<ul style="list-style-type: none"> – All land within 50’ of streams and isolated wetlands. – All land within 100’ of wetlands connected to a stream 	
		Floodplain	Wquan_fld	<ul style="list-style-type: none"> Flood Area (2002) [METRO/BES] 	– All land within flood areas	

Resource Functions	Land Features with Functional Value	Land Features	Database Field	Representative GIS Data Layer (Year) [Source]	Primary Factor	Contributing Factor
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	Micro_veg	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Concept Plan Wetland Inventory (2002) [METRO] • Concept Plan Streams (2002) [METRO/BOP] 	– Woody vegetation within 50’ of water body	– Woody vegetation contiguous extent (maximum 984’)
		Water bodies	Micro_wbod	<ul style="list-style-type: none"> • Concept Plan Streams (2002) [METRO/BOP] • Concept Plan Wetland Inventory (2002) [METRO] 	– All land within 50’ of a stream or wetland	
		Floodplain	Micro_fld	<ul style="list-style-type: none"> • Flood Area (2002) [METRO/BES] • Developed Floodplain (2002) [METRO] 	– All land within the “Undeveloped” floodplain	– All land within the “Developed” floodplain
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	Ahab_hab	<ul style="list-style-type: none"> • Concept Plan Fish Habitat Rating (2002) [METRO] 	<ul style="list-style-type: none"> – Within 100’ of high or medium rated stream segment – Within 50’ of low rated stream segment 	

Resource Functions	Land Features with Functional Value	Land Features	Database Field	Representative GIS Data Layer (Year) [Source]	Primary Factor	Contributing Factor
Fish and Aquatic Habitat CONT.		Sensitive Species	Ahab_sens	<ul style="list-style-type: none"> • Concept Plan Sensitive Species (2002) [METRO] • Concept Plan Channel Meander Zone (2002) [METRO] • Concept Plan Fish Habitat Rating (2002) [METRO] 	– All land within 200' of a channel meander zone of a stream containing aquatic sensitive species or potential habitat for sensitive species ⁵	
		Wetlands	Ahab_wet	<ul style="list-style-type: none"> • Concept Plan Wetland Inventory (2002) [METRO] 	– All inventoried wetlands	
		Floodplain	Ahab_fld	<ul style="list-style-type: none"> • Flood Area (2002) [METRO/BES] • Concept Plan Channel Meander Zone (2002) [METRO] • Concept Plan Fish Presence (2002) [METRO] • Concept Plan Fish Barriers (2002) [METRO] 	– All land within channel meander zone of accessible reach	<ul style="list-style-type: none"> – Within channel meander zone of upstream reach – Within flood prone areas
Organic Materials	<p>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).</p> <p>Floodplains. Organic material can enter the aquatic environment by falling into the stream, or when the stream floods and</p>	Vegetation	Orgm_veg	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Concept Plan Wetland Inventory (2002) [METRO] • Concept Plan Streams (2002) [METRO/BOP] 	<ul style="list-style-type: none"> – Vegetation within 75' of stream – Vegetation within 75' of a wetland 	<ul style="list-style-type: none"> – Vegetation within 75-170' of stream – Vegetation within 75 - 170' of a wetland

Resource Functions	Land Features with Functional Value	Land Features	Database Field	Representative GIS Data Layer (Year) [Source]	Primary Factor	Contributing Factor
	carries away organic material from a vegetated area.	Water bodies	Orgm_wet	<ul style="list-style-type: none"> • Concept Plan Wetland Inventory (2002) [METRO] 	<ul style="list-style-type: none"> – All land within 10' of a stream – All inventoried wetlands 	
		Floodplain	Orgm_fld	<ul style="list-style-type: none"> • Flood Area (2002) [METRO/BES] • Developed Floodplain (2002) [METRO] 	<ul style="list-style-type: none"> – All land within the “Undeveloped” floodplain 	<ul style="list-style-type: none"> – All land within the “Developed” floodplain
Riparian and Upland Wildlife Habitat Quality	<p>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.</p> <p>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.</p>	Vegetation	Uhab_veg	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Concept Plan Wetland Inventory (2002) [METRO] • Concept Plan Streams (2002) [METRO/BOP] 	<ul style="list-style-type: none"> – Vegetation within 100' of a stream or wetland 	<ul style="list-style-type: none"> – Vegetation within 100-300' of a stream
		Structure	Uhab_stru	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Concept Plan Habitat Sub-watershed WHA Scores (2002) [METRO] • Concept Plan Habitat Corridor (2002) [METRO] 	<ul style="list-style-type: none"> – Within 50' of wildlife habitat areas⁶ with WHA score of 45 or more – Wildlife habitat areas within identified habitat corridors 	<ul style="list-style-type: none"> – Within 50' of wildlife habitat areas with WHA >34 and < 45
		Water bodies	Uhab_wat	<ul style="list-style-type: none"> • Concept Plan Wetland Inventory (2002) [METRO] • Concept Plan Streams (2002) [METRO/BOP] 	<ul style="list-style-type: none"> – All land within 50' of water body 	

Resource Functions	Land Features with Functional Value	Land Features	Database Field	Representative GIS Data Layer (Year) [Source]	Primary Factor	Contributing Factor
		Floodplain	Uhab_fld	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Flood Area (2002) [METRO/BES] 		– All land within flood prone areas
Upland 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	Usen_veg	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] • Concept Plan Sensitive Species (2002) [METRO] 	– Wildlife habitat areas within 100' of terrestrial sensitive species point (including contiguous extent of wildlife habitat area)	– Wildlife habitat areas within 100' - 300' of terrestrial sensitive species point (including contiguous extent)
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	Uint_veg	<ul style="list-style-type: none"> • Concept Plan Habitat (2002) [METRO] 	– Wildlife habitat areas with an acre or more of interior habitat ⁷	

¹ The Concept Plan Habitat layer includes inventoried meadows and low structure vegetation.

² Vegetation is used as a surrogate feature for healthy soil (healthy soils are assumed to be vegetated).

³ The flood area includes the 100-year floodplain; the 1996 flood inundation area and the Concept Plan delineated stream meander zone.

⁴ Wetlands that begin within 150' of a stream centerline are considered connected to a stream.

⁵ Includes all stream meander zones downstream from a high or medium fish habitat rated stream segment or aquatic sensitive species point.

⁶ Wildlife habitat areas include all woody vegetation (forest and/or low structure woody vegetation).

⁷ Interior habitat defined as the area of a vegetation patch less a 200' "buffer" from the outside edge.

TABLE 3. BUFFER WIDTHS AND OTHER SPATIAL INDICATORS OF SIGNIFICANT RIPARIAN AND WILDLIFE HABITAT FUNCTION

FUNCTION		STUDY	MINIMUM WIDTH ³ OR SIZE THRESHOLD
Organic material	Organic material	FEMAT 1993	100 ft or .5 SPTH
	Organic litter	Spence et al. 1996	.75 SPTH (75-128')
	Large wood (to riparian area)	FEMAT 1993*	1 SPTH of 170 ft.
	Benthic communities	Erman et al. 1977	100 ft
	Benthic communities	FEMAT 1993*	100 ft
<i>Range of width for function 75-170 ft.</i>			
Channel Dynamics	Large wood	FEMAT 1993*	1 SPTH or 170 ft.
	Large wood	May 2000	1 SPTH or 197-295 ft.
	Large wood	Pollock and Kennard 1998*	1 SPTH or 105-250 ft
	Large wood	Van Sickle and Gregory 1990	164 ft
	Large wood	Spence et al. 1996	170 ft
	Erosion control	Knutson and Naef 1997*	100-125 ft.
	Bank stability	Spence et al. 1996	.5 SPTH or 50-75''
	Bank stability	Todd 2000*	49 ft.
	Channel morphology	Johnson and Ryba 1992	65-100 ft
	Channel migration zone	Pollock and Kennard 1998*	100-year floodplain
<i>Range of width for function 49-295 ft/100-year floodplain</i>			
Water Quality	Water quality	FEMAT 1993	12-860 ft
	Water quality	Metro 1997*	50-200 ft
	Filter pollution	Knutson and Naef 1997*	13-600 ft.
	Nutrient regulation	Spence et al. 1996	75 SPTH o (75-128'
	Nutrient removal	Todd 2000*	33-98 ft
	Filter sediment	FEMAT 1993	200 ft
	Filter sediments	Knutson and Naef 1997*	26-300 ft
	Filter sediments	Johnson and Ryba 1992 citing Wilson 1967*	10-400 ft
Capture surface erosion sediments on all but steep slopes	Spence et al. 1996	1 SPTH or 100-170ft	
<i>Range of width for function 10-860 ft.</i>			
Microclimate	Shade	Johnson and Ryba 1992(based, in part, on Steinblums et al 1994)	.75 SPTH or 100 ft
	Shade	FEMAT 1993	100 ft
	Stream shading	Spence 1996	.75 SPTH or 75-128'
	Shade-water temperature	May 2000	97—164 ft.
	Shade-Water temperature	Todd 2000*	15-33 ft
	Air temperature, soil, temperature, relative humidity	Brosofske, et al. 1997	148--984 ft.
	Microclimate	Knutson and Naef 1997*	200-525 ft
	Microclimate	FEMAT	.5-3 SPTH or 75-510 ft.
	Microclimate	Pollock and Kennard 1998*	250 ft
<i>Range of width for function 15-984 ft.</i>			
Riparian and Upland Wildlife Habitat	Riparian Wildlife habitat	FEMAT 1993 (citing Roderick and Milner 1991)	100-600 ft
	Riparian Wildlife habitat	Knutson and Naef 1997 (citing others)	25-984 ft
	Riparian Wildlife corridors	Todd 2000*	100-325 ft
	Riparian Wildlife habitat and migration corridors	Fischer et al. 2000*	325 ft
	Biodiversity	Pollock and Kennard 1998*	200 ft

³ Refers to the width on each side of the stream.

* Based on author's review of literature

* Based on author's review of literature

* Based on author's review of literature

	FUNCTION	STUDY	MINIMUM WIDTH³ OR SIZE THRESHOLD
	General wildlife habitat	May 2000	328 ft
	Willow flycatcher nesting	Knutson and Naef 1997	123 ft
	Full complement of herpetofauna	Rudolph and Dickson 1990	>100 ft
	Belted Kingfisher roosts	USFWS HEP Model	100 – 200 ft
	Smaller mammals	Allen 1983	214 – 297 ft
	Birds	Jones et al. 1988	246 – 656 ft
	Pileated woodpecker	Castelle et al. 1992	450 ft
	Bald eagle nest, roost, perch Nesting ducks, heron rookery and sandhill cranes	Castelle et al. 1992	600 ft
	Pileated woodpecker nesting	Small 1982	328 ft
	Mule deer fawning	Knutson and Naef 1997	600 ft
			<i>Range of width for function 25 - 984 ft.</i>
Fish and Aquatic Habitat	Cutthroat trout	Hickman and Raleigh 1982	98 ft
	Chinook salmon	Raleigh et al. 1986	98 ft
	Cutthroat trout, rainbow trout and steelhead	Knutson and Naef 1997	50 – 200 ft
	Maintenance of benthic communities (aquatic insects)	Erman et al. 1977	100 ft
	Shannon index of macroinvertebrate diversity.	Gregory et al. 1987	100 ft
	Trout and salmon influence zone (Western Washington)	Castelle et al. 1992	200 ft
Upland Interior Habitat	Interior Habitat – Large Patch	Wilcove 1985	
	Interior Habitat – Patch Dynamics	Forman and Gordon 1986	
	Interior Habitat – Large Patch	Soule 1991	
	Interior Habitat – Large Patch	Duerkson et. al. 1997	
	Interior Habitat – Large Patch	Burke and Nol 1998	
	Interior Habitat	Metro 2002	1 acre of interior habitat
Upland Sensitive Species	Pileated woodpecker	Castelle et al. 1992	Woody Vegetation within 100- 300 feet of a species siting ⁴
	Bald eagle nest, roost, perch Nesting ducks, heron rookery and sandhill cranes	Castelle et al. 1992	
	Pileated woodpecker nesting	Small 1982	
	Connectivity of patches	Adams and Dove 1989	
	Connectivity of patches	Lidicker and Koenig 1996	
	Connectivity of patches	Clergeau and Burel 1997	
			<i>Range of width for function 328 - 600 ft.</i>

⁴ This distance reflects principles gleaned from the literature cited.

SIGNIFICANCE MAPPINGS DATA SOURCES

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REFERENCE DATA

- Fish Sitings
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MODEL INPUTS:

Feature:	Pleasant Valley Streams
Original Source:	Subset of Metro's regional streams centerline dataset.
Source Path:	c:\aikevin\pleas_valley\sig_model\pv_streams (arc)
Source Format:	Coverage
Source Date:	04/07/2003
Source Description:	Based on updated, re-attributed Metro stream data originally received 1/15/2003. Stream centerlines were revised (where necessary) based on 2'/5' elevation contours and 2002/2001 aerial photos.
Source Notes:	Use chan_type <> 2 to select only surface (non-piped) streams. See coverage metadata for more information.
Metadata Reference:	None currently available – contact Bureau of Planning for more information.

Model Use: a. To create stream buffers at specified distances.
b. To create fish stream (streams with fish presence) buffers at specified distances.
c. To create ODFW habitat (low, medium, high) buffers at specified distances.

Processing: 1. Added fish presence information to stream coverage using Metro fish siting and fish barrier data as reference. Refer to the description of these datasets for more information.
2. Added ODFW habitat information to stream coverage using ODFW aquatic habitat data as reference.

Added Database Items: ISFISHSTREAM – identifies stream centerlines with a known fish presence (based on Metro’s Pleasant Valley Concept plan fish siting data.) Includes all upstream and downstream sections of stream accessible to fish (no impassible barriers) (originally based on City of Portland Bureau of Environmental Services fish barriers data.)
ODFW_RANK – Oregon Department of Fish & Wildlife ranking (low, med., high) of in-stream aquatic habitat quality.

Distribution Name: PV_STREAMS.SHP

Feature: **Pleasant Valley Wetlands**

Original Source: Metro Pleasant Valley Archive: Data Files-1 [06/28/02 - #000436; Disk 2 of 6]; Subset of habitat.shp

Source Path: c:\aikevin\pleas_valley\sig_model\wetlands (poly)

Source Format: Coverage

Source Date: 05/2002

Source Description: Subset of the Concept Plan Habitat data – contains only those habitat areas identified as wetland or open water features.

Source Notes: Originally created by Adolfsen Associates based on 1999 Metro aerial photographs, tax lot information, 10’ elevation contours, Metro/Northwest Wetland Inventory data, and Soil Conservation Survey data. Adolfsen Associated conducted limited field verification of this information.

Metadata Reference: None – see Concept Plan Habitat Data for more information.

Model Use: a. To identify wetland areas (including vegetated wetlands).
b. To create wetland buffers at specified distances.

Processing: 1. Converted the habitat shapefile (habitat.shp) to coverage format.
2. Removed all areas not representing wetland or open water.

Added Database Items: ISWETLAND – *boolean*; wetland polygons.

Distribution Name: PV_WETLANDS.SHP

Feature: **Pleasant Valley Vegetation**

Original Source: Metro Pleasant Valley Archive: Data Files-1 [06/28/02 - #000436; Disk 2 of 6]; Subset of habitat.shp

Source Path: c:\aikevin\pleas_valley\sig_model\vegetation (poly)

Source Format: Coverage

Source Date: 05/2002

Source Description: Subset of the Concept Plan Habitat data – contains only those habitat areas identified as vegetated (meadows, shrub/scrub, forest). Includes vegetated wetlands.

Source Notes: Originally created by Adolfson Associates based on 1999 Metro aerial photographs, tax lot information, 10’ elevation contours, and Metro/Northwest Wetland Inventory data. Adolfson Associates identified and assigned vegetation classifications to vegetated areas within the Pleasant Valley study area. Limited field verification was conducted. Initially, Adolfson Associates identified 10 vegetation types. Bureau of Planning staff consolidated the 10 types into 3 for use in the significance mapping process.

Metadata Reference: None – see Concept Plan Habitat Data for more information.

Model Use: a. To identify vegetated areas.
b. To create buffers at around vegetated habitat areas at specified distances.

Processing: 1. Converted the habitat shapefile (habitat.shp) to coverage format.
2. Removed all areas not representing vegetated habitat areas.
3. Summarized the habitat data into three general types – meadow, shrub, and forest.
4. Identified wildlife habitat corridors mapped by Metro in the Concept Plan.
5. Intersected the vegetated areas with the subwatersheds to assign each area a wildlife habitat assessment (WHA) score. The highest score that any intersected any part of a contiguous area of vegetation was assigned to that area.

Added Database Items: VEG_TYPE – *string*; the type of vegetation (Forest, Shrub, Meadow).
ISWETLAND – *boolean*; vegetated wetland polygons.
ISCORRIDOR – *boolean*; vegetated areas within a wildlife corridor.

WHA_SCORE – the WHA score for a vegetated area (based on the subwatershed score as supplied by Adolfson Associates.)

Distribution Name: PV_VEGETATION.SHP

Feature: **Pleasant Valley Flood Area**

FIRST SOURCE:

Original Source: Metro RLIS - 100-year Floodplain (modified version of FEMA 100-year floodplain)

Source Path: \\cgisfile\data\shapes\hazard\100yr_floodplain_metro

Source Format: Shapefile

Source Date: 12/2001

Source Description: 100-Year Flood Plain as delineated by the Federal Emergency Management Association (FEMA). Digitized by the Portland Office of the Army Corps of Engineers. Updated with local input.

Source Notes: Members of the Bureau of Planning, Bureau of Environmental Services, the Endangered Species Act Group, the Water Bureau and Metro have agreed that the Metro floodplain is the most accurate information for regional modeling. Metro has modified the data to recent include changes in the Columbia Slough and Johnson Creek.

Metadata Reference: http://mazama.metro-region.org/metadata/display.cfm?Meta_layer_id=463&Db_type=rllslite#ident

SECOND SOURCE:

Original Source: Army Corps of Engineers February 1996 Flood Area

Source Path: \\cgisfile\data\shapes\hazard\96_flood_army

Source Format: Shapefile

Source Date: 2/1996

Source Description: A record peak flow in February of 1996 caused the Willamette River and its major tributaries to flood. This map was created to delineate the inundated areas near the mainstream and major tributaries of the Willamette River.

Source Notes: Complete FGDC metadata is available from US Army Corps of Engineers, Portland District.

Metadata Reference: http://mazama.metro-region.org/metadata/display.cfm?Meta_layer_id=796&Db_type=rlls#ident

Model Use: a. To identify frequently flooded areas representing an approximation of the 100-year floodplain.

Processing: 1. Converted all data to coverage format.
2. Union 100-year floodplain (source #1) with 1996 Flood Area (Source #2) and clipped by the Concept Plan boundary to create pleasant valley flood area coverage.
3. Identified and attributed all areas within either the 100-year floodplain, the 1996 flood area, or the stream meander zone.
4. Removed all unneeded database items.

Added Database Items: ISFLOOD – *boolean*; flood area polygons (either within the 100-year floodplain, the 1996 flood area, or a stream meander zone.)

Distribution Name: PV_FLOODAREA.SHP

Feature: **Developed Floodplain**

Original Source: Metro's Developed Floodplain (from Goal 5)

Source Path: c:\aikevin\HPS_Project\METRO_Goal5\Shapefiles\May_2002\devfld.shp

Source Format: Shapefile

Source Date: 5/2002

Source Description: Developed floodplain areas identified as part of Metro's Goal 5 project.

Source Notes: None.

Metadata Reference: C:\aikevin\HPS_Project\METRO_Goal5\Shapefiles\ Riparian GIS Data FTP.doc

Model Use: a. To identify developed portions of the 100-year floodplain.

Processing: 1. Converted all data to coverage format.
2. Added field to identify developed floodplain polygons.

Added Database Items: ISDEVFLOOD – *boolean*; developed floodplain polygons.

Distribution Name: PV_DEVELOPED_FLOODPLAIN.SHP

Feature: **Steep Slopes**
Original Source: Bureau of Planning
Source Path: x:\maplib\common\dem_2001\slope
Source Format: Coverage
Source Date: 11/2002
Source Description: Steep slopes (greater than or equal to 25%) for the Portland metropolitan area.
Source Notes: Created from 2001 Bureau of Planning 10' DEM (created from July 2001 Metro DTM). Refer to the metadata for a complete description of this dataset.
Metadata Reference: X:/Maplib/COMMON/DEM_2001/ SLOPE_BOP_Metadata.htm
Model Use: a. To identify areas where slope >= 25%.
Processing: 1. Added item to identify all slopes >= 25%.
Added Database Items: ISSLOPE25 – *boolean*; polygons where slope >= 25%.
Distribution Name: PV_STEEP_SLOPES.SHP

Feature: **Pleasant Valley Stream Meander Zones**
Original Source: Metro Pleasant Valley Archive: Data Files-1 [06/28/02 - #000436; Disk 2 of 6]; ESA_T3 (coverage)
Source Path: c:\aikevin\pleas_valley\sig_model\meander (poly)
Source Format: Coverage
Source Date: 4/7/2003
Source Description: Stream meander zones.
Source Notes: Originally created by Adolfson Associates for the Pleasant Valley Concept Plan based on 1999 Metro aerial photographs, 10' elevation contours, Soil Conservation Survey information, and NOAA Fisheries standard method for identifying channel migration zones. Updated by Bureau of Planning to include areas missing from the original mapping (see Stream Meander Zones data.).
Metadata Reference: None.
Model Use: a. To create stream meander zone buffers at specified distances.
b. To create fish stream (streams with fish presence) meander zone buffers at specified distances.
c. To create medium/high ODFW habitat stream meander zone buffers at specified distances.
Processing: 1. Added missing stream meander zone areas (to upper Jenny Creek, for example.) Estimated location of meander zone using 2'/5' contours and 2001/2002 aerial photos.
2. Added fish presence information to stream meander zone coverage using Metro fish siting and fish barrier data as reference. Refer to the description of these datasets for more information.
3. Added ODFW habitat information to stream meander zone coverage using ODFW aquatic habitat data as reference.
Added Database Items: ISMEANDER - *boolean*; stream meander zones.
ISFISHMEAN – identifies stream meander zones with a known fish presence (based on Metro's Pleasant Valley Concept plan fish siting and

aquatic sensitive species data.) Includes all upstream and downstream sections of stream accessible to fish (no impassible barriers) (based on Metro's Pleasant Valley Concept plan fish barriers data.) Also identifies stream meander zones that are downstream of any medium or high ODFW ranked aquatic habitat.

ESTIMATED – *boolean*; identifies meander zones added by City of Portland Bureau of Planning (digitized using 2'/5' elevation contours and 2001/2002 aerial photos as reference.) Not field verified.

Distribution Name: PV_MEANDER_ZONES.SHP

Feature: **Pleasant Valley Sensitive Species Sitings**
Original Source: Metro Pleasant Valley Archive: Data Files-1 [06/28/02 - #000436; Disk 2 of 6]; OBSERVE (coverage)
Source Path: c:\aikevin\pleas_valley\sig_model\sensspecies (point)
Source Format: Coverage
Source Date: 06/2002
Source Description: Sensitive species (upland and aquatic/riparian) sitings.
Source Notes: Originally created by Adolfson Associates based on lists of sensitive species sitings included in independent studies (Johnson Creek Predesign: Wildlife Habitat Assessments, Wetlands Delineation's, and Functional Value Assessment; Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2000) reporting on sensitive species sitings from local botanists and community members, and field observations.
Metadata Reference: None – refer to Concept Plan “Resource Management” map for more information.
Model Use: a. To identify stream meander zones containing aquatic sensitive species (see stream meander zone data.)
b. To create sensitive species buffers at specified distances.
Processing: 1. Added field to identify “Aquatic” or “Upland” sensitive species.
Added Database Items: SPEC_TYPE – identifies AQUATIC/UPLAND sensitive species based on the species code (refer to the Concept Plan “Resource Management” map for an explanation of species codes.
Distribution Name: PV_SENSITIVE_SPECIES.SHP

Feature: **Pleasant Valley Concept Plan Boundary**
Original Source: Metro Pleasant Valley Archive: Data Files-1 [06/28/02 - #000436; Disk 2 of 6]; subset of PV (coverage)
Source Path: c:\aikevin\pleas_valley\sig_model\pv_bnd (poly)
Source Format: Coverage
Source Date: 06/2002
Source Description: Metro's Concept Plan boundary for the Pleasant Valley area.
Metadata Reference: None.
Model Use: a. To limit the model output to the concept plan boundary.

Processing: 1. Selected 3 areas within the Concept Plan boundary; removed all other areas.
Added Database Items: None.
Distribution Name: PV_PLAN_BOUNDARY.SHP

Feature: **Pleasant Valley Fish Presence**
Original Source:
Source Path:
Source Format: Coverage
Source Date:
Source Description: Stream reaches where fish could live because no barrier to their passage into and out of the reach exists.
Source Notes: This Bureau of Planning created this data by identifying stream reaches that are downstream from a barrier (see Pleasant Valley Fish Barrier)
Metadata Reference:
Model Use:
Processing:
Added Database Items:
Distribution Name:

Feature: **Pleasant Valley Fish Barriers**
Original Source:
Source Path:
Source Format: Coverage
Source Date:
Source Description: Barriers to fish passage.
Source Notes: Originally created by the Bureau of Environmental Services based on a study conducted by the Oregon Department of Fish and Wildlife ([Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2001](#)). This study identified fish barriers in the study area. Additional fish barrier information was added based on field observations.
Metadata Reference: .
Model Use:
Processing:
Added Database Items: .
Distribution Name:

Feature: **Pleasant Valley Fish Habitat Rating**
Original Source:
Source Path:
Source Format: Coverage
Source Date:
Source Description: Aquatic habitat rating.

Source Notes: Ratings were originally created by the Bureau of Environmental Services based on an study conducted by the Oregon Department of Fish and Wildlife (Aquatic Inventories Project: Physical Habitat Surveys—Kelley Creek and tributaries 1999-2001). ODFW provided a rating of high, medium, or low for stream reaches in the study area.

Metadata Reference: .

Model Use:

Processing:

Added Database Items:

Distribution Name:

Feature: **Pleasant Valley Wildlife Habitat Rating**

Original Source:

Source Path:

Source Format: Coverage

Source Date:

Source Description: Wildlife habitat rating for each Pleasant Valley subarea.

Source Notes: Originally created by selecting all woody vegetation within the Pleasant Valley subareas and assigning the vegetation a rank of high or low based on the Wildlife Habitat Assessment score for the subarea. A WHA score of 45 or higher received a wildlife habitat rating of high. A WHA score of less than 45 received a wildlife habitat rating of low. The WHA rating was generated by Adolphson Associates using the standard Wildlife Habitat Assessment form.

Metadata Reference: .

Model Use:

Processing:

Added Database Items:

Distribution Name:

Feature: **Pleasant Valley Wildlife Corridors**

Original Source:

Source Path:

Source Format: Coverage

Source Date:

Source Description: Wildlife corridors within the study area.

Source Notes: Originally created by the project team by looking at the location of vegetation on aerial photographs, reviewing the locations of wildlife sittings and using professional judgement to vegetated corridors between wildlife sittings.

Metadata Reference: .

Model Use:

Processing:

Added Database Items:

Distribution Name:

REFERENCE DATA:

Feature: **Pleasant Valley Fish Sittings**
Original Source: Metro Pleasant Valley Archive: Data Files-1 [06/28/02 - #000436; Disk 2 of 6]; FISHSITE (shapefile)
Source Path: c:\aikevin\pleas_valley\metro_data\pv_fish_sittings.shp
Source Format: Shapefile
Source Date: 06/2002
Source Description: Metro's Concept Plan fish siting data.
Metadata Reference: None.
Processing: None.
Added Database Items: None.
Distribution Name: PV_FISH_SITINGS.SHP

Feature: **Pleasant Valley Fish Barriers**
Original Source: Metro Pleasant Valley Archive: Data Files-1 [06/28/02 - #000436; Disk 2 of 6]; FISHBARRIER (coverage)
Source Path: c:\aikevin\pleas_valley\metro_data\pv_fish_barriers.shp
Source Format: Shapefile
Source Date: 06/2002
Source Description: Metro's Concept Plan fish barriers and culverts.
Metadata Reference: None.
Processing: None.
Added Database Items: None.
Distribution Name: PV_FISH_BARRIERS.SHP

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SECTION 2. ECONOMIC, SOCIAL, ENVIRONMENTAL, and ENERGY ANALYSIS

INTRODUCTION

This section presents the third step in the State Goal 5 Planning process: the ESEE Analysis. This step follows the Inventory and Significance Determination steps, which are addressed in the previous section. The analysis includes the identification of conflicting uses and the analysis of economic, social, environmental, and energy (ESEE) consequences of protecting, partially protecting, or not protecting significant resources and their impact areas where conflicts exist.

BACKGROUND

“The Pleasant Valley...area is a beautiful valley surrounded by lava domes in the southeast portion of the Metro region. It has slowly evolved into a rural residential area over the last 30 years, largely displacing the agricultural uses that once occupied the valley. Now urban development has reached the borders of this community, and rapid and substantial change is in this area’s immediate future. As the area is planned for urbanization, the primary goal is to create a place rather than a carpet of subdivisions. To accomplish this, the unique attributes of this area need to be identified and protected, and the limits to development in the area respected.”

(From a 1998 planning process led by local communities)

The goal of creating a community that allows intensive urban development while protecting the area’s unique attributes was a central theme of the Pleasant Valley Concept Plan. Critical to the “sense of place” in Pleasant Valley, according to the Plan, is the extensive network of streams, wetlands, and other natural features that define and connect urban neighborhoods. Plan goals highlighted the importance of developing the valley in such a way as to minimize impact on these natural features, while maintaining natural features that enhance the built environment.

Through the Concept Planning process, significant natural features and their important functions were identified and mapped. Collectively, this natural system serves as the green framework for the Concept Plan, and was known as the Environmentally Sensitive/Restoration Area (ESRA). The area within the ESRA boundaries corresponds to the significant Goal 5 resource site.

The Concept Plan also included a broad outline for a “limited protection” regulatory program for the significant resource site (also called the ESRA) and for planned intensive urban development within the remainder of the Pleasant Valley planning area. However, the ESEE consequences of “full protection”, “limited protection”, and “no protection” will be considered in this document, as required by the Goal 5 rule.

IMPACT AREA DETERMINATION

Statewide Planning Goal 5 requires local governments to identify “impact areas” for significant Goal 5 resource sites. In this case, the impact area for the significant resource site is the entire Pleasant Valley planning area outside the site.

Under all three Goal 5 conflicting use scenarios (full protection, limited protection, and no protection), there are strong inter-relationships between the significant resource site and its surrounding impact area. The planned intensive urbanization of Pleasant Valley will have a broad array of potential impacts on

significant natural resources and vice versa. For example, full protection of the significant resource site would mean that public facilities and services necessary to serve planned development could not be extended through the significant resource site. Similarly, unrestricted development within the impact area (i.e., no green development practices) would result in substantial adverse impacts on water quality and fish habitat functions within the resource site. Thus, the level of protection applied to the significant resource site and its impact area will have distinct economic, social, environmental and energy consequences for the site and for the entire Pleasant Valley planning area.

Because of these mutual impacts, the Goal 5 “impact area” for the significant resource site is the remainder of the Pleasant Valley planning area. The ESEE analysis will focus on the consequences of fully protecting, partially protecting, and not protecting significant Goal 5 resources within the resource site and the impact area—in the context of potential urban development within the Pleasant Valley planning area as a whole.

CONFLICTING USE ANALYSIS

Following the significance determination for inventoried Goal 5 resources, local governments must identify conflicting uses for the resource site and its impact area. Under the Administrative Rule for Goal 5, a conflicting use is one that, if allowed, could negatively impact a significant resource site or its impact area. The rule directs local governments to examine existing uses and potential conflicting uses based on applicable zoning:

“Local governments shall identify conflicting uses that exist, or could occur, with regard to significant Goal 5 resource sites. To identify these uses, local governments shall examine land uses allowed outright or conditionally within the zones applied to the resource site and in its impact area.”

To determine “land uses allowed outright or conditionally within the zones applied” for the Pleasant Valley significant resource site and impact area, current zoning and regulations will be evaluated. The analysis also addresses future zoning as envisioned in the Pleasant Valley Concept Plan and Implementation Plan. The conflicting use analysis is therefore based on uses allowed by existing county zoning and by uses that are envisioned to be allowed in the future. The conflicting use analysis considers uses allowed outright or conditionally. Existing land uses and planned public facilities are also considered.

Agriculture and rural residential are the most widespread existing use within the planning area, and within the significant resource site. Other existing uses include parks, recreational activities, churches, schools, community services, streets and utilities. The following lists detail the current Multnomah and Clackamas County zoning districts that apply to the resource site and impact area. The lists also includes the anticipated zoning districts that will apply to the area as a result of the Pleasant Valley Implementation Plan:

Multnomah County:

- Rural Residential (RR);
- Retail Commercial (C3);

Clackamas County:

- Rural Residential Farm Forest 5 Acres (RRFF-5);
- Farm Forest 10-Acre District (FF-10); and
- Future Urbanizable 10-Acre District (FU-10).

Pleasant Valley Implementation Plan:

Residential Districts

- Low Density Residential—5.3 to 7.9 dwelling units per net buildable acre
- Medium Density Residential—12.2 to 18.2 dwelling units per net buildable acre
- High Density Residential—20 to 60 dwelling units per net buildable acre

Commercial, Mixed-Use Districts, and Employment Districts

- Town Center
- Neighborhood Center
- Mixed Use Employment
- Employment

The following sections describe the uses permitted within these zones, and the potential conflicts and environmental impacts caused by these uses.

USES PERMITTED BY ZONING

The following discussion identifies allowed land uses in each applicable County base zone and the uses that are anticipated to be allowed as a result of the Pleasant Valley planning process. Table 1 lists permitted and conditional uses within the existing Multnomah and Clackamas County zones. Following Table 1 is a discussion of the individual zones, their general location within the planning area, allowed uses within each zone, and existing uses within each zone.

Table 1. Uses Permitted by Multnomah and Clackamas County Zoning

Zone	Allowed/Accessory Uses	Prescribed/Conditional Uses	Allowed Density
Multnomah County*			
RR	<ul style="list-style-type: none"> ▪ Rural residential ▪ Limited farm/forest use ▪ Resource conservation uses ▪ Accessory structures and signs ▪ Home occupations and daycare 	<ul style="list-style-type: none"> ▪ Rural commercial services ▪ Farm related commercial uses ▪ Intensive animal farming ▪ Produce stand ▪ Planned developments ▪ Public safety and service structures ▪ Mining and geothermal 	1 dwelling unit/5 acres
Clackamas County			
RRFF5	<ul style="list-style-type: none"> ▪ Rural residential ▪ Farming and forest operations ▪ Resource conservation uses 	<ul style="list-style-type: none"> ▪ Public facilities ▪ Community service uses (churches, schools, day care center) 	1 dwelling unit/5 acres

Zone	Allowed/Accessory Uses	Prescribed/Conditional Uses	Allowed Density
	<ul style="list-style-type: none"> ▪ 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"> ▪ Aircraft land uses ▪ Sanitary landfills ▪ Commercial recreational uses ▪ Mining and geothermal ▪ Commercial activities associated with timber and farm uses. 	
FF10	<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 timber and farm uses. ▪ Dog kennels ▪ Hydroelectric 	1 dwelling unit/10 acres
FU 10	<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 ▪ Expansion of community service uses (churches, schools, day care center) ▪ Aircraft land uses ▪ Sanitary landfills ▪ Commercial recreational uses ▪ Commercial activities associated with timber and farm uses. ▪ Dog kennels ▪ Hydroelectric 	1 dwelling unit/10 acres

* Multnomah County land includes a single lot zoned commercial (C3), which is addressed as part of the “impact area” discussed later.

MULTNOMAH COUNTY ZONING

Rural Residential (RR). All of Multnomah County within the Pleasant Valley plan area is zoned RR except for one property (a single lot zoned commercial (C3), which is addressed as part of the “impact area” discussion). The RR zone is intended to provide areas for residential use consistent with desired rural character. Agriculture, forestry, and very low-density single-dwelling residences are the primary allowed uses. The maximum density is one dwelling unit per five acres. Limited rural service commercial uses, community service uses, and mining are permitted with certain limitations or as conditional uses.

Existing conflicting uses within the RR zone include low density residential, agriculture, a community center, church, school, and local service commercial.

CLACKAMAS COUNTY ZONING

Rural Residential Farm/Forest Five Acres (RRFF-5). The portions of Clackamas County within the Pleasant Valley plan area that are east of Foster Road along Cheldelin Road are zoned RRFF-5. The RRFF-5 zone is intended for rural living that is compatible with the continuation of farm and forest uses. The maximum density is one unit per five acres. Agriculture, forestry, and very low-density single-dwelling residences are the primary allowed uses. Non-profit park and open area uses, utilities, and certain broadcast facilities are permitted by right in the RRFF-5 zone. Churches, schools, cemeteries, for-profit parks and recreation, and broadcast facilities are permitted as conditional uses.

Existing conflicting uses within the RRFF-5 zone are rural residential and agriculture.

Farm Forest 10-Acre District (FF-10) Clackamas County. The portions of Clackamas County within the Pleasant Valley plan area that are west of Foster Road are zoned FF-10 including the northern quarter of an isolated group of properties in the southwest corner of the plan area.⁵ The FF-10 zone is intended to provide areas for rural living that are compatible with the continuation of farm and forest uses. The maximum density is one unit per ten acres. The same uses are allowed in the FF-10 zone as are allowed in the RRFF-5 zone with agriculture, forestry, and very low-density single-dwelling residences being the primary uses allowed. Non-profit park and recreation uses, utilities, and certain broadcast facilities are permitted by right in the FF-10 zone. Churches, schools, cemeteries, for-profit park and recreation uses, and broadcast facilities are permitted as conditional uses.

Existing conflicting uses within the FF-10 zone are residential and agricultural uses and a utility substation.

Future Urbanizable 10-Acre District (FU-10) Clackamas County. The FU-10 zone is applied only to two properties isolated in the southwest corner of the Pleasant Valley plan area. The FU-10 zone is intended to preserve land for future development at urban densities. The maximum density is one unit per ten acres. Agriculture, forestry, and very low-density single-dwelling residences are the primary allowed uses. Certain utilities and broadcast facilities are permitted by right in the FU-10 zone. Existing churches and schools are allowed to expand as conditional uses. Cemeteries, and some parks, recreation, and broadcast facilities are permitted as conditional uses.

The existing conflicting use within the FU-10 zone is a manufactured dwelling park.

PLEASANT VALLEY CONCEPT/IMPLEMENTATION PLAN ZONING:

Low Density Residential (LDR). The LDR Sub-District anticipates single-dwelling detached and two-unit attached dwellings on a wide range of lot sizes with an average density of 5.3 to 7.9 dwelling per net residential acre. Development in this district will be arranged to form part of an individual neighborhood, invite walking to gathering places, services and conveniences and a neighborhood park, and connects to the larger community by a pattern of streets, blocks, trails and pedestrian ways and linkages to the significant natural resources area.

Medium Density Residential (MDR). The MDR Sub-District anticipates a range of detached and attached residential development with an average density of 12.2 to 18.2 dwellings per net acre.

⁵ These lots have since been annexed to Happy Valley.

Development in this sub-district will be arranged to form part of an individual neighborhood, serve as a transition between low density and high density housing types and Subdistricts.

High Density Residential (HDR). The HDR Sub-District is intended to accommodate the highest density housing in Pleasant Valley, with densities ranging from 20 to 60 du/net acre, depending on location. As with the LDR and MDR Sub-District, HDR contributes to completing a variety of housing within, and as part of, individual neighborhoods. Three types of HDR areas, “attached housing” and “town center housing”, and “elderly housing”, are provided to create a complete community with housing choices that reflect differing needs and opportunities within Pleasant Valley.

Town Center (TC). The TC subdistrict permits a range of mixed uses including residential, retail, office, and other uses such as civic. The minimum Floor Area Ratio is .50:1 with a maximum building height of 40 feet. The Pleasant Valley capacity estimates for the Town Center are:

- Retail—60% of land, 113,000 sq. ft. of floor area.
- Office—30% of land, 131,000 square feet of floor area.
- Civic—10% of land, 44,000 sq. ft. of floor area.
- Residential—39 units estimated on upper levels.

Neighborhood Center (NC). NC subdistricts consist of a mix of smaller scale retail, service and office uses within walking distance or a short bus ride of surrounding single-family neighborhoods. Neighborhood Centers are pedestrian oriented as realized by inviting storefronts, comfortably scaled sidewalks and a rhythm of repetitive elements including benches, fountains, planting strips and street trees. The minimum Floor Area Ratio is .35:1 with a maximum building height of 40 feet.

Mixed Use Employment (MUE). The MUE subdistrict is located adjacent to the Town Center. The zone is service-oriented with smaller scale offices and retail uses within an easy drive and walking distance to more vibrant Town Centers. The minimum Floor Area Ratio is .50:1 with a maximum building height of 40 feet.

Employment (EC). The EC subdistrict is primarily intended to provide business/office park and medical and other employment uses. Primary uses shall include knowledge-based industries (graphic communications, creative services, etc.), research and development facilities, office uses, medical facilities and other business park uses. Emphasis is placed on business suited to a high environmental quality setting. The minimum Floor Area Ratio is .40:1 with a maximum building height of 40 feet.

CONFLICTING USE ENVIRONMENTAL IMPACTS

This section describes potential adverse environmental consequences of allowing development within the significant resource site or its impact area. Where the same impacts are identified for different conflicting uses, the initial discussion of impacts is referenced and not repeated.

Rural Residential Uses. Housing is permitted in the four rural residential zones in the planning area (RR, RRFF-5, FF-10, FU-10). Rural residential uses in Pleasant Valley generally consist of 5 to 10 acre lots, although both larger and smaller lots exist. In addition to the construction of homes, rural residential development may include the construction of garages, storage sheds, and other accessory buildings, driveways, parking areas, lawns and managed landscaped areas, septic systems and drain fields, and related development.

Preparing land for housing 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 are removed and replaced with large lawns and ornamental landscape areas or, particularly in Pleasant Valley, pastures or small field crops such as berries. 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, particularly in the study area where the valley lowlands have been largely cleared, isolating habitat remnants on the surrounding hills and buttes. 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 surfaces, and the replacement of native vegetation with lawns and landscaped areas has adverse consequences on watershed function. Increased impervious surface and loss of vegetation 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 rural 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.

Urbanized residential. The Pleasant Valley Implementation Plan anticipates that the rural residential nature of the valley will transition, in part, to higher density residential (ranging from 5.3 units per acre to 60 unit per acre). Several of the Pleasant Valley subdistricts will allow residential (LDR, MDR, HDR, TC). In addition to the construction of homes, this higher density residential development may include the construction of garages, storage sheds, and other accessory buildings, driveways, parking areas, lawns and managed landscaped areas, infrastructure (roads and utilities), and related development. The environmental impacts of this type of development are similar to those that will occur with rural-residential development, however the impacts will be on a much greater scale due to the increased density.

Agricultural Uses. Except for a few large farming operations that have been in the Pleasant Valley area since it was settled in the late 1800's, agricultural uses in the study area mainly consist of small farms. Agricultural uses associated with small farms can have detrimental impacts similar to those described for residential uses, but these are generally concentrated in the area of the farm buildings (where they exist). Additionally, agricultural uses often require plowing fields and exposing bare soil causing erosion that degrades water quality and can adversely impact aquatic habitat. The conversion of forest to farmland replaces diverse forest plant communities with a few, cultivated 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. 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.

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.

Limited commercial activities accessory to agriculture uses are allowed and generally have all of the detrimental effects described for residential uses. Parking lots may be more common with such commercial uses and 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 from pollution from oil, gasoline, and vehicle related contamination.

Existing agricultural uses are likely to continue in the valley until the farm properties are subdivided for urban use. Under certain urban zones anticipated in the valley, agricultural uses may be allowed conditionally. As a practical matter, however, new agricultural uses are not anticipated upon conversion to urban land after annexation. Agricultural uses will gradually be phased out as urbanization occurs.

Forestry Uses. Historical timber harvest cleared almost the entire Pleasant Valley plan area. Forestry uses have most recently been practiced on the steeper hillsides of the buttes surrounding the plan area. Forestry uses can have major impacts on watershed health. Timber harvest and particularly clear-cutting increases the rate of runoff to streams. Increased runoff to streams has all of the same effects described for rural residential uses including soil loss and erosion, channel down-cutting, bank undercutting and failure, and increased risk of landslides and floods. Removal of vegetation eliminates habitat for native wildlife. Clearing also removes important structural features of the forest and creates fragmented patches of forest. 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.

No commercial forest operations exist in Pleasant Valley and existing development patterns generally preclude such uses. Upon conversion to urban land after annexation, no future commercial forest uses are anticipated.

Commercial and Employment Uses. Commercial and Employment uses, including retail, service, and office/office park, are anticipated for the Pleasant Valley area. The environmental impacts of these uses are generally similar to the impacts related to residential uses. However, Commercial and Employment uses generally have a greater impact than residential due to the greater amount of impervious surface and larger size of buildings.

Park and Recreation Uses. Park and recreation uses focus on public and private parks, recreational grounds, hiking and horse trails, and other similar uses. These lands tend to have few structures and facilities. 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 and have fewer environmental impacts. Most park and recreation developments include facilities for maintenance of normal hydrologic relationships and control of erosion. Recreational trails can have very few impacts of natural resources depending on their location, design, and construction.

Park and recreational use are allowed under existing zoning. As annexation and urbanization of Pleasant Valley occurs, recreational use and demand is expected to increase. The Concept Plan identifies specific locations for recreational trails within significant resource areas and for active recreational parks outside these areas.

Community Service Facilities. Community service facilities are limited or conditional uses in the rural residential zones. These uses generally provide a local service to people of the community, such as community centers, schools, daycare centers, religious institutions, and the Grange Hall in Pleasant Valley. These uses have similar impacts as those described for residential uses, but usually with greater impervious surface impacts (e.g., reduced infiltration and higher runoff, lower groundwater levels, interference with the transfer of air and gases from the soil), related to larger buildings and parking areas. 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.

There is one existing school within Pleasant Valley and two new schools are anticipated in the concept Plan. There are currently two churches and one grange hall in Pleasant Valley. New community service facilities in Pleasant Valley are planned within the neighborhoods outside of the significant resource site.

The Pleasant Valley Implementation plan envisions that community service or civic uses will be allowed outright in the Town Center and Neighborhood Center districts. These uses will have similar impacts as those described for the residential uses.

Public Facilities. Public facilities are allowed in all zones and include roads, water, sewer, and other public utilities infrastructure services such as water and sewer pump stations, and water towers. Although operation of existing facilities may have limited adverse environmental effects, the effects from construction and maintenance practices for new 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. Construction of public facilities that include structures generally has the same effects as those described for residential uses. Certain types of facilities can have few environmental effects if located with minimal disruption to existing resources. Vegetated bio-swales, constructed wetlands, and

similar stormwater facilities can have minimal impacts. Similarly, road crossings of streams, when minimal in number and done by bridge, can limit impacts to a certain extent.

Aircraft Land Uses. Aircraft land uses are allowed within the plan area only as conditional uses in the RRFF-5, FF-10, and FU-10 zones in Clackamas County. These uses involve only light plane operations serving local or agricultural needs and have impacts comparable to those for commercial uses described above.

The small, partially developed lots in the Clackamas County portion of the plan area generally preclude development of aircraft land uses. No such uses exist and none would be allowed after annexation.

Mining. Mining is a conditional use in the RR, RRFF-5 and FF-10 zones within the planning area. Mining generally has the most severe environmental impacts of all uses allowed within the plan area. 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.

As a practical matter, RR, RRFF-5 and FF-10-zoned lands within the planning area are either developed or too small to mine. Furthermore, mineral or aggregate resources are considered Goal 5 resources and no existing or potential mineral or aggregate resource mining operations have been identified within the planning area and mining uses would not be allowed after annexation.

Wireless Communication and Other Broadcast Facilities. Most low powered transmitters such as for cordless telephones and citizen band radios are allowed in all zones. More powerful and wireless communication facilities are allowed subject to limitations or as conditional uses within Pleasant Valley. Their effects can be similar to residential uses, but with less impervious surface and greater adverse visual impacts. Broadcast facilities can be built very high, with towers and guy wires that can be deadly to birds, which are attracted by the tower lights. Some facilities require cables to be laid in the ground, with significant potential impacts to wetlands, streams, and vegetation, and associated fauna.

These uses are allowed under existing zoning, and are expected to continue and expand within Pleasant Valley with urbanization, though outside of the significant resource site.

ESEE CONSEQUENCES ANALYSIS

The Pleasant Valley planning area has existing and allowed conflicting uses, as outlined before. To weigh the consequences of alternative methods of managing these conflicts, the next step in the Goal 5 process is to conduct an economic, social, environmental, and energy (ESEE) consequences analysis. The following section presents this ESEE analysis, which is based on the Goal 5 inventory, significance determination, and conflicting use impacts described in this document.

Approach. As discussed before, the significant Goal 5 resource site corresponds to the Environmental Sensitive/Restoration Areas (ESRA) outlined in the Concept Plan. The impact area for the significant resource site is the remainder of the Pleasant Valley 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 starting point for this ESEE analysis is the existing rural zoning which (a) generally allows one dwelling unit per five acres, while (b) offering a fairly low level of natural resource protection. However, the Pleasant Valley Concept Plan envisions (a) much greater residential and employment densities, while (b) offering a much more

comprehensive and effective level of natural resource protection. Table 2 summarizes key elements of the decision options used in this analysis.

Table 2. Summary of Goal 5 Decision Options⁶

	Within Resource Site	Within Impact Area
<p>Full Protection This option would nullify the Pleasant Valley Concept Plan by prohibiting all conflicting uses within the significant resource site and the impact area</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).	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>Limited Protection This option carries out the policies outlined in the Pleasant Valley Concept Plan, and achieves a balance between intensive urbanization and resource conservation.</p>	Allows for limited ground-disturbing activities for planned public facilities (roads and utilities) and trails. Allows development of one single-dwelling unit on existing, vacant lots. Requires mitigation for all development. Allows density transfer from resource site to impact area at one dwelling unit/acre. Existing agricultural operations may continue.	Provides for intensive urban development outside the significant resource site, subject to “green development practices.” Existing agricultural operations may continue.
<p>No Protection This option would allow marginal increases in planned housing and job potential, but would eliminate two central organizing principals of the Pleasant Valley Concept Plan by allowing unrestricted development within and outside the significant resource site.</p>	All conflicting uses allowed (e.g., ground-disturbing activity, unrestricted expansion of existing uses, unrestricted impervious surface area, unmitigated public facilities).	All conflicting uses allowed without “green development practices.”

Conclusion. The ESEE analysis supports limited protection for the significant resource site and the impact area in accordance with the Pleasant Valley Concept Plan. This conclusion is based on the fact that the economic, social, environmental and energy consequences of the limited protection option are generally positive, while the consequences of “no protection” and “full protection” are overwhelmingly negative.

The Concept Plan was the result of an extensive community planning process that achieved a balance between resource protection and intensive urbanization. The goal of the Concept Plan is to maintain and restore significant riparian, wetland, and upland habitats in the Pleasant Valley planning area (the ESRA concept), while allowing intensive urban development outside of the significant resource area subject to green development practices.

⁶ The Oregon DLCD confirmed that this approach to the decision options is consistent with Goal 5 and its associated administrative rule in a letter dated December 27, 2002.

The ESRA concept and the associated green development practices 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 site 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.

Green development practices refer to a toolbox of stormwater management techniques. The techniques involve landscape features that treat and infiltrate stormwater on the development site rather than utilizing a traditional piped collection and conveyance stormwater system. The benefits of green development practices include.

- 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 duration's 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 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 in 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.

ECONOMIC CONSEQUENCES ANALYSIS

Introduction. To provide a consistent economic analysis covering the most critical factors, each parcel within the plan district was 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 - was 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.

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. Many of the benefits of environmental policies are not readily apparent in the form of immediate monetary gains. The benefits are found more in an increase in the quality of life than in any increment to a region's economic output. 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 have higher property values and produce greater tax revenues.

A parcel by parcel database (developed using GIS) provides the basis for this analysis. The database includes information on tax lots, including size and characteristics (e.g., current use, building size, slope, resource type), current zoning, allowed units, Metro Title 3 and 11 lands, public facilities (e.g., planned water, sewer, stormwater, streets, trails, parks), buildable lands data, significant resource area, units allowed under density transfer, units allowed by Plan District (outside ESRA, by zone), and planned jobs. The database, and associated GIS map of the planning area, are available from the City of Portland Bureau of Planning.

Analysis. 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. Density within the significant resource area is based on one unit per acre. The amount of area outside of the resource that is required to accommodate each unit is 3000 square feet. "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 and community service uses, which have significant potential off-site impacts due to the removal of vegetation, creation of impervious surfaces, 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 earlier. Conflicting uses with the greatest potential impacts are the residential and community service uses. Broadcast facilities may have similar impacts, though generally concentrated in a smaller area. 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.

Existing development patterns and small lot sizes preclude development of certain conflicting uses such as mining and aircraft land uses. Similarly, existing development patterns, the absence of current commercial forest production, and the planned urbanization of Pleasant Valley make commercial forestry uses untenable. Additionally, while existing agricultural uses may continue, once the land is annexed and converted to urban lots, farmland will be replaced with urban development.

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.

Economic Consequences of Allowing Conflicting Uses Fully. Table 3 summarizes the economic consequences of allowing conflicting uses fully.

Table 3. Economic Consequences of Allowing Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	All (off-site impacts on ESRA)	<ul style="list-style-type: none"> ▪ Increase in housing and jobs beyond the planned increase (an estimated 5,048 homes and 4,935 new jobs) on parcels within the ESRA, will increase traffic and pollution, but will provide no open space benefit for this class of properties ▪ No restrictions placed on building coverage, impervious surface area or construction methods ▪ Loss of economic values associated with accessible scenic and recreational areas 	<p>Negative: 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</p>
Lots with partial significant resource area (ESRA)	All	<ul style="list-style-type: none"> ▪ Lots with partial ESRA 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 adjacent community open space, scenic, recreational amenities ▪ Economic impacts resulting from potential destabilization of slopes and stream banks, and increase in flood and landslide hazards through vegetation removal, increased impervious surfaces ▪ Adverse economic impact resulting from decreased amenity values for homes and businesses adjacent to water features and upland forests 	<p>Neutral to Negative: On the one hand, the land area that can be devoted to development is increased, but densities will be greater than allowed under existing zoning. On the other hand, the economic value of adjacent open space, water features and forested areas would be lost.</p>
Lots with substantial significant resource area (ESRA)	All	<ul style="list-style-type: none"> ▪ Parcels that are substantially covered by the ESRA would now be able to develop without restriction, although development costs may be substantially greater because of highly 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 businesses adjacent to water features and upland forests 	<p>Negative to Mixed: On the one hand, the land area that can be devoted to development is increased substantially; on the other hand, the economic value of adjacent open space, water features and forested areas is lost. For most property owners in this category, ESRA restrictions would probably be viewed as a negative, although the development potential under the Concept Plan is generally the same or greater than allowed under existing zoning.</p>

Allowing conflicting uses fully within the impact area of Pleasant Valley will provide major economic benefits as the area urbanizes. Both urban housing densities and employment opportunities will increase dramatically, and be supported by parks and open space, community services, and urban infrastructure. As the area urbanizes, however, there is the potential for substantial “off-site” degradation of the natural and open space values of the community within the ESRA. 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 the potential stress or loss of salmon and trout in the Kelley Creek watershed. Urbanization in the watershed will include a critically important feature, however, that can mitigate these potential off-site impacts. This feature is the Plan District provision for Green Development Practices, which include facilities to infiltrate, clean, and slowly release stormwater before it reaches significant resource areas.

There are significant economic costs associated with allowing conflicting uses fully within the ESRA (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 for the Pleasant Valley community. The amenity values of the ESRA, 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. For example, Kelley Creek, its tributaries and associated wetlands, and Johnson Creek and its broad floodplain 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. Any potential increment of additional housing in the ESRA, if “allowed fully” without controls, must be weighed against the unique and highly valued attributes of the community, many of which are embodied in the ESRA. 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 “buildable” land within the ESRA.

This analysis strongly favors allowing conflicting uses fully only within the impact area, outside of significant resource areas. At risk are the unique natural resource attributes of Pleasant Valley, identified by the community and expressed in the Pleasant Valley Concept Plan, which include the community’s open spaces and its natural, scenic, and recreational values. The Pleasant Valley Plan District proposes urban levels of housing and employment for the area once annexed, resulting in an estimated 5,048 housing units and 4,935 new jobs. These housing and employment goals can be satisfied within the impact area, as designated in the Plan District, without significant impacts or loss to the community’s unique resources.

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 Pleasant Valley Concept Plan. The ESRA (significant resource area) is a central organizing element of the Concept Plan. The valley’s streams, wetlands, and forests were highly valued community assets. Urban housing and employment needs were met outside the ESRA, and these unique assets were preserved and restored. Certain conflicting uses were envisioned within the ESRA, including limited road and utility crossings, parks and trail uses, as shown on the Concept Plan map. In formulating a “limit program,” with input from the Pleasant Valley TAC, Advisory Group, and the public, it was recognized that while properties with partial ESRA would receive substantial economic benefits (an average of 15 housing units), some properties had greater ESRA coverage than others. To provide additional economic value for these properties, a density transfer provision was developed that

would permit the equivalent of at least five times the current base densities for lands within ESRA (one unit per acre) to be transferred out of the ESRA onto the same or adjoining properties. These provisions were incorporated into the “limit” program for Pleasant Valley.

Table 4 summarizes the economic impacts conflicting uses resulting from limiting conflicting uses in accordance with the Pleasant Valley Concept Plan, consistent with the program outlined above.

Table 4. Economic Consequences of Limiting Conflicting Uses Consistent with Pleasant Valley Concept Plan

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	All (off-site impacts on ESRA)	<ul style="list-style-type: none"> ▪ Provide for significant increase in housing and jobs beyond what is allowed under current zoning (an estimated 5,048 homes and 4,935 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, and accessible scenic and recreational benefits. ▪ Avoid adverse economic impact resulting from decreased amenity values for homes and businesses near water features and upland forests. 	<p>Positive: Manyfold 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 maintenance costs increase for green development practices, although short-term costs are usually less.</p>

Lot Type	Conflicting uses	Consequences	Assessment
Lots with partial significant resource area (ESRA)	Residential, CSF, Other	<ul style="list-style-type: none"> ▪ Significant increase in allowed density through upzoning and density transfer from ESRA ▪ Since the remaining portions of parcels outside ESRA are from building constraints, development costs are reduced ▪ Maintain economic value associated with adjacent community open space, scenic, recreational amenities ▪ Avoid adverse economic impacts resulting from potential destabilization of slopes and stream banks ▪ Decrease in flood and landslide hazards through vegetation removal, increased impervious surfaces ▪ Avoid adverse economic impact resulting from decreased amenity values for homes and businesses adjacent to water features and upland forests ▪ Some increase in long-term construction costs resulting from green development practices 	Positive: 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 for green development practices, although short-term costs typically are less.
	Public facilities	<ul style="list-style-type: none"> ▪ Limited new and redeveloped roads provide connections through resource areas as designated in the Plan District ▪ 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 	Positive: Allows roads and other public facilities that are essential to an integrated urban community; resource impacts controlled and mitigated through development standards.
	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 	Positive: An integrated (natural resource-oriented) parks and trail system provides a major community asset.

Lot Type	Conflicting uses	Consequences	Assessment
Lots with substantial ESRA coverage (and limited transfer-ability)	Residential, CSF, Other	<ul style="list-style-type: none"> ▪ Comparable allowed density through to that which is allowed under existing zoning ▪ However, may not be sufficient area for density transfer from ESRA ▪ Maintain economic value associated with adjacent community open space, scenic, recreational amenities ▪ Avoid 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 ▪ Avoid adverse economic impact resulting from decreased amenity values for homes and businesses adjacent to water features and upland forests ▪ Decrease in short-term construction costs, but increase in long-term maintenance costs, resulting from green development practices 	Neutral: Development potential approximately the same, but lower increase than properties largely or completely outside ESRA. For this reason, recommend adjustments to ESRA boundary to allow for full density transfer. Economic values associated with significant resources protected.
	Public facilities	<ul style="list-style-type: none"> ▪ 14 of the 27 highly constrained properties may be impacted by planned roads allowed under Limited Protection option ▪ New and redeveloped roads provide an integrated transportation system within the valley ▪ Slight increase in construction mitigation costs 	Neutral to Positive: Allows roads that are essential to an integrated urban community with mitigation for impacts on natural resources.
	Parks and recreation uses	<ul style="list-style-type: none"> ▪ No existing or planned parks or recreation uses will impact these properties. 	Not applicable.

This analysis supports limiting conflicting uses within significant resource areas of the site. Housing and employment opportunities are dramatically increased within non-resource areas (by an estimated 5,048 housing units and 4,935 new jobs). 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, scenic, and open space resources. Approximately 27 highly constrained properties would not be able to transfer densities on site. Additional development flexibility for these properties should be considered (see Conflict Resolution section).

Economic Consequences of Prohibiting Conflicting Uses. Table 5 on the following page summarizes the impacts on both significant resources and on conflicting uses of prohibiting conflicting uses.

Table 5. Economic Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	All (off-site impacts on ESRA)	<ul style="list-style-type: none"> ▪ Loss of development potential for all parcels in this category. ▪ Pleasant Valley Concept Plan could not be implemented. 	Negative: No new development allowed; substantial economic costs; housing and employment goals cannot be achieved.
Lots with partial significant resource area (ESRA)	Residential, CSF, Other	<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 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 ▪ Amenity values of open space would be of questionable value, since no new housing or jobs to enjoy these values 	Negative: Significant loss of development potential from existing zoning, without corresponding increase in amenity value to existing homes.
	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: Road and public facility connectivity is essential to an integrated urban community and could not be provided.
	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: An integrated parks and trail system is a vital part of a successful community.
Lots with substantial significant resource area (ESRA)	Residential, CSF, Other	<ul style="list-style-type: none"> ▪ Same as above, with conflicting uses prohibited on an estimated 27 highly constrained lots 	Negative: 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: 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 these properties 	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 valley. By prohibiting conflicting uses, the community’s unique natural, scenic, and open space resources are preserved. Arguably, however, these resources have considerably fewer economic amenity values if the community is not able to grow.

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 areas can be mitigated by Plan District 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 “limit” program (see Conflict Resolution section).

SOCIAL CONSEQUENCES ANALYSIS.

This section considers the social consequences of allowing, limiting, or prohibiting conflicting uses within Pleasant Valley. 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 of housing units;
- Changes to the quantity of jobs;
- 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 Opportunities. Existing public recreational and educational opportunities are limited in Pleasant Valley. They include the limited open space areas, such as Pleasant Valley School, local roads (e.g., biking use), and the Springwater Trail (part of the 40-Mile Loop). The Springwater Trail, located in the northern part of the site, provides recreational and educational opportunities for pedestrians, bicyclists, and wildlife enthusiasts. Proximity to Powell Butte Nature Park and to Gresham makes this a popular section of the trail. Additional open space in and adjacent to the Pleasant Valley planning area was recently purchased allowing for recreational and educational opportunities. Metro is strategically acquiring open space on the buttes surrounding Pleasant Valley in an effort to provide a system of continuous trails, open space, and wildlife habitat. Pleasant Valley will provide a critical link in the system.

Housing Opportunities. The Pleasant Valley Plan District proposes urban levels of density for the area once annexed resulting in an estimated 5,048 housing units.

Employment Opportunities. Employment opportunities in Pleasant Valley are currently very restricted: those associated with the school, nurseries, and the potential use of one commercially zoned lot at SW 172nd and SW Foster (currently undeveloped) provide an estimated 50 jobs (primarily at the school).

The Pleasant Valley Plan District proposes new employment areas that will substantially increase in job opportunities within the area once annexed resulting in an estimated 4,935 new jobs.

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 Pleasant Valley area, early Native Americans used the valley as a travel route and for hunting and other subsistence activities likely took place there.

Euro-American settlement in the area began in the mid 1800s. Foster Road is a historic farm-to-market road in the Portland region. Pleasant Valley has many historic structures along the road that provide a historic context and an insight into an earlier era. The Grange stands between Kelley Creek and Foster Road and provides a focal point for the community. The Richey House is another historic or socially significant structure in Pleasant Valley.

The Springwater Division Line, located along the northern boundary of the planning area, was developed for rail service in 1903. The line reached its peak usage in 1906, under the joint ownership with Portland General Electric and the Portland Railway Light and Power Company. By 1910, the company had six electric plants and 161 miles of rail, carrying 16,000 passengers each year within the Portland area. Destination parks along the line, such as Oaks Amusement Park in Sellwood, became major attractions, drawing thousands of passengers each weekend. In addition to passengers, the rail hauled farm produce to Portland markets. Many communities developed along the Springwater Line including Sellwood, Waverley Heights, Eastmoreland, Woodstock, Errol Heights, Lents, Powellhurst-Gilbert, and Pleasant Valley. During the peak of the railroad era, the Springwater Line was the linkage between these communities. Passenger service was discontinued in 1958. Nearly 40 years later, in 1996, the railroad line between Gresham and Portland was redeveloped as the Springwater Trail.

In the 1930s, flooding along Johnson Creek prompted the Works Progress Administration (WPA) to clean and line the creek channel in an attempt to reduce flooding. Their efforts to control flooding along the creek failed, and some of the hardened and channelized reaches of the creek (including a reach bordering the northern planning area) are now being restored to more natural conditions. One of the WPA's other projects within the planning area was the construction of the Pleasant Valley Elementary School in 1938.

Screening and Buffering. Natural resources, such as those in Pleasant Valley, 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, Kelley Creek, 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 Pleasant Valley, but when aggravated by the alteration 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. For example, studies have shown that vegetation in urban or urbanizing areas may reduce stress-related impacts on health. Exposure to natural environments has significant "restorative" benefits (Ulrich 1984). In addition, such forests help reduce air pollution problems and the resulting health impacts (City of Portland 1993).

Social Consequences of Allowing Conflicting Uses Fully. Table 6 summarizes the consequences of allowing conflicting uses to occur in the Pleasant Valley. 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, while some uses (e.g., mining and aircraft land uses) are not considered feasible due to existing development patterns or plan designations.

Table 6. Social Consequences of Allowing Conflicting Uses Fully

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	All (off-site impacts)	<ul style="list-style-type: none"> ▪ No increase in the number of jobs or housing units for these parcels ▪ Loss of nearby community open space and associated social values ▪ Allows for provision of public facilities for area residents 	Negative: Marginal increase in jobs and housing opportunities, but at expense of community open space, degraded water quality and decreased quality of life
Lots with partial significant resource area (ESRA)	All	<ul style="list-style-type: none"> ▪ Increase in potential damage, injury, and displacement caused by erosion, landslides, and flooding along Johnson and Kelley Creeks ▪ Loss of scenic and open space values of ESRA ▪ Decrease in screening and buffering benefits ▪ Potential loss of historic features ▪ Marginal increase in housing, employment opportunities on constrained lands, through these goals are met outside of ESRA 	Negative: Unique social values of community and multiple resources highly degraded or lost.
Lots with substantial significant resource area (ESRA)	All	<ul style="list-style-type: none"> ▪ Increase in potential damage, injury, and displacement caused by erosion, landslides, and flooding along Johnson and Kelley Creeks ▪ Loss of scenic and open space values of ESRA ▪ Decrease in screening and buffering benefits ▪ Potential loss of historic features ▪ Marginal increase in housing, employment opportunities on constrained lands, through these goals are met outside of ESRA 	Negative: Unique attributes of community and multiple resources highly degraded or lost

This analysis supports allowing conflicting uses fully within the impact area, outside of significant resource areas. The resource areas provide important social values, and include many of the attributes that make Pleasant Valley unique. The Pleasant Valley Plan District proposes a mix of housing and employment opportunities within the non-resource areas that satisfies planning goals, without the higher costs associated with development on constrained lands and without loss of the community’s unique resources.

Social Consequences of Limiting Conflicting Uses. Table 7 summarizes the consequences of limiting conflicting uses in the Pleasant Valley site. These consequences are discussed in the context of the social functions or benefits described previously.

Table 7. Social Consequences of Limiting Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	All (off-site impacts)	<ul style="list-style-type: none"> ▪ Maintain most social values or nearby protected open space areas ▪ Maintain housing and employment objectives of Pleasant Valley Concept Plan ▪ Allow for public facilities and streets necessary to support housing and jobs ▪ Maintain social values associated with clean water and aquatic habitat by implementing Green Development Practices 	<p>Positive: Social values of community open space maintained for new residents and employees. Green Development Practices minimize off-site impacts.</p>
Lots with partial significant resource area (ESRA)	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 ▪ Maintain screening and buffering benefits ▪ Maintain historic features ▪ Allow for housing, employment opportunities through density transfer provisions 	<p>Positive: Social values of community open space and natural resources conserved.</p>
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 ▪ Maintain screening and buffering benefits ▪ Maintain historic features ▪ Allow for housing, employment opportunities through density transfer provisions 	<p>Positive: Social values of community open space and natural resources conserved.</p>

This analysis supports limiting conflicting uses within significant resource areas of the site. Housing and employment opportunities are dramatically increased within non-resource areas (by an estimated 5,048 housing units and 4,935 new jobs). 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.

Social Consequences of Prohibiting Conflicting Uses. Table 8 summarizes the consequences of prohibiting conflicting uses in the Pleasant Valley site. These consequences are reviewed in the context of the social functions or benefits described previously.

Table 8. Social Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	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: No further growth in community; social benefits associated with community open space and natural resource preservation lost.
Lots with partial significant resource area (ESRA)	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: Unique attributes of community open space preserved, but few people to enjoy, and most access and use precluded.
Lots with substantial significant resource area (ESRA)	All	<ul style="list-style-type: none"> ▪ Same as above, with housing limited on an estimated 27 highly constrained lots. 	Negative Unique attributes of community open space preserved, but few people to enjoy, and most access and use precluded.

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 valley.

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 and Transition Area Design Standards that are part of the Plan District. For the highly constrained lots where housing density transfer may not be feasible, some additional flexibility may be warranted in the “limit” program (i.e., ESRA standards).

ENVIRONMENTAL CONSEQUENCES ANALYSIS.

This analysis outlines the environmental consequences of allowing, limiting, or prohibiting conflicting uses within the Pleasant Valley planning area. The inventory of natural resources in the Pleasant Valley planning area describes the environmental functions and values at this resource site. The basis for determining the significance of various types of natural resources also is provided in a separate

memorandum. 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 Pleasant Valley site:

- 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

Environmental Consequences of Allowing Conflicting Uses Fully. Table 9 summarizes the consequences of fully allowing conflicting uses in the Pleasant Valley site. 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 Pleasant Valley natural resources inventory. The environmental consequences, therefore, are extremely negative.

Table 9. Environmental Consequences of Allowing Conflicting Uses Fully

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	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 	<p>Negative: 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.</p>
Lots with partial significant resource area (ESRA)		<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 	<p>Extremely Negative: Community natural resources and functions highly degraded or lost.</p>

Lot Type	Conflicting uses	Consequences	Assessment
Lots with substantial significant resource area (ESRA)	All	<ul style="list-style-type: none"> Disruption or elimination of all functional values listed above 	Extremely Negative: Community natural resources and functions highly degraded or lost.

Environmental Consequences of Limiting Conflicting Uses. The decision to limit conflicting uses as indicated in the Pleasant Valley Concept 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 Concept Plan to be met, by preserving most of the ESRA and providing reasonable mitigation for impacts resulting from planned public facilities and limited development. Although impacts are mitigated (i.e., reduced), there will be 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 Concept Plan objective where development impacts are limited to areas generally outside the ESRA and mitigated through Green Practices and restoration within the ESRA.

Table 10 summarizes the consequences of limiting conflicting uses in the Pleasant Valley site.

Table 10. Environmental Consequences of Limiting Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	Residential, CSF, Other	<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: Potential off-site impacts on resource functions mitigated by Green 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 Practices. 	Positive: Potential off-site impacts on resource functions mitigated by Green Practices.
	Parks and recreation uses	<ul style="list-style-type: none"> Potential increase in some functional values outside ESRA. 	Positive: Potential increase in some functional values.
Lots with partial significant resource area (ESRA)	Residential, CSF, Other	<ul style="list-style-type: none"> Protection of functional values through avoidance and density transfer Potential increase in some functional values with restoration 	Positive: Degradation of some resource functions but potential overall increase throughout the community through restoration.
	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: Limited loss of some resources and functions but adverse impacts limited through required mitigation and restoration.

Lot Type	Conflicting uses	Consequences	Assessment
	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: Limited loss of some resources and functions but adverse impacts limited through required mitigation and restoration.
Lots with substantial significant resource area (and limited transfer-ability)	Residential, CSF, Other	<ul style="list-style-type: none"> ▪ With recommended adjustments to ESRA boundary to allow for full density transfer, minor reduction of ESRA area ▪ However, with required mitigation, potential increase in some functional values with restoration 	Neutral to Slightly Negative: 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: 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 	Not Applicable

Environmental Consequences of Prohibiting Conflicting Uses. The environmental consequences of fully protecting the ESRA resource site are, of course, positive. However, as noted in previous sections, the economic and social consequences are extremely negative. Table 11 summarizes the environmental consequences of prohibiting conflicting uses in the Pleasant Valley site.

Table 11. Environmental Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	Residential, CSF, Other	<ul style="list-style-type: none"> ▪ No adverse impacts from off-site development on all nine resource functions. 	Positive: No off-site impacts on resource functions.
	Public facilities	<ul style="list-style-type: none"> ▪ No adverse impacts from public facility construction on all nine resource functions. 	Positive: No off-site impacts on resource functions.
	Parks and recreation uses	<ul style="list-style-type: none"> ▪ No adverse impacts from park construction on all nine-resource functions. 	Positive: No off-site impacts on resource functions.
Lots with partial significant resource area (ESRA)	Residential, CSF, Other	<ul style="list-style-type: none"> ▪ No adverse impacts from residential or commercial construction on all nine resource functions. 	Positive: 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 all nine resource functions. 	Positive: 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 all nine-resource functions. 	Positive: No on- or off-site impacts from parks on resource functions.

Lots with substantial significant resource area (ESRA)	Residential, CSF, Other	<ul style="list-style-type: none"> ▪ No adverse impacts from residential or commercial construction on all nine resource functions. 	Positive: No on- or off-site impacts on resource functions.
	Public facilities	<ul style="list-style-type: none"> ▪ No adverse impacts from road construction on all nine resource functions. 	Positive: No public facilities construction impacts on resource functions.
	Parks and recreation uses	<ul style="list-style-type: none"> ▪ No park or recreational uses planned for these parcels 	Not Applicable

Conclusion. This environmental consequences analysis supports either prohibiting conflicting uses or limiting conflicting uses to planned public facilities and limiting incursion into the ESRA to allow for full density transfer for substantially affected parcels, and using Green Practices. Impacts from limited residential and public facility development within the ESRA 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 ESRA. The Pleasant Valley Plan District proposes a mix of housing and employment opportunities outside ESRA while maintaining and restoring significant riparian, wetland, and upland areas within the ESRA with limited intrusion.

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.

Transportation in the Pleasant Valley area involves moving people between homes, employment, commercial areas, and other services. The site is located within five miles of major employment and service areas in Southeast Portland and Gresham. Automobiles are the primary means of transportation in and out of the area and though convenient, they generally are not energy efficient. Roads are generally narrow and lack sidewalks, thus discouraging walkers and bicyclists. The Springwater Trail, which passes through the northern part of the site, provides alternative transportation options. Mass transit currently does not serve the valley.

A town center and employment areas are planned for the Pleasant Valley community. Locating homes, jobs, and services within the valley means that residents may not need to travel outside the community to work or for basic services.

The availability of natural resources at the Pleasant Valley site, 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 being developed within and adjacent to the valley, as noted in the social analysis. Because these open space resources are close to users, limited transportation energy is used in reaching them. In addition, the system of trails envisioned in the Pleasant Valley Plan District

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 areas 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 Pleasant Valley’s trees and forested stream corridors, and other resource areas, can help reduce energy costs for heating and cooling. Trees and riparian vegetation at the Pleasant Valley site 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. By slowing or diverting cold winter winds, heat loss in structures from convection is reduced, 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.

Energy Consequences of Allowing Conflicting Uses Fully. Table 12 summarizes the energy consequences of allowing conflicting uses to occur in the Pleasant Valley. 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, while some uses (e.g., mining and aircraft land uses) are not considered feasible due to existing development patterns or plan designations.

Table 12. Energy Consequences of Allowing Conflicting Uses Fully

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	All (off-site impacts)	<ul style="list-style-type: none"> ▪ Proximity of housing, jobs, and services reduces energy needs for transportation, but this would occur under the “limited option” in any case ▪ Infrastructure development on unconstrained land reduces energy expenditures, but this, too, would occur under the “limited option” in any case ▪ Without green development practices, energy benefits related to heating and cooling will be lost. 	<p>Slightly Negative: The Pleasant Valley Concept Plan provides for clustering of housing and jobs, served by a grid street system than reduces energy needs. These benefits are also found under the “limited option.” However, without green development practices, energy consequences are slightly negative.</p>

Lot Type	Conflicting uses	Consequences	Assessment
Lots with partial significant resource area (ESRA)	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 removed 	Negative: Energy benefits of resources lost, less energy-efficient use of land.
Lots with substantial sig. resource area (ESRA)	All	<ul style="list-style-type: none"> ▪ Same as above; ▪ Building on highly constrained lots increases energy expenditures. 	Negative: 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, such as envisioned in the Concept Plan. However, these benefits are also realized in the “limited option.” However, allowing conflicting within the ESRA has negative energy consequences, as does the lack of green development practices. The ESRA resource areas provide important energy benefits for nearby development and for the community as a whole.

Energy Consequences of Limiting Conflicting Uses. Table 13 summarizes the energy consequences of limiting conflicting uses in the Pleasant Valley site. These consequences are discussed in the context of the energy functions or benefits described above.

Table 13. Energy Consequences of Limiting Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no significant resource area (ESRA)	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: Energy benefits accrue from density transfer and heating and coloring effects of natural resource preservation and green development practices
Lots with partial significant resource area (ESRA)	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: Energy benefits accrue from density transfer and heating and coloring effects of natural resource preservation and green development practices.

Lot Type	Conflicting uses	Consequences	Assessment
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: 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 ESRA 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.

Energy Consequences of Prohibiting Conflicting Uses. Table 14 summarizes the energy consequences of prohibiting conflicting uses in the Pleasant Valley site. These consequences are reviewed in the context of the social functions or benefits described previously.

Table 14. Energy Consequences of Prohibiting Conflicting Uses

Lot Type	Conflicting uses	Consequences	Assessment
Lots with no sig. resource area (ESRA)	All (off-site impacts)	<ul style="list-style-type: none"> ▪ Precludes new housing and employment options, potential forcing them outside the UGB with high energy costs from increased vehicle miles traveled. 	Negative: No further growth in community, growth outside UGB would have high energy costs.
Lots with partial sig. resource area (ESRA)	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: No further growth in community, growth outside UGB would have high energy costs. Local access and recreational use precluded.
Lots with substantial sig. resource area (ESRA)	All	<ul style="list-style-type: none"> ▪ Same as above; ▪ Lack of density transferability may lead to greater energy expenditures. 	Negative: No further growth in community, growth outside UGB would have high energy costs. 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, outside of established urban growth boundaries. Prohibiting all conflicting uses within the impact area would essentially preclude further growth or urbanization of the valley. Prohibiting conflicting uses within resource areas would prevent efficient, connected transportation and infrastructure systems, increasing energy costs. It would also limit access to open spaces for recreational use, increasing travel costs.

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 at the Pleasant Valley site 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. This can decrease transportation-related energy use. Locating homes, jobs, and services in close proximity to one another can significantly reduce transportation energy demand.

ESEE RESULTS

After review of the ESEE impacts on individual property owners within Pleasant Valley, several conclusions can be drawn. First, the Pleasant Valley Plan District will allow much greater residential and employment densities within the community. The economic benefits of urbanization are substantial, and this is true for lands throughout the Pleasant Valley planning area, including lands adjacent to the ESRA. The analysis indicates that most properties located partially within the ESRA will experience substantial increases in development potential and economic value as a result of Plan District implementation. For example, an average of 15 new residential homes can be built on these affected properties outside the ESRA.

Clearly, however, some properties have greater ESRA coverage than others. For landowners with highly constrained property in and along the ESRA, the economic impacts are varied and could be marginal or negative. The proposed ESRA Subdistrict addresses these impacts in a number of ways. Through the analysis process, and with input from the TAC, Advisory Group and the public, a program was developed to provide additional economic value from lands within the ESRA: the equivalent of at least five times the current base densities for County lands. This additional density is a transfer allowance that increases the net development potential of lands outside the ESRA. Consolidation 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. Additional value accrues to local landowners from the proximity of these properties to the community's natural, scenic, and open space amenities. As discussed below, the ESEE analysis suggests that some additional development flexibility is warranted for lands with "substantial ESRA coverage" where there is insufficient land to transfer these units on site. This additional provision would allow construction of homes within the ESRA under prescribed conditions.

Conflict Resolution. Table 15 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 allowing conflicting uses fully. The final column lists the aggregated assessment for the site.

Table 15. Conflict Resolution Summary Table

Property	Economic	Social	Environmental	Energy	Conclusion*
Lots with no ESRA coverage	Limit	Limit	Limit	Limit	Limit
Lots with partial ESRA coverage	Limit	Limit	Prohibit	Limit	Limit
Lots with substantial ESRA 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 ESRA to allow full density transfer potential to be realized.*

Most properties containing significant resources will experience substantial increases in development potential and economic value as a result of Plan District implementation. Allowing conflicting uses fully (i.e., allowing unrestricted development within the ESRA) fails to meet the goals and objectives of the Concept Plan, fails to protect the unique attributes of the community, and would result in major impacts and loss of significant natural resources and resource functions. Prohibiting conflicting uses altogether would preclude urbanization of the valley, and similarly fail to meet the goals of the community, as expressed in the Concept Plan.

Limiting conflicting uses (through proposed ESRA 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 in a manner that minimizes impacts, and residential units within the ESRA can be transferred to more suitable buildings sites outside the ESRA.

Some properties with “substantial ESRA coverage” do not have sufficient area outside the ESRA 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 27 highly constrained properties to build into the ESRA, after available non-ESRA land has been used, in a manner that minimizes impacts.

With this additional ESRA disturbance allowance, the ESRA program is able to meet the community’s natural resource conservation goals (as expressed in the Concept Plan) while preserving the important economic, social, environmental, and energy benefits of urbanization for landowners throughout the Pleasant Valley Plan District.

Funding Strategy

Title 11 of the Urban Growth Management Functional Plan includes a requirement that the natural resources plan 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.”

The Concept Plan project began to address this requirement by doing a preliminary cost estimate, identifying funding strategies and by identifying various existing programs. This was included in the Implementation Strategies adopted as part of the Concept Plan. Additional work concerning cost estimates and funding strategies was done as part of the Implementation Plan Public Facility Plan and most specifically in the parks element. This section will summarize the results of Concept Plan and Implementation Plan regarding funding natural resources.

PRELIMINARY COST ESTIMATES

Concept Plan Estimate:

- Estimated acres of ESRA currently forested: 109
- Estimated acres of ESRA recently reforested by Portland’s Environmental Services: 4.4 acres or 2,300 bank feet
- Estimated acres of ESRA needing reforestation: 352.
- Estimated Cost: \$3.7 million. This estimate is based on City of Portland estimates for site preparation, planting, and maintenance over a five-year period.

Implementation Plan Estimate:

- Estimated acre of ESRA in Clackamas County: 70
- Estimated acre of ESRA in Gresham: 233
- Open space benchmark acres in Gresham: 135
- Estimated acre of ESRA in Happy Valley: 17
- Estimated acre of ESRA in Portland North: 90
- Estimated acre of ESRA in Portland West: 66
- Preliminary Cost Estimate based on acquisition at \$40,000 acre and habitat restoration at \$10,000 an acre:
 - Clackamas County: \$3,480,000
 - Gresham Open Space \$6,764,500
 - Gresham ESRA in Excess of Open Space Benchmark: \$4,880,500
 - Portland: \$7,790,000
- Estimated Cost Total: \$21,741,000

These costs estimates vary significantly as the Concept Plan estimates only considered estimates for reforestation and maintenance but not for land acquisitions. The Implementation Plan estimates include costs for acquisition as well as for habitat restoration but did not factor in ESRA area that is already forested.

An analysis of current parks and open space System Development Charges indicates that there would not be sufficient receipts to fund the planned park and trail and open space acquisition much less the restoration of the remaining ESRA lands. The costs for all land acquisition, conservation easements, restoration, and maintenance will be substantial. There is no one method that can or should be used for everything. There are fairly significant public benefits that come from the restoration of ESRAs. Some public participation in their restoration seems appropriate.

FUNDING STRATEGIES

Numerous programs exist at the city, state, and federal level to assist with natural resource planning efforts. Regulatory efforts alone will not succeed in restoring natural resources. Individual property owners, developers, and entire communities must be willing to assume responsibility. Numerous programs provide financial and technical assistance and incentives, but require a commitment from the property owner and the community. Summaries of a sampling of the programs are listed following these funding strategies.

1. Reduce stormwater fees in exchange for protection of resources in the form of conservation easements.
2. Provide property tax credits for protection and maintenance of natural resources.
3. Encourage and further investigate density and development transfer rights and other transfer mechanism from properties inside the ESRA to properties outside.
4. 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 that benefit.
5. Consider a bond measure to acquire property along streams and wetlands, either region wide or specific to Pleasant Valley. The measure could be patterned after Metro's bond measure that successfully acquired upland habitat in and around the study area.
6. 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.
7. Landscape Assessment Districts (LADs) could be established as an overlay zone to provide a higher level of design and maintenance standards.
8. Identify strategies to combine public utilities construction projects (such as stormwater regional facilities, trails and pedestrian crossings, and street crossings) with restoration projects.

SAMPLE FUNDING SOURCES

FEDERAL LEVEL⁷

Sustainable Development Challenge Grants – US Environmental Protection Agency

Grants are intended to initiate community-based projects that promote environmentally and economically sustainable development. The program encourages partnering among community, business, and government entities to work cooperatively to develop flexible, locally oriented approaches that link environmental management and quality of life activities with sustainable development and revitalization. This program challenges communities to invest in a sustainable future that will link environmental protection, economic prosperity, and community well-being. These grants are intended to (1) catalyze community-based projects; (2) build partnerships that increase a community's capacity to take steps to ensure long-term ecosystem and human health, economic vitality, and community well-being; and (3) leverage public and private investments to enhance environmental quality by enabling community efforts to continue beyond the period of funding.

Watershed Protection and Flood Prevention Program – US Department of Agriculture

Also known as the "Small Watershed Program," this program provides technical and financial assistance to address resource and related economic problems on a watershed basis. Projects related to watershed protection, flood prevention, water supply, water quality, erosion and sediment control, wetland creation and restoration, fish and wildlife habitat enhancement, and public recreation are eligible for assistance. Technical and financial assistance is also available for planning and installation of works of improvement to protect, develop, and use land and water resources in small watersheds.

Water Quality Cooperative Agreements – US Environmental Protection Agency

Grants are provided to support the creation of unique and new approaches to meeting stormwater, sanitary sewer, and combined sewer outflows, bio-solids, and pretreatment requirements, as well as enhancing state capabilities. Eligible projects include research, investigations, experiments, training, demonstrations, surveys, and studies related to the causes, effects, extent, and prevention of pollution.

Wetlands Reserve Program – US Department of Agriculture

This voluntary program provides landowners with financial incentives to restore and protect wetlands in exchange for retiring marginal agricultural land. Landowners may sell a conservation easement or enter into a cost-share restoration agreement. Landowners voluntarily limit future use of the land, but retain private ownership. Landowners and the Natural Resources Conservation Service develop a plan for the restoration and maintenance of the wetland.

Wetlands Program Development Grants – US Environmental Protection Agency

The Wetlands Program Development Grants provide financial assistance to states, federally- recognized Indian tribes, and local governments to support development of new, or augmentation and enhancement of existing wetland programs. Projects must clearly demonstrate a direct link to an increase in the state's, tribe's, or local government's ability to protect its wetland resources.

Wildlife Habitat Incentives Program – US Department of Agriculture

The Wildlife Habitat Incentives Program (WHIP) is a voluntary program for people who want to develop and improve wildlife habitat on private lands. It provides both technical assistance and cost sharing to help establish and improve fish and wildlife habitat. Participants work with USDA's Natural Resources Conservation Service to prepare a wildlife habitat development plan in consultation with a local conservation district.

⁷ <http://www.epa.gov/OWOW/watershed/wacademy/fund.html>

Partners for Fish and Wildlife Program – US Fish and Wildlife Service

The Partners for Fish and Wildlife Program, through partnerships with conservation groups and federal/state/tribal/local government agencies, provides technical and financial assistance to private landowners interested in voluntarily restoring or otherwise improving native habitats for fish and wildlife on their lands. This program focuses on restoring former and degraded wetlands, native grasslands, stream and riparian areas, and other habitats to conditions as natural as feasible. Under cooperative agreements, private landowners agree to maintain restoration projects, but otherwise retain full control of the land.

STATE LEVEL

Oregon Watershed Enhancement Board (OWEB)

OWEB is a state agency led by a policy oversight board.⁸ Together, they promote and fund voluntary actions that strive to enhance Oregon's watersheds. The Board fosters the collaboration of citizens, agencies, and local interests. OWEB's programs support Oregon's efforts to restore salmon runs, improve water quality, and strengthen ecosystems that are critical to healthy watersheds and sustainable communities. OWEB administers a grant program that awards more than \$20 million annually (from lottery money) to support voluntary efforts by Oregonians seeking to create and maintain healthy watersheds. Examples of on-the-ground work to receive grants include: planting, reseeding, fencing, weed control, culvert replacement, wetland restoration, land purchases, and conservation easements.

Riparian Lands Tax Incentive Program⁹

This program provides landowners with tax incentives to protect, conserve or restore healthy riparian habitat on private lands adjacent to perennial and intermittent streams.

Wildlife Habitat Conservation & Management Program⁹

This program provides landowners with tax incentives to protect wildlife habitat on private lands.

REGIONAL LEVEL

Metro

Metro is responsible for allocating state and federal funds for projects identified in the Regional Transportation Plan. The Metropolitan Transportation Improvement Program (MTIP) allocates the funds every two years and can fund projects such as street and transit improvements, trails, bikeways and sidewalks. In addition, Metro may also make funds available for purchase of land that is deemed important for natural resource purposes through future bond measures.

LOCAL LEVEL

Portland Bureau of Environmental Services¹⁰

The City of Portland forms partnerships with public and private landowners to restore degraded stream bank and upland areas. This restoration work improves water quality, controls erosion, reduces stormwater pollution, aids in long-term salmon recovery, and enhances wildlife habitat. The Watershed Re-vegetation Program is a completely voluntary partnership with Environmental Services. Property

⁸ <http://www.oweb.state.or.us>.

⁹ http://arweb.sos.state.or.us/rules/OARS_600635/635_430.html

¹⁰ <http://www.cleanrivers-pdx.org>.

owners pay from 50 to 100 percent of the project expenses. Environmental Services provides native plants, contract labor, materials, and technical assistance. Projects include upland plantings, riparian zone grading and planting, and wetland construction.

Environmental Services is currently working with willing property owners on efforts to re-vegetate along stream corridors in the Kelley Creek Watershed.

Friends of Trees¹¹

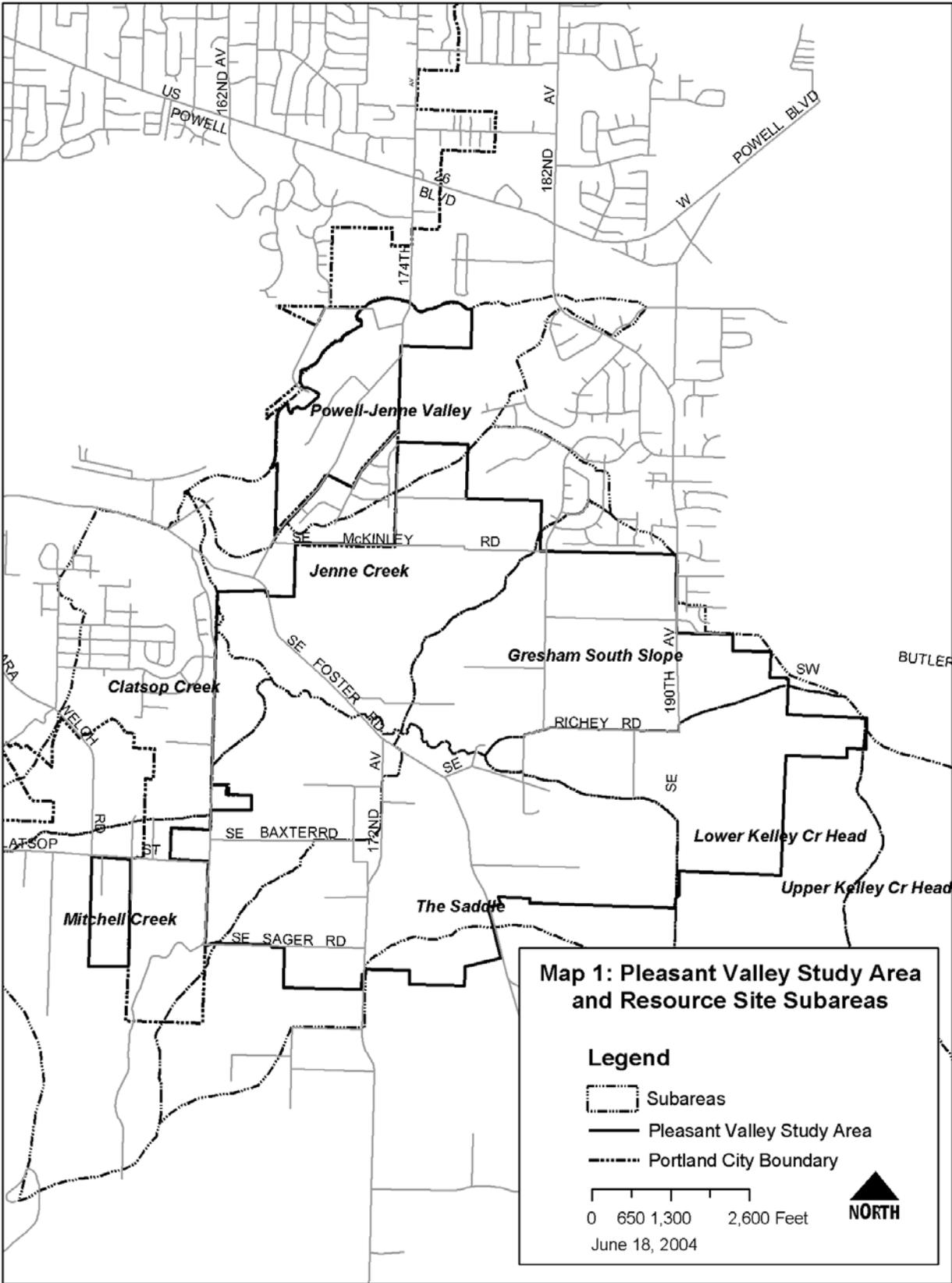
Friends of Trees builds community partnerships to plant, preserve, and care for urban trees in order to strengthen neighborhoods, create an ecologically healthy environment, and enhance the quality of urban life. *Friends of Trees* also works with public agencies, other nonprofit organizations, and citizen "friends" groups to organize community natural area enhancement and restoration projects. *Friends of Trees* is actively working with the Cities of Gresham and Portland on a number of projects. These projects are helping to restore ecosystem functions, including habitat for salmon and other wildlife. Moreover, by bringing people together to restore natural areas, Friends of Trees is training local stewards who will care for these special places in the years after planting.

Johnson Creek Watershed Council¹²

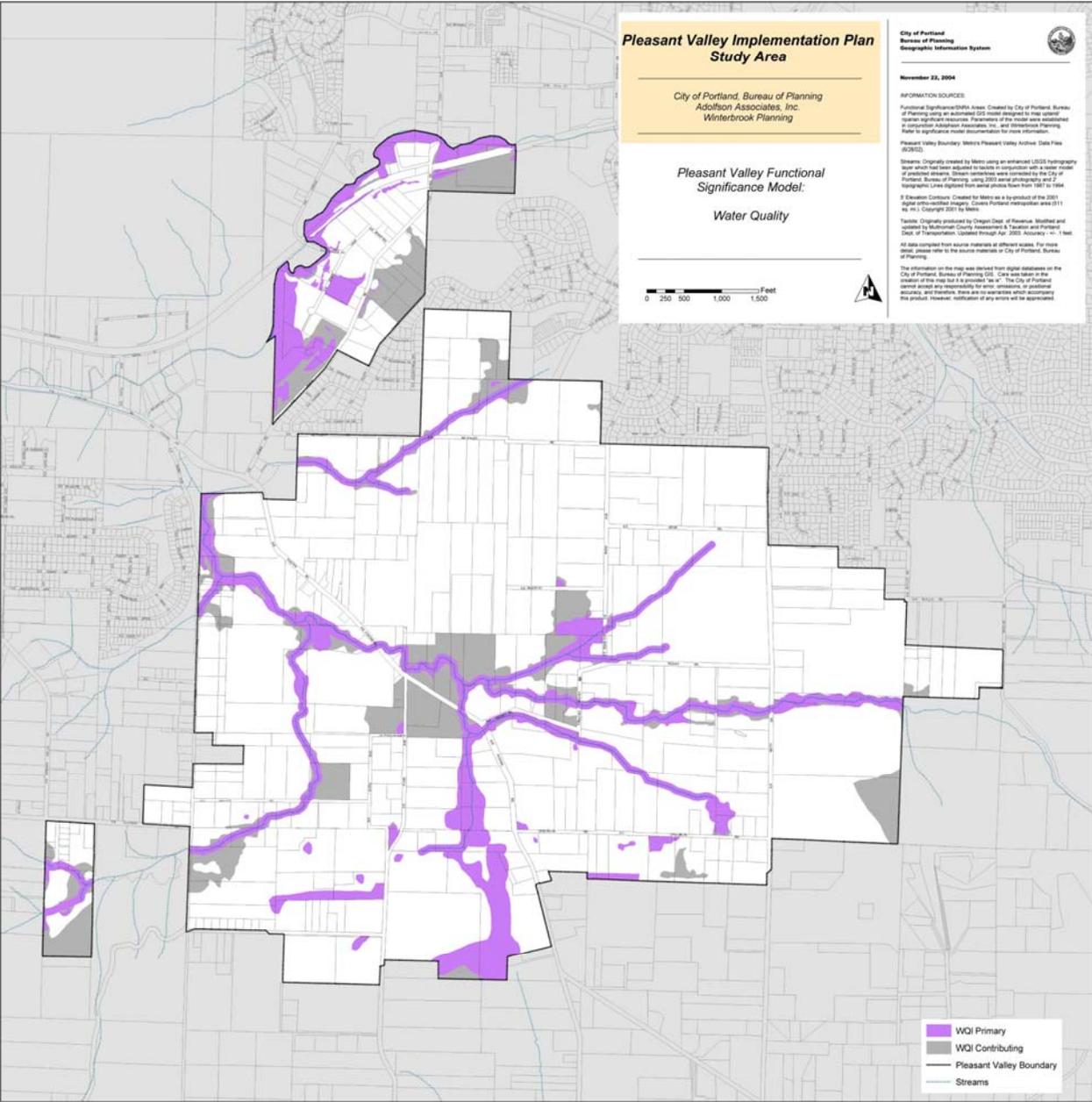
The Johnson Creek Watershed Council is a non-profit community-based organization committed to engaging citizens in improving the health of the Johnson Creek Watershed. To do this, the Council provides healthy creek programs and information for watershed residents, leads restoration projects, and supports watershed education. The Johnson Creek Watershed Council emphasizes protection and recovery of Kelley Creek as a critical first step in the extended process of restoring the greater Johnson Creek Watershed, as outlined in their Watershed Action Plan. The Council, in partnership with local residents, is actively working in Pleasant Valley on a number of projects to improve riparian conditions and restore fish passage. Members of the Johnson Creek Watershed Council have worked for over 10 years to bring local governments and citizens together to promote an integrated watershed approach to habitat restoration and fish recovery.

¹¹ <http://www.friendsoftrees.org>.

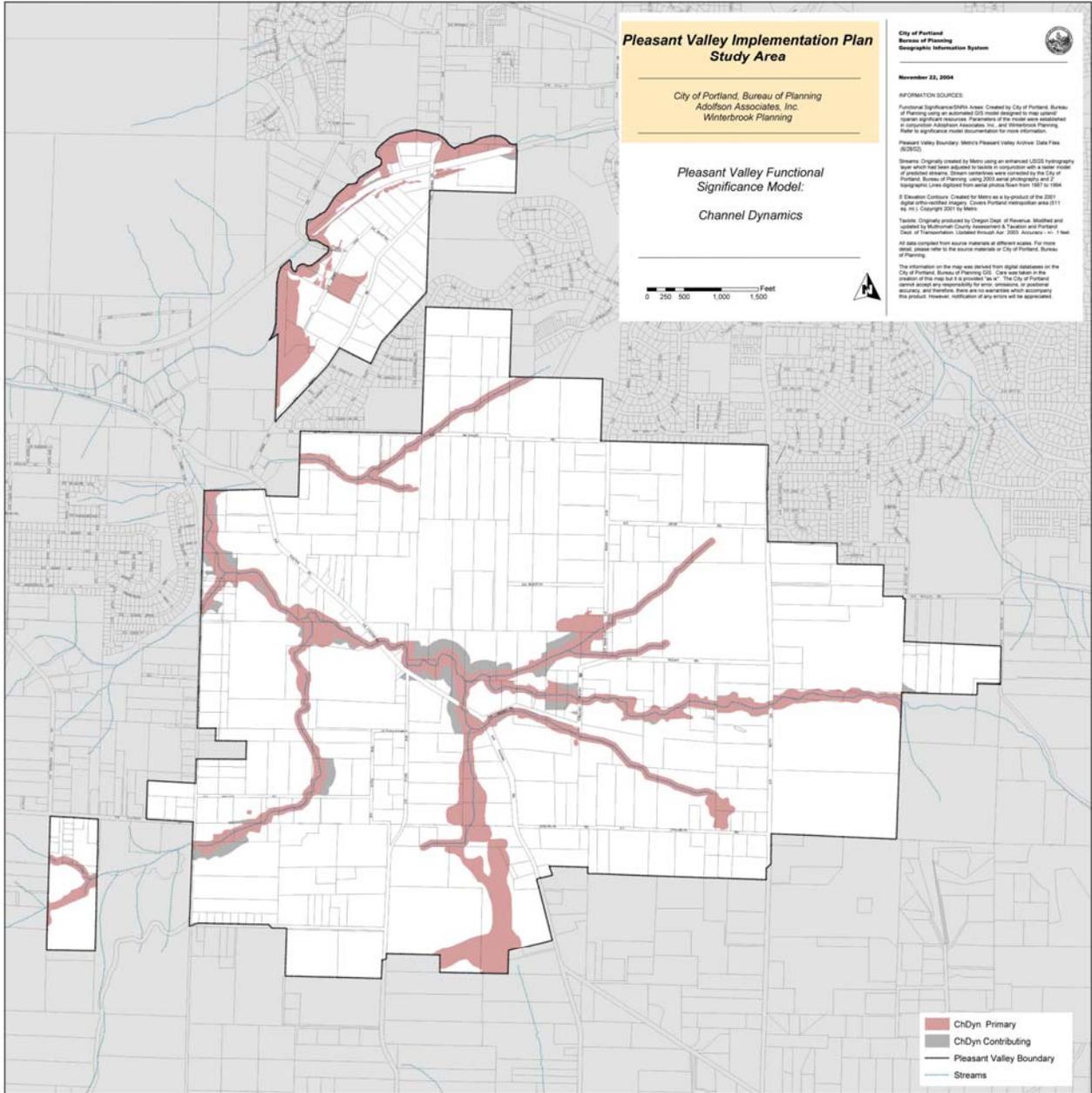
¹² <http://www.jcwc.org/index.htm>



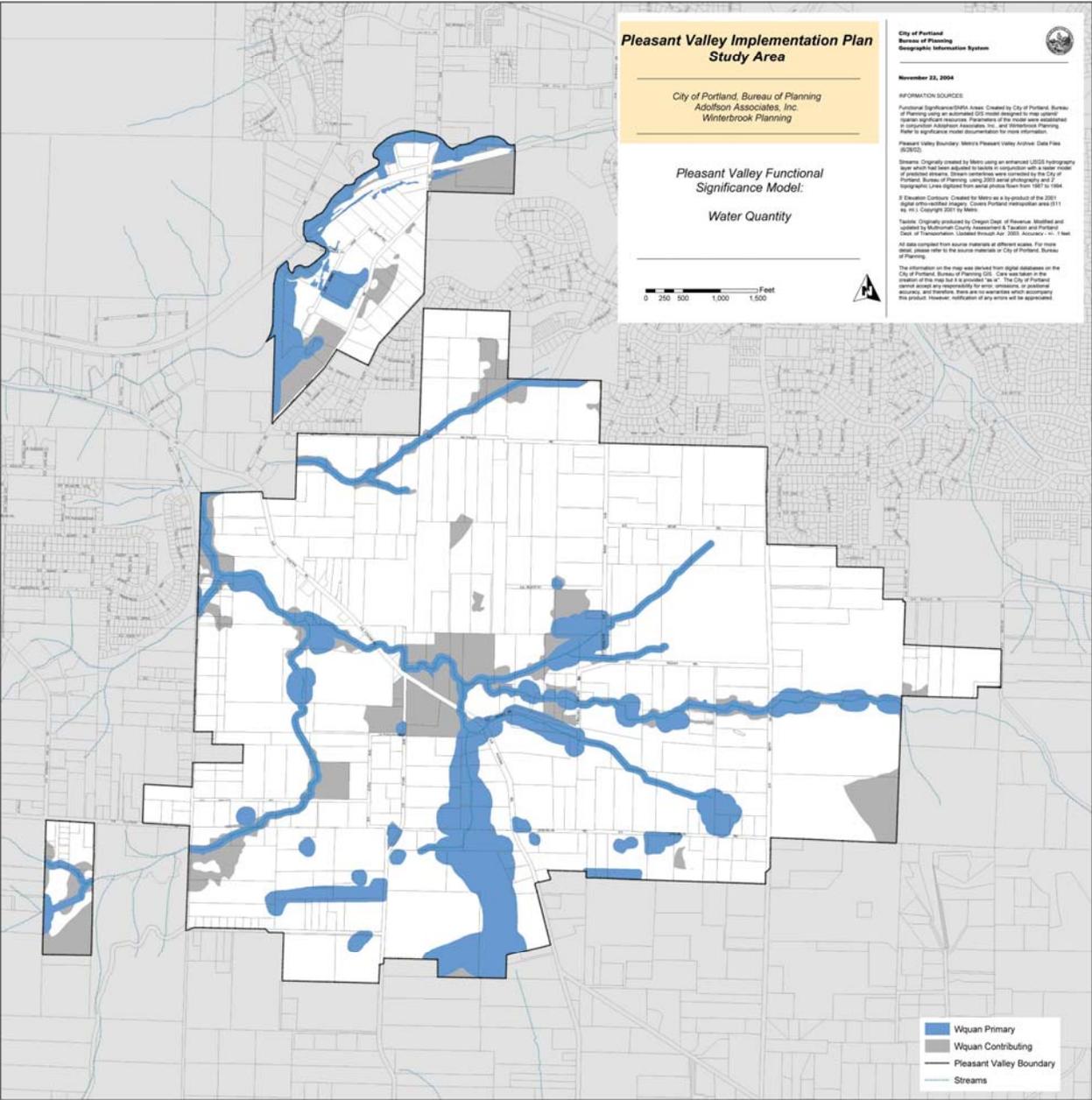
Map 2. Water Quality Function



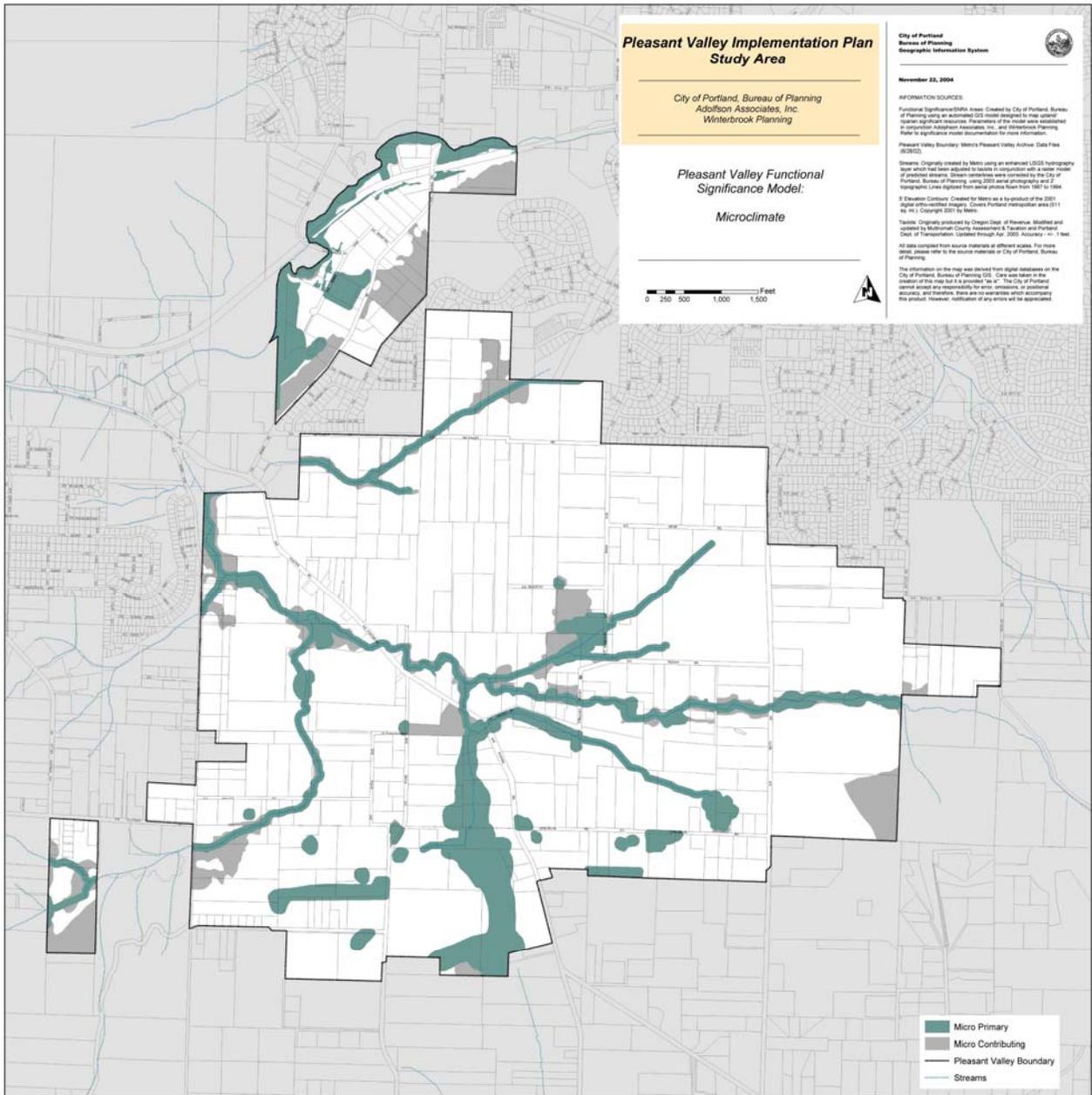
Map 3. Channel Dynamics Function



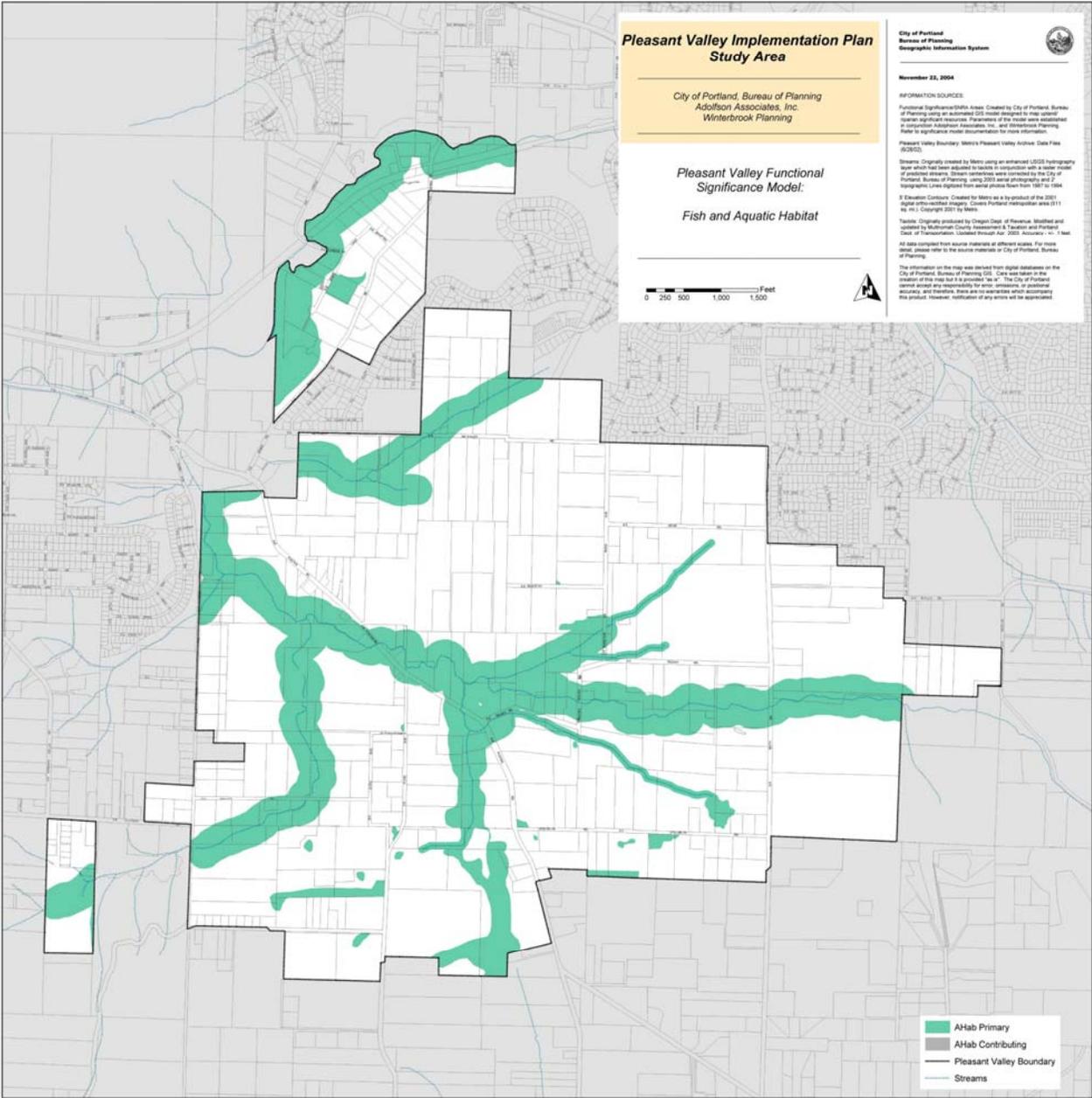
Map 4. Water Quantity



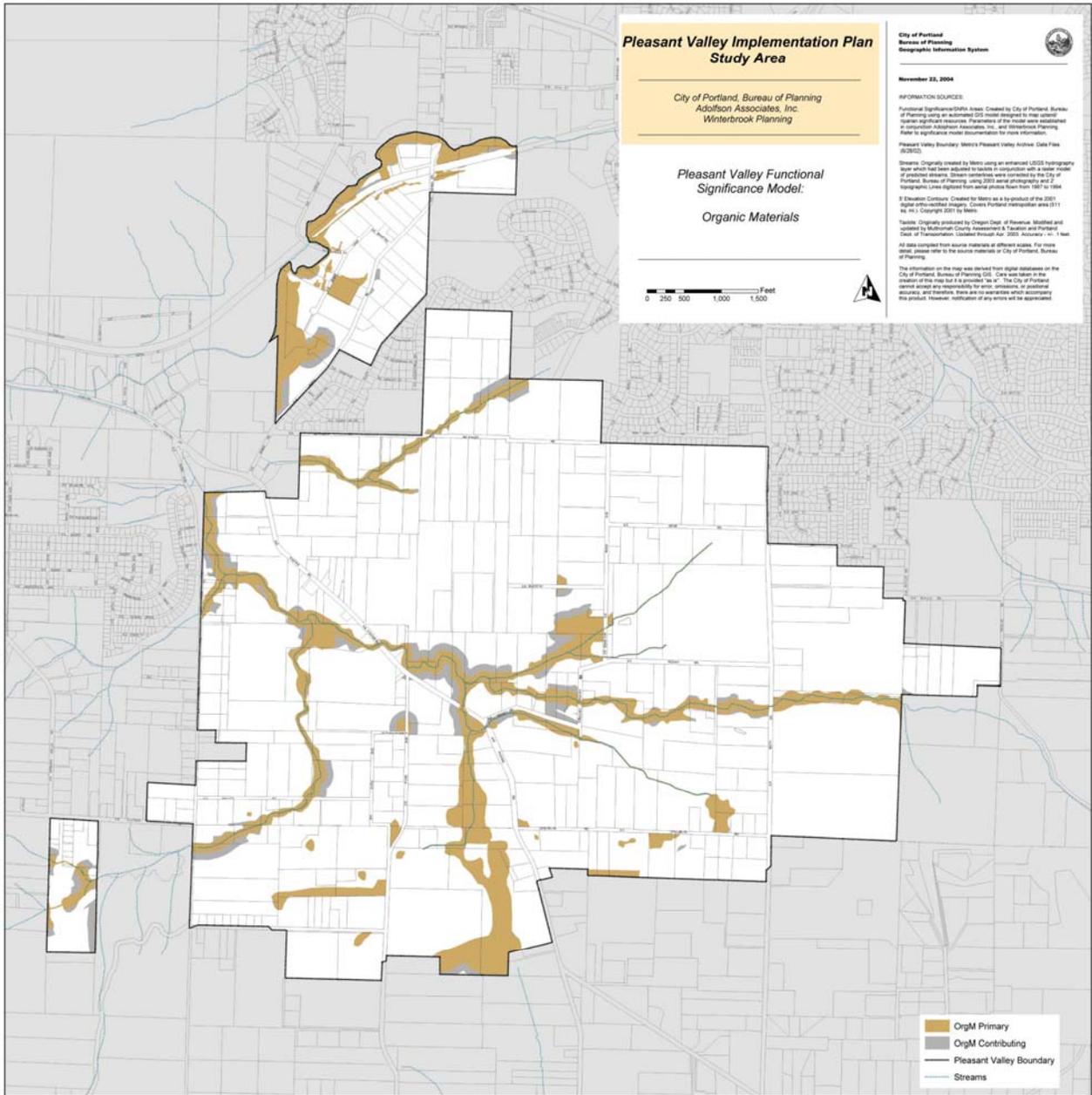
Map 5. Microclimate Function



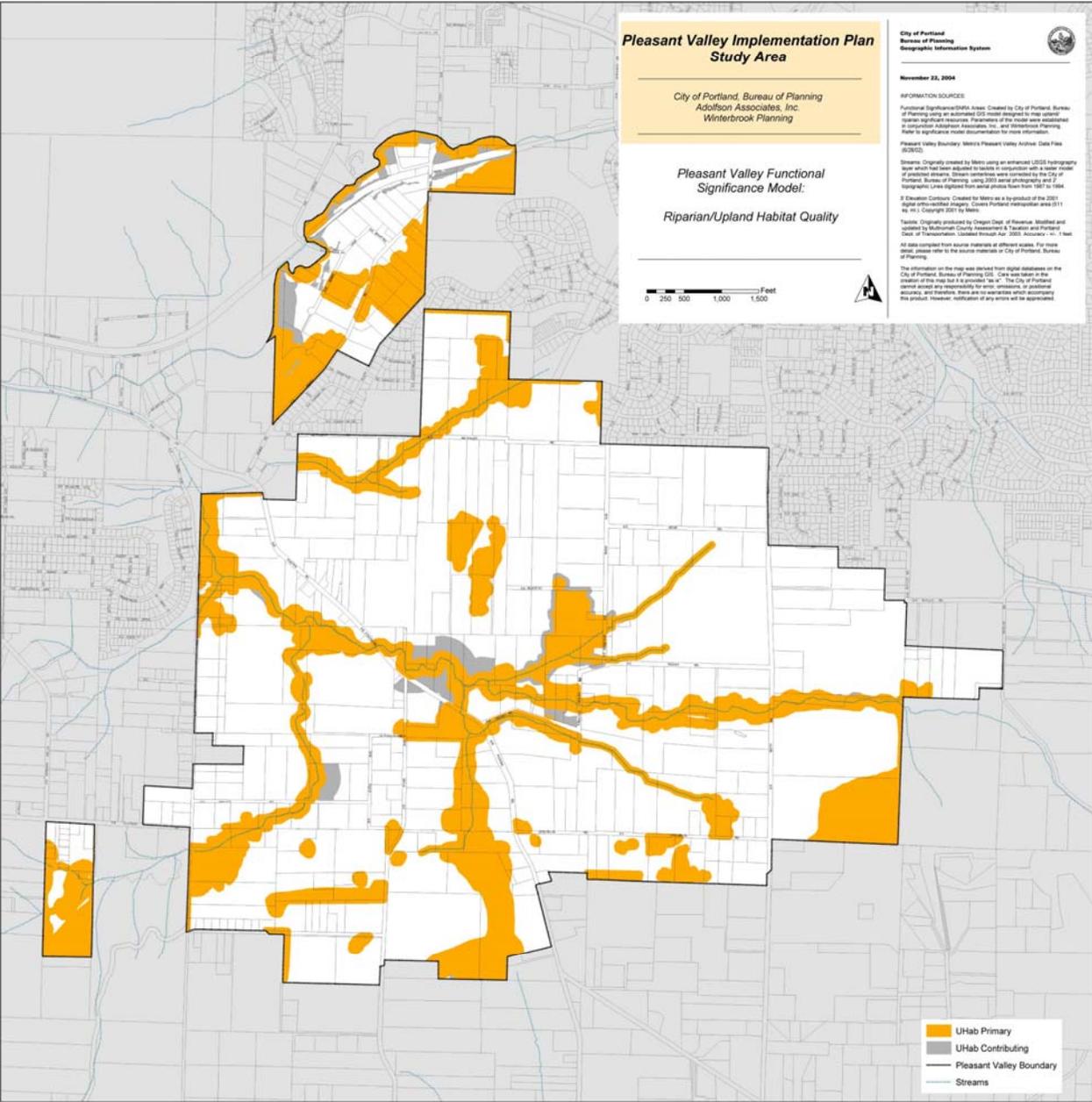
Map 6. Fish and Aquatic Habitat Function



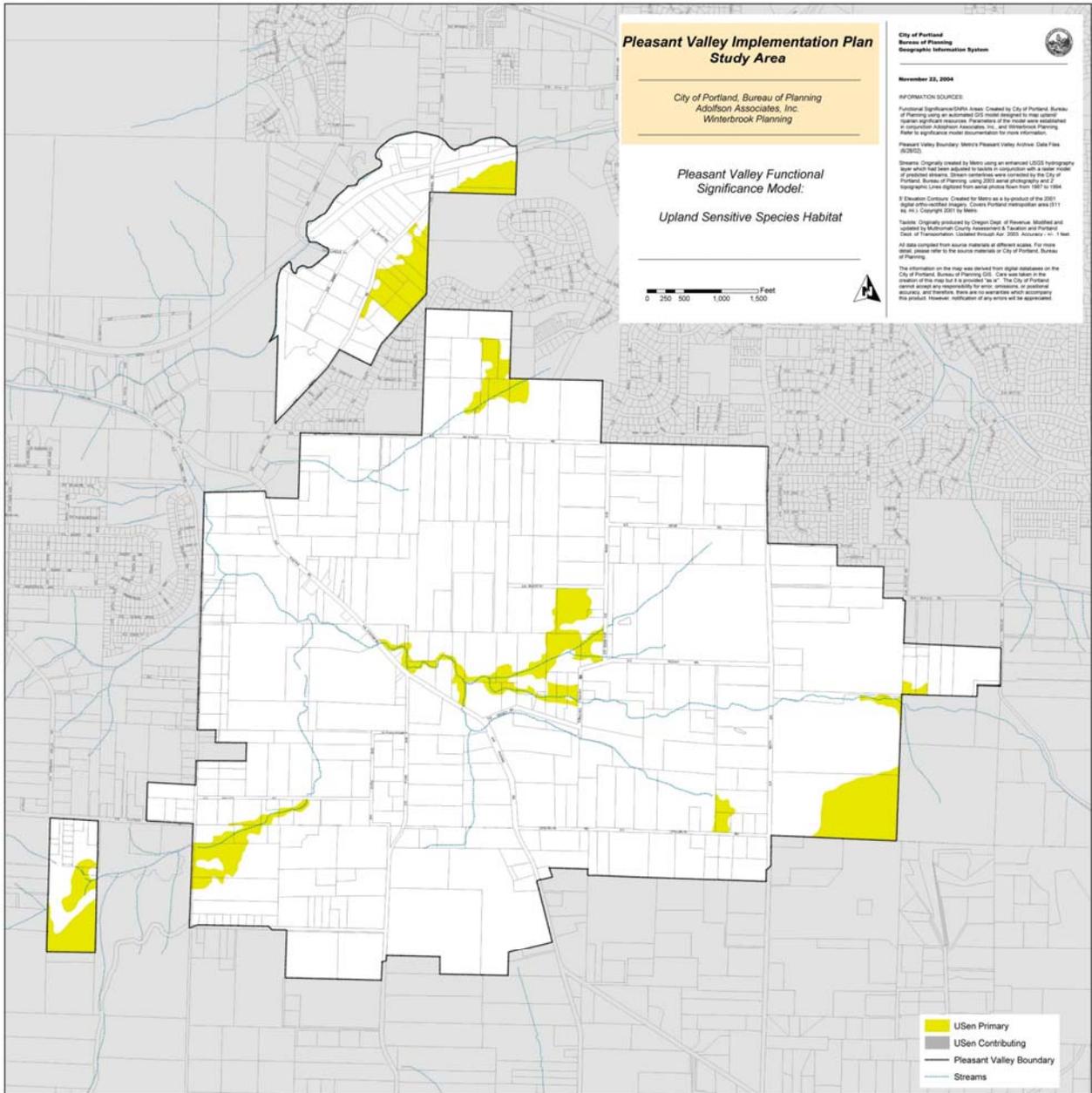
Map 7. Organic Materials Function



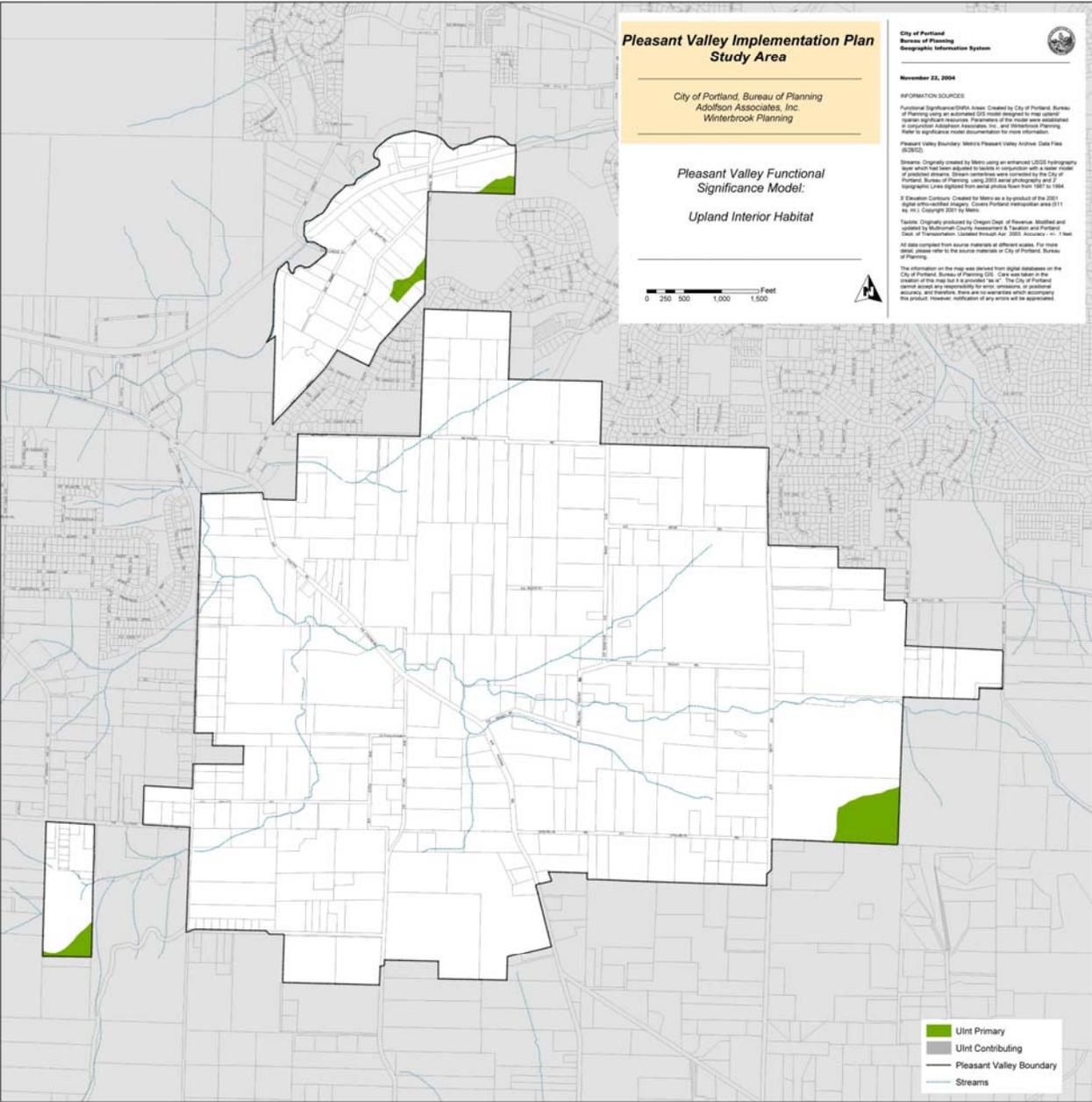
Map 8. Riparian/Upland Habitat Quality Function



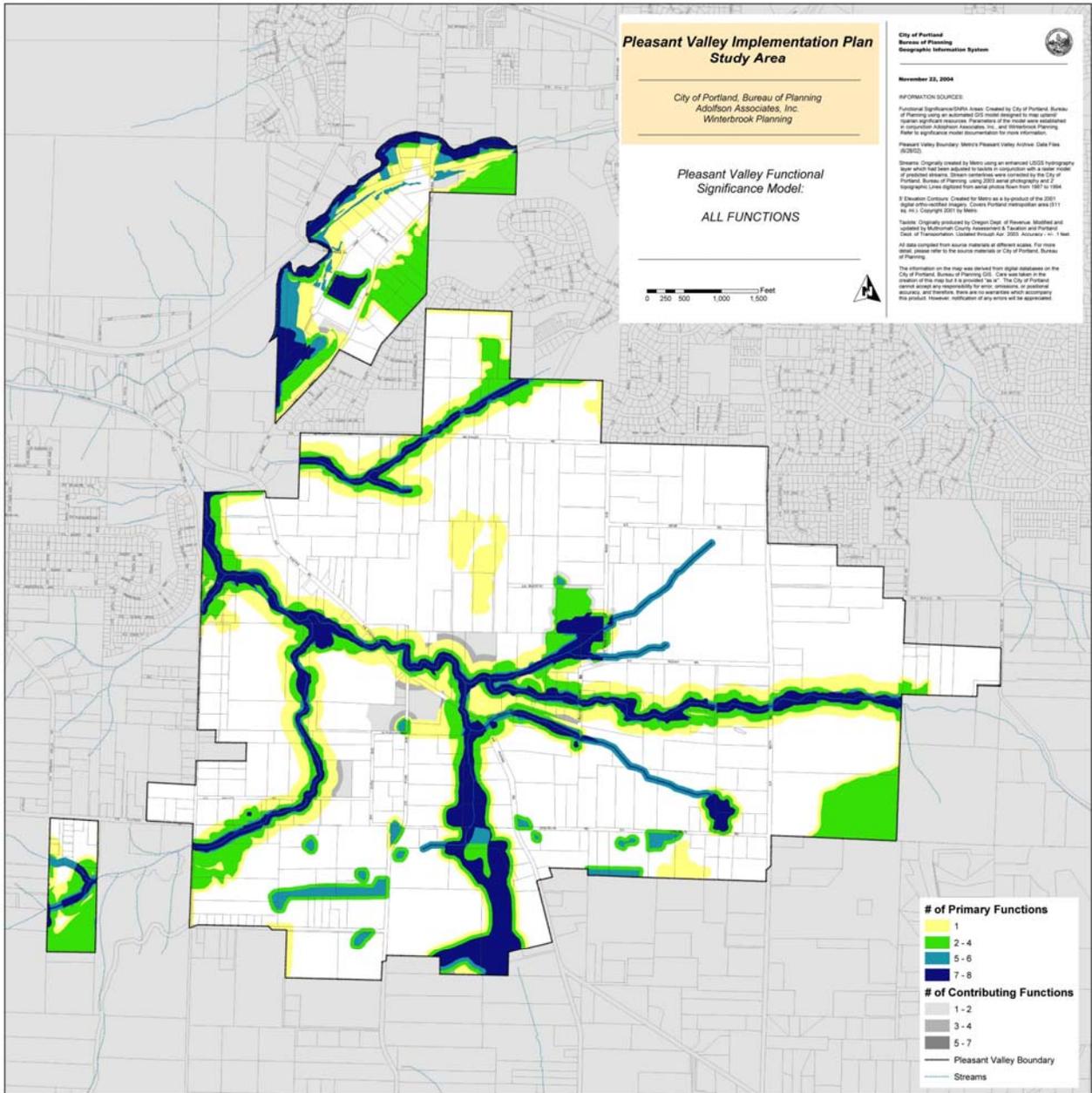
Map 9. Upland Sensitive Species Function



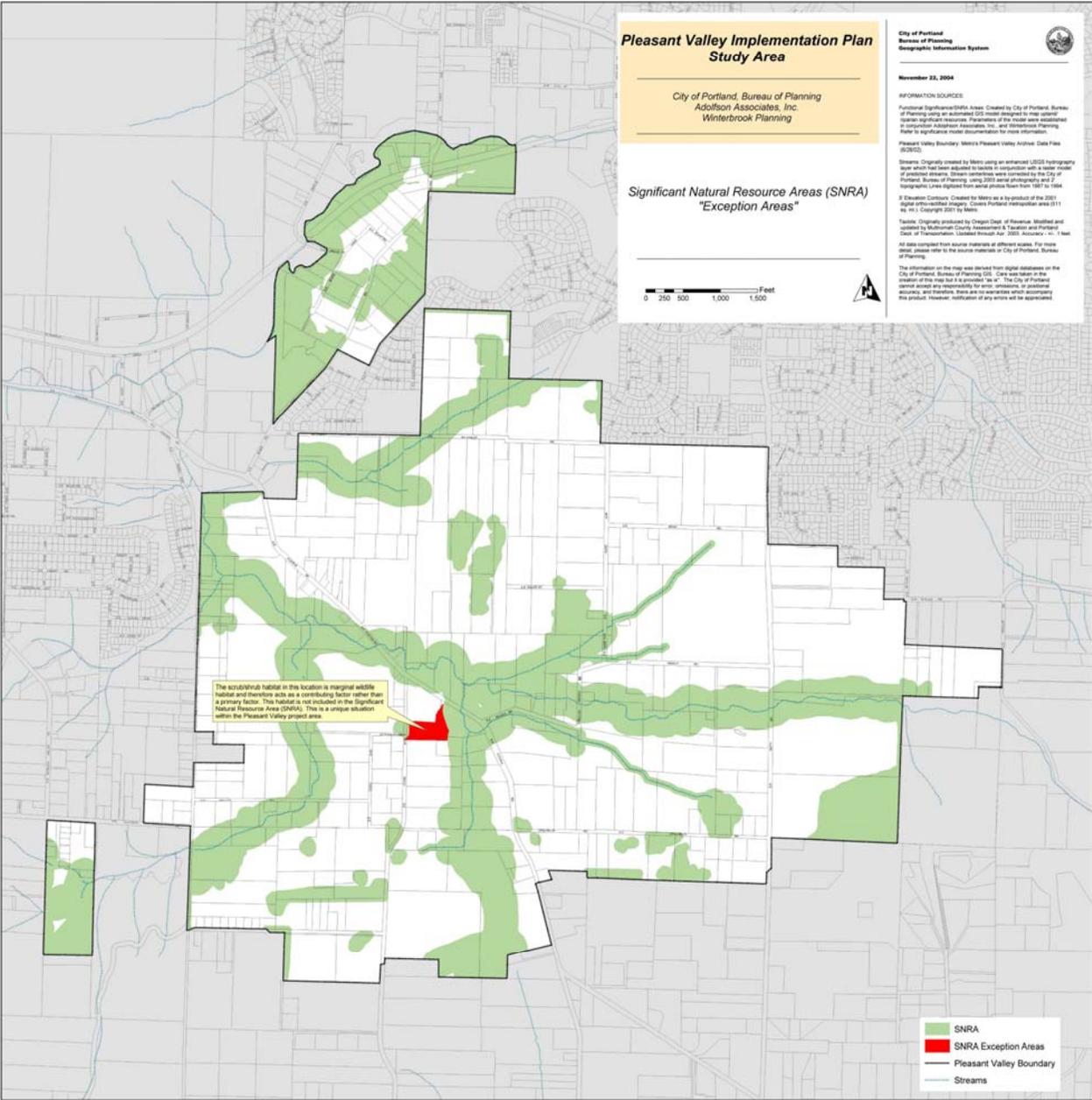
Map 10. Upland Interior Habitat Function



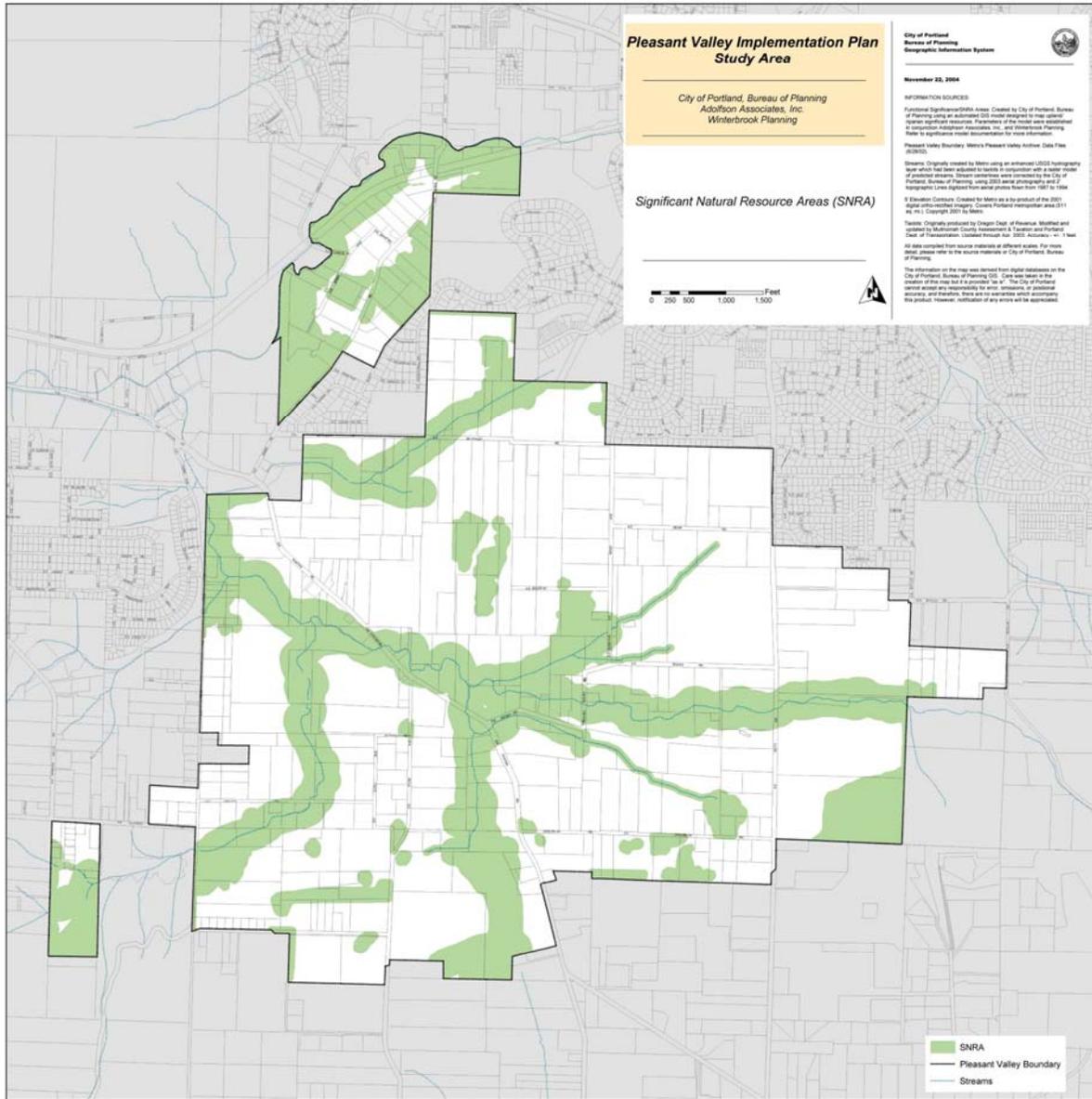
Map 11. All Functions Combined



Map 12. Pleasant Valley Significant Natural Resource Areas – Exception Areas



Map 13. Significant Natural Resource Areas (SNRA)



Pleasant Valley Environmentally Sensitive/Restoration Areas

Purpose

4.1430 Purpose

General

4.1431 How the ESRA Works

4.1432 Map as Reference

4.1433 ESRA Subdistrict Permit

4.1434 Emergencies

Prohibited, Exempted and Regulated Uses

4.1435 Prohibited Uses

4.1436 Uses Allowed Outright (Exempted)

4.1437 Uses Allowed Under Prescribed Conditions

Development Standards

4.1438 General Development Standards

4.1439 New Development Standards

4.1440 Existing Development Standards

4.1441 Standards for Utility Lines

4.1442 Standards for Rights of Way

4.1443 Standards for Land Divisions

4.1444 Standards for Trails

4.1445 Mitigation Standards

4.1446 Alternative Mitigation Standards

4.1447 Adjustment from Standards

Application Requirements

4.1448 Type II Development Permit Application

4.1449 Required Site Plans

4.1450 Mitigation Plan Report

Miscellaneous

4.1451 Density Transfer

4.1452 Modification of ESRA Boundary

4.1453 Correct to Violations

4.1454 Consistency and Relationship to Other Regulations

The ESRA area is intended to be a sub-district within the Pleasant Valley Plan District and the ESRA standards will be integrated in the Plan District code in Chapter 5.

The basis for this program is documented as part of the natural resources inventory, significance criteria, and the economic, social, environmental, and energy (ESEE) analysis. It also reflects the goals and policies for natural resources adopted during the Concept Plan project and included in Chapter 2. These goals and policies call for “preserving, enhancing and restoring natural resources” so that the “urban community is integrated with the natural environment.”

This program is also intended to implement Metro Title 3 requirements. The City currently implements Title 3 by the Water Quality Resource Area (WQRA) Overlay. The ESRA standards are intended to integrate those requirements into the Plan District. The City’s existing Natural Resources Overlay is not used because it out-dated having been adopted in 1989 and will need to be updated when Metro completed its current Title 3/Goal 5 project.

The Implementation Strategies adopted as part of the Concept Plan identified the following purpose and characteristics for the ESRA:

Purpose

The environmentally sensitive/restoration areas (ESRA) are resource management areas with important ecological functions. While not affecting the continued use of existing homes, it is the long-term goal to restore and enhance sensitive wetlands and stream corridors to create a functional riparian system. This goal recognizes that additional inventory and analysis is needed to further refine what types of activities are to be allowed within the ESRA areas.

Characteristics

- *Areas identified as existing habitat types on the Resource Management Map include wetlands, upland, and riparian habitat. Wetlands range from open water to forested wetlands. Upland habitat range from deciduous and conifer forests to shrubs and habitats of mixed species.*
- *Areas identified for restoration as part of the Resource Management Map embody a vision for the valley. These restoration and enhancement measures might include strategies to:*
 1. *Remove fish passage barriers;*
 2. *Restore native plant and animal communities through removal of invasive species, plant native trees and shrubs;*
 3. *Reconnect creeks, floodplains and habitat to improve natural system functions and reduce flooding;*
 4. *Restore wetlands and stream banks to reduce erosion, reduce landslide hazards, and improve water quality and fish habitat; and*
 5. *Reduce water quality degradation through re-vegetated stream buffers, stream friendly stormwater management, and reduced pollutant discharges.*
- *A trail system, as designated on the map along the edges of the ESRA, connects the neighborhoods of the valley to each other, the schools, the parks, and the town center. Trails also help direct human activity to appropriate locations and serve as an indicator of the edge between the natural and more cultivated landscapes.*
- *Neighborhood and Community parks adjoining ESRA serve as trailheads by providing access.*

The proposed purpose statement reflects the purpose and characteristics from the Concept Plan Implementation Strategies and the as updated by the State Goal 5 Natural Resources analysis done during the Implementation Plan project.

4.1430 – ENVIRONMENTALLY SENSITIVE/RESTORATION AREA – PLEASANT VALLEY (ESRA-PV)

4.1430 Purpose. This designation provides a framework for protection of Metro Title 3 lands and Statewide Planning Goal 5 resources within the Pleasant Valley Plan District. The ESRA-PV subdistrict implements the Pleasant Valley Natural Resource Goals and Policies and is intended to resolve conflicts between development and conservation of streams corridors, wetlands, floodplains, and forests identified in the Pleasant Valley Plan District. The subdistrict contributes to the following community objectives:

1. Protect and restore streams and riparian areas for their ecologic functions and as an open space amenity for the community.
2. Protect floodplains and wetlands, and restore them for improved hydrology, flood protection, aquifer recharge, and habitat functions.
3. Protect upland habitats, and enhance connections between upland and riparian habitats and between Pleasant Valley habitats and the nearby habitats of Powell and Clatsop Buttes and Butler Ridge.
4. 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.
5. Conserve scenic, recreational, and educational values of significant natural resources.

The ESRA-PV has significant ecological functions planned for integration with a new urban community. The long-term goal is to restore and enhance sensitive stream corridors, wetlands, and forests to more natural vegetated conditions, recognizing that existing homes and other existing uses will continue in the sub-district.

GENERAL

4.1431 How the ESRA-PV Works. The ESRA-PV subdistrict establishes buffers to protect significant streams, riparian corridors, wetlands and forests, including their ecological functions. The subdistrict provisions apply only to the mapped ESRA-PV areas that appear on the Pleasant Valley ESRA Map.

Development on lands located outside of the mapped ESRA-PV subdistrict is exempt from ESRA-PV standards and review. Additionally, ESRA-PV provisions do not affect existing uses and development, or the normal maintenance of existing structures, farmland, and landscaped areas. Certain new development is allowed under prescribed conditions within the subdistrict, such as recreational trails, planned road and utility crossings, stormwater facilities, and construction of residences on highly constrained properties under limited circumstances. Other new development (construction, grading, and native vegetation removal) generally is not allowed within the subdistrict.

Sections 4.1432, 4.1433 and 4.1434 are based on similar WQRA code provisions.

Section 4.1435 lists uses that are prohibited within the ESRA. Similar code provisions are found in the WQRA overlay.

4.1432 Map as Reference. The boundaries of the ESRA-PV subdistrict are shown on the Pleasant Valley Plan District ESRA Map. The boundaries are based on a GIS-supported application of the Pleasant Valley Significance Matrix. Any change to the ESRA-PV boundary requires an adjustment of the boundary as shown on the ESRA Map and shall be processed under the Type II development permit procedure. The ESRA-PV boundary shall be shown on all development permit application site plans that involve properties with this designation and its location shall be verified in the field before development activity (including grading) commences.

4.1433 ESRA-PV Subdistrict Permit. An ESRA-PV subdistrict permit is required for those uses regulated under Section 4.1437, Uses Allowed Under Prescribed Conditions. An ESRA-PV permit shall be processed under the Type II development permit procedure, unless it is being processed in conjunction with an action requiring a Type III or Type IV development permit.

4.1434 Emergencies. The provisions of this ordinance do not apply to work necessary to protect, repair, maintain, or replace existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements in response to emergencies. After the emergency has passed, any disturbed native vegetation areas shall be replanted with similar vegetation found in the Metro Native Plant List. For purposes of this section emergency shall mean any man-made or natural event or circumstance causing or threatening loss of life, injury to person or property, and includes, but is not limited to fire, explosion, flood, severe weather, drought, earthquake, volcanic activity, spills or releases of oil or hazardous material, contamination, utility or transportation disruptions, and disease.

PROHIBITED, EXEMPTED AND REGULATED USES

4.1435 Prohibited Uses. The following development and activities are not allowed within the ESRA-PV subdistrict:

1. Any new gardens, lawns, structures, development, other than those allowed outright (exempted) by the ESRA-PV subdistrict or that is part of a regulated use that is approved under prescribed conditions. Note: Gardens and lawns with the ESRA-PV subdistrict that existed prior to the time the subdistrict was applied to a subject property are allowed to continue but cannot expand further into the subdistrict.
2. New lots that would have their buildable areas for new development within the ESRA-PV subdistrict are prohibited.
3. The dumping of materials of any kind is prohibited with the ESRA-PV subdistrict. The outside storage of materials of any kind is prohibited unless they existed before the subdistrict was applied to a subject property. Uncontained areas of hazardous materials as defined by the Oregon Department of Environmental Quality (ORS 466.005) are also prohibited.
4. Unless part of an approved development activity, grading, the placement of fill or the removal of native vegetation within the ESRA-PV subdistrict is prohibited.

Section 4.1436 describes activities that would be allowed in the ESRA and not require ESRA permit review. These activities have little or no negative impact or have a positive impact on the ESRA functions.

Farming activities are exempted because state law does not allow such activities to be regulated by Goal 5 related environmental restrictions.

Also exempted from ESRA review under certain conditions is the creation of new lots that have some of their area within the ESRA district. The ESRA portion of a lot must be protected from development by a conservation easement, etc., and the remaining non-ESRA portion must be large enough to accommodate a house and related development.

4.1436 Uses Allowed Outright (Exempted). The following uses are allowed within the ESRA-PV subdistrict and do not require the issuance of an ESRA-PV permit:

1. City authorized stream, wetland, riparian, and upland restoration or enhancement projects.
2. Farming practices as defined in ORS 215.203 and farm uses, excluding buildings and structures, as defined in ORS 215.203.
3. Utility service using a single utility pole or where no more than 100 square feet of ground surface is disturbed outside of the top-of-bank of water bodies and where the disturbed area is restored to the pre-construction conditions.
4. Boundary and topographic surveys leaving no cut scars greater than three-inches in diameter on live parts of native plants listed in the Metro Native Plant List.
5. Soil tests performed with hand-held equipment, provided that excavations do not exceed a depth of five feet, combined diameters of all excavations do not exceed five feet, and all excavations are refilled with native soil, except as necessary for environmental review.
6. Trails meeting all of the following:
 - a. Construction must take place between May 1 and October 30 with hand held equipment;
 - b. Trail widths must not exceed 48 inches and trail grade must not exceed 20 percent;
 - c. Trail construction must leave no scars greater than three inches in diameter on live parts of native plants;
 - d. Trails must not be within 25 feet of a wetland or the top of banks of water bodies;
 - e. No impervious surface is allowed; and
 - f. No native trees greater than 1 inch in diameter may be removed or cut, unless replaced with an equal number of native trees of at least 3 inch diameter and planted within 10 ft. of the trail.
7. All land divisions with tentative plans and approved building permit/construction plans showing all of the following and noted on final plat:
 - a. The lots must have their building sites (or buildable areas) located at least 5 ft. from the ESRA-PV boundary. For the purpose of this subparagraph, "building site" means an area of at least 3,500 square feet with minimum dimensions of 40 feet wide by 40 feet deep;
 - b. Public and private utilities (including water lines, sewer lines or drain fields, and stormwater disposal facilities) where none of these utilities are in the ESRA-PV;

Section 4.1437 describes those uses allowed in the ESRA but that required to be developed under the standards of ESRA. Such uses include:

- *Alteration to an existing structure when new impervious surfaces are created.*
- *Development of a house on a vacant lot-of-record when there is not enough area outside of the ESRA to construct the house.*
- *Trails that require the use of machinery and/or are multi-use trails (wider than 30 inches).*
- *Generally roads, bridges and utilities (although some activities are allowed under 4.1436.)*

- c. Streets, driveways and parking areas where all pavement is at least 10 ft. from the ESRA-PV subdistrict; and
 - d. The ESRA-PV portions of all lots are protected by a conservation easement; or
 - e. A lot or tract created and dedicated solely for unimproved open space or conservation purposes.
- 8. Routine repair and maintenance of existing structures, roadways, driveways and utilities.
 - 9. Replacement, additions, alterations and rehabilitation of existing structures, roadways, utilities, etc. where the ground level impervious surface area is not increased.
 - 10. Measures mandated by the City of Gresham to remove or abate nuisances or hazardous conditions.
 - 11. Planting of native vegetation and the removal of non-native, invasive vegetation (as identified on the Metro Native Plant List), and removal of refuse and fill, provided that:
 - a. All work is done using hand-held equipment;
 - b. No existing native vegetation is disturbed or removed; and
 - c. All work occurs outside of wetlands and the tops-of-bank of streams.

4.1437 Uses Allowed Under Prescribed Conditions. The following uses within the ESRA-PV subdistrict are subject to the applicable standards listed in Sections 4.1438 through 4.1447.

- 1. Alteration to existing structures within the ESRA-PV when not exempted by Section 4.1436.
- 2. Development on a vacant lot of record that has less than 3,500 sq. ft. of buildable area, with minimum dimensions of 40 ft. by 40 ft., remaining outside the ESRA-PV portion of the property. (Note: A lot of record is a lot that existed before a property was annexed into the City of Gresham.)
- 3. A land division that would create a new lot for an existing residence currently within the ESRA-PV.
- 4. Trails/pedestrian paths when not exempted by Section 4.1436.
- 5. New roadways, bridges/creek crossings, utilities or alterations to such facilities when not exempted by Section 4.1436.

Section 4.1438, General Development Standards, apply to all regulated development within the ESRA, except for those types of development that are noted as being subject to their own specific standards.

Section 4.1439, New Development Standards, would apply primarily to a new house that is proposed on a lot of record with the ESRA. Such a lot must have less than 3,5000 sq. ft. of buildable area located outside of the ESRA area (per Section 4.1437.2). Disturbance of the ESRA is allowed to the extent necessary to accommodate a total buildable area of 5,000 sq. ft. including both the ESRA and non-ESRA portions of the lot.

DEVELOPMENT STANDARDS

4.1438 General Development Standards. The following standards apply to all regulated development within the ESRA-PV subdistrict with the exception of rights of ways (subject to Section 4.1442), trails (subject to Section 4.1444), utility lines (subject to Section 4.1441), land divisions (subject to Section 4.1443), and mitigation projects (subject to Section 4.1445 or 4.1446);

1. Native trees may be removed within 10 ft. of any proposed structures or within 5 ft. of new driveways. Trees listed on the Metro Nuisance Plant List or Prohibited Plant List are exempt from this standard and may be removed.
2. All vegetation planted in a resource area must be native and listed on the Metro Native Plant List;
3. Grading is subject to installing the erosion control measures required by the City of Gresham Erosion Control Technical Guidance Handbook;
4. The minimum front, street, or garage setbacks of the base zone may be reduced to any distance between the base zone minimum and zero;
5. Fences are allowed only within the disturbance area;
6. Incandescent lights exceeding 200 watts (or other light types exceeding the brightness of a 200 watt incandescent light) must be placed so they do not shine directly into resource areas;
7. If development will occur within the 100 yr. floodplain, the FEMA floodplain standards must be met; and
8. Mitigation is required, subject to Section 4.1445 or 4.1446.

4.1439 New Development Standards. In addition to the above General Development Standards of Section 4.1438, the following standards apply to new development within the ESRA-PV subdistrict, except for trails, rights of ways, utility lines, land divisions and mitigation projects:

1. The maximum disturbance area allowed within the resource area on the site is determined by subtracting all portions of the site outside the ESRA-PV area from the number listed in the table below.

Table 1
Maximum Disturbance Area Allowed
Maximum Disturbance Area =5,000 sq. ft.[1]

[1] Note: Subtract the amount of area on the site outside the ESRA-PV area from the number given in the above table.

2. The disturbance area must be set back at least 50 ft. from the top of bank of any stream, other water body or from the delineated edge of a wetland located within the ESRA-PV area.

Section 4.1440, Existing Development Standards, would primarily allow, under certain limitations, additions to or enlargement of existing dwellings and accessory structures that would be located within the ESRA.

4.1440 Existing Development Standards. In addition to the General Development Standards of Section 4.1438, the following standards apply to alterations of existing development within the ESRA-PV subdistrict, except for trails, rights of way, utility lines, land divisions and mitigation projects:

1. One of the following must be met:
 - a. The disturbance area does not exceed the limitations of above Table 1 and the disturbance area is not expanded into or within five feet of the ESRA-PV boundary; or
 - b. If the existing disturbance area now exceeds the limitations of above Table 1, a permanent disturbance area must be delineated that includes all existing buildings, parking and loading areas, paved or graveled areas, patios and decks, and contains the proposed development. The same delineated disturbance area must be shown on every subsequent proposal for alterations meeting this standard.
2. The proposed development must be set back at least 25 ft. from the top-of-bank of any stream, waterbody or from the delineated edge of any wetland located within the ESRA-PV area.

4.1441 Standards for Utility Lines. The following standards apply to new utilities, private connections to existing or new utility lines, and upgrades of existing utility lines within the ESRA-PV subdistrict:

1. The disturbance area for private connections to utility lines is no greater than 10 feet wide;
2. The disturbance area for the upgrade of existing utility lines is no greater than 15 feet wide;
3. New utility lines must be within the right-of-way.
4. No fill or excavation is allowed within the ordinary high water mark of a stream;
5. The Division of State Lands must approve any work that requires excavation or fill in a wetland.
6. Native trees more than 10 inches in diameter may not be removed; and
7. Each 6 to 10-inch diameter native tree cut must be replaced at a ratio of three trees for each one removed. The replacement trees must be a minimum one-half inch diameter and selected from the Metro Native Plant List. All trees must be planted on the applicant's site. Where a utility line is approximately parallel with the stream channel at least half of the replacement trees must be planted between the utility line and the stream channel.
8. Mitigation is required, subject to Section 4.1445 or 4.1446.

Section 4.1445, Mitigation, or compensating for lost resources, is required for new development within the ESRA. Sections 4.1449 and 4.1450 also require an applicant to submit a mitigation site plan and accompanying mitigation report that demonstrates compliance with the standards of Section 4.1445.

4.1442 Standards for Rights of Ways. The following standards apply to public rights of way within the ESRA-PV subdistrict, including roads, bridges/stream crossings and pedestrian paths with impervious surfaces:

1. Where the right-of-way crosses a stream the crossing must be by bridge or a bottomless culvert;
2. No fill or excavation can occur within the ordinary high water mark of a stream;
3. The Division of State Lands has approved any work that requires excavation or fill in a wetland;
4. Any work that will take place within the banks of a stream must be conducted between June 1 and August 31, or must be approved by the Oregon Department of Fish and Wildlife; and
5. Mitigation is required, subject to Section 4.1445 or 4.1446.

4.1443 Standards for Land Divisions. Other than those land divisions exempted by Section 4.1436 (7), the only type of lot allowed within the ESRA-PV subdistrict is a lot that will be created for a residence which existed before the ESRA-PV was applied to a subject property. A new lot for an existing house can be created when all of the following are met:

1. There is an existing house on the site that is entirely within the ESRA-PV area; and
2. The existing house will remain; and
3. The new lot is no larger than required to contain the house, minimum required side setbacks, garage, driveway and a 20 ft. deep rear yard, with the remaining ESRA-PV area beyond that point protected by a conservation easement, or by dedicating a conservation tract or public open space.

4.1444. Standards for Trails. The following standards apply to trails within the ESRA-PV subdistrict:

1. All trails must be setback at least 50 ft. from the tops of banks of streams or the delineated boundary of a wetland, except as designated in the Pleasant Valley Park and Trail Plan; and
2. Mitigation is required, subject to Section 4.1445 or 4.1446.

4.1445. Mitigation Standards. The following standards (or the alternative standards of Section 4.1446) apply to required mitigation:

1. Mitigation must occur at a 2:1 ratio of mitigation area to proposed disturbance area;
2. Mitigation must occur on the site where the disturbance occurs, except as follows:

- a. The mitigation is required for disturbance associated with a right-of-way or utility in the right-of-way;
 - b. The mitigation will occur in the Kelly Creek watershed; and
 - c. An easement that allows access to the mitigation site for monitoring and maintenance is provided as part of the mitigation plan.
3. Mitigation must occur within the ESRA-PV area of a site unless it is demonstrated that this is not feasible because there is a lack of available and appropriate area. In which case, the proposed mitigation area must be contiguous to the existing ESRA-PV area so the ESRA-PV boundary can be easily extended in the future to include the new resource site.
 4. Invasive vegetation must be removed within the mitigation area;
 5. Required plants and planting densities. Three trees, three shrubs, and four other plants are required to be planted for every 100 square feet of mitigation area. Plants must be selected from the Metro Native Plant List; or

An alternative planting plan using native plants can be approved in order to create a new wetland area, if it is part of a wetlands mitigation plan that has been approved by the Oregon Division of State Lands in conjunction with a wetland fill permit application.

6. Plant size. Trees must be a minimum ½-inch caliper or bare root unless they are oak or madrone which may be one gallon size. Shrubs must be a minimum of one gallon size or bare root. All other species must be a minimum of four inch pots; and
7. The mitigation plan must include a 5-year monitoring and maintenance plan.

4.1446 Alternative Mitigation Standards. In lieu of the above mitigation standards of Section 4.1445, the following standards can be used. However, compliance with these standards must be demonstrated in a mitigation plan report prepared by an environmental professional with experience and academic credentials in one or more natural resource areas such as ecology, wildlife biology, botany, hydrology or forestry. At the applicant's expense, the City may require the report to be reviewed by its environmental consultant.

1. The proposed mitigation must occur at a minimum 2 to 1 ratio of mitigation area to proposed disturbance area;
2. The proposed mitigation must result in a significant improvement of at least one functional value;

Section 4.1447, Adjustment From Standards, serves as a variance or relief from one or more of the ESRA standards. It does, however, require a public hearing (Type III permit procedure) and the application must be prepared by an environmental professional.

As indicated under "Application Requirements," an ESRA development permit application would normally be processed as a Type II development permit application (staff review/approval).

3. There will be no detrimental impact on resources and functional values in area designated to be left undisturbed;
4. Where the proposed mitigation includes alteration or replacement of development in a stream channel, wetland, or other water body, there will be no detrimental impact related to the migration, rearing, feeding or spawning of fish;
5. Mitigation must occur on the site of the disturbance as much as possible. If the proposed mitigation will not occur on the site of the disturbance, then the applicant must possess a legal instrument, such as an easement, sufficient to carryout and ensure the success of the mitigation;

4.1447 Adjustment from Standards. If a regulated ESRA-PV subdistrict use listed in Section 4.1437 cannot meet one or more of the applicable ESRA-PV standards then an adjustment may be issued if all of the following criteria are met. However, compliance with these criteria must be demonstrated by the applicant in a written report prepared by an environmental professional with experience and academic credentials in one or more natural resource areas such as ecology, wildlife biology, botany, hydrology or forestry. At the applicant's expense, the City may require the report to be reviewed by its environmental consultant. Such requests shall be processed under the Type III development permit procedure. The applicant must demonstrate:

1. There are no feasible alternatives for the proposed use or activity to be located outside the ESRA-PV area or to be located inside the ESRA-PV area and to be designed in a way that will meet all of the applicable ESRA-PV development standards;
2. The proposal has fewer adverse impacts on significant resources and resource functions found in the local ESRA-PV area than actions that would meet the applicable environmental development standards;
3. The proposed use or activity proposes the minimum intrusion into the ESRA-PV area that is necessary to meet development objectives;
4. Fish and wildlife passage will not be impeded; and
5. With the exception of the standard(s) subject to the adjustment request, all other applicable ESRA-PV standards can be met.

Application Requirements

4.1448 Type II Development Permit Application. Unless otherwise directed by the ESRA-PV standards, proposed development within the ESRA-PV subdistrict will be processed as a Type II development permit application. All applications must include the general development permit application items required by Section 11.0211 of the Gresham Community Development Code as well as a discussion of how the proposal meets all of the applicable ESRA-PV development standards.

A series of site plans are required as part of an ESRA development application. They would show where natural features such as creeks, wetlands, trees and other vegetation are located. They would also show the extent of proposed grading/construction within the ESRA, as well as the kind of natural features/resources that the applicant is proposing to establish by carrying out the mitigation plan.

4.1449 Required Site Plans. Site plans showing the following required items must be part of the application:

1. For the entire subject property (ESRA-PV and non-ESRA-PV areas):
 - a. The ESRA-PV subdistrict boundary. This may be scaled in relation to property lines from the Pleasant Valley Plan District Plan Map;
 - b. 100 year floodplain and floodway boundary (if determined by FEMA);
 - c. Creeks and other waterbodies;
 - d. Any wetlands, with the boundary of the wetland that will be adjacent to the proposed development determined in a wetlands delineation report prepared by a professional wetland specialist and following the Oregon Division of State Lands wetlands delineation procedures;
 - e. Topography shown by contour lines of 2 or 1 ft. intervals for slopes less than 15% and by 10 ft. intervals for slopes 15% or greater;
 - f. Existing improvements such as structures or buildings, utility lines, fences, driveways, parking areas, etc.
2. Within the ESRA-PV area of the subject property:
 - a. The distribution outline of shrubs and ground covers, with a list of most abundant species;
 - b. Trees 6 inches or greater in diameter, identified by species. When trees are located in clusters they may be described by the approximate number of trees, the diameter range, and a listing of dominant species;
 - c. An outline of the disturbance area that identifies the vegetation that will be removed. All trees to be removed with a diameter of 6 inches or greater shall be specifically identified as to number, trunk diameters and species;
 - d. If grading will occur within the ESRA-PV, a grading plan showing the proposed alteration of the ground at 2 ft. vertical contours in areas of slopes less than 15% and at 5 ft. vertical contours of slopes 15% or greater.
3. A construction management plan including:
 - a. Location of site access and egress that construction equipment will use;
 - b. Equipment and material staging and stockpile areas;
 - c. Erosion control measures that conform to City of Gresham erosion control standards;
 - d. Measures to protect trees and other vegetation located outside the disturbance area.

Density transfer is a tool to encourage placement of development outside of the ESRA area. It also helps to compensate property owners for any reduction of property values that would result from a loss of development potential within the ESRA area. A similar tool is part of our NR, Natural Resource, and WQRA, Water Quality Resource Area, overlays.

The basic transfer credit for the Pleasant Valley ESRA is 1 unit per acre of ESRA area that is located on a property. That credit can then be transferred to the non-ESRA area of the site. However, a density cap is placed on the non-ESRA area (the “density receiving area”) so that the resulting density cannot exceed 150% of the maximum allowed density that would be allowed in the non-ESRA area by the underlying zoning district.

4. A mitigation plan demonstrating compliance with Section 4.1455 or 4.1456, including:
 - a. Dams, weirs or other in-water features;
 - b. Distribution outline, species composition, and percent cover of ground covers to be planted or seeded;
 - c. Distribution outline, species composition, size, and spacing of shrubs to be planted;
 - d. Location, species and size of each tree to be planted;
 - e. Stormwater management features, including retention, infiltration, detention, discharges and outfalls;
 - f. Water bodies or wetlands to be created, including depth;
 - g. Water sources to be used for irrigation of plantings or for a water source for a proposed wetland.

4.1450 Mitigation Plan Report. A mitigation plan report that accompanies the above mitigation site plan is also required. It needs to discuss:

1. The resources and functional values to be restored, created, or enhanced through the mitigation plan;
2. Documentation of coordination with appropriate local, regional, state and federal regulatory/resource agencies such as the Oregon Division of State Lands and the U.S. Army Corps of Engineers;
3. Construction timetables;
4. Operations and maintenance practices to ensure the continued functioning of the mitigation area; and
5. Monitoring and evaluation procedures and a contingency plan for undertaking remedial actions that might be needed to correct unsuccessful mitigation actions during the first 5 years of the mitigation area establishment.

Miscellaneous

4.1451 Density Transfer. The Pleasant Valley Plan District allocates urban densities to the non-ESRA-PV portions of properties located partially within the ESRA-PV subdistrict, generally resulting in a substantial increase in net development potential. For lots of record that are located within the ESRA-PV Subdistrict, additional density transfer credits are allowed, subject to the following provisions:

1. Density may be transferred from the ESRA-PV Subdistrict to non-ESRA-PV portions of the same property or of contiguous properties within the same development site;

Occasionally, a survey may reveal that the actual location of the ESRA resources and its boundary on a site differs somewhat from the location as shown on the city's map. Section 4.1452, Modification of ESRA-PV Boundary, allows the mapped ESRA boundary to be adjusted to reflect its true location. A similar process is found in the WQRA overlay district. The ESRA map may also need to be changed to reflect development that is approved to be located within the ESRA (subtractions) as well as a mitigation site that is created to compensate for such development if the site is located outside the current ESRA boundary (additions).

2. The residential transfer credit shall be 1 unit per acre of land within the ESRA-PV Subdistrict (conventional rounding applies, e.g., a property with 1.5 or more acres of land in the ESRA-PV but less than 2.5 acres is eligible for 2 transfer credits).
3. For transfers to the Employment subdistrict, the transfer credit is 10,000 sq. ft. (FAR) per acre of land within the ESRA-PV Subdistrict;
4. The maximum gross density for the non-ESRA-PV area of the site shall not exceed 150% of the maximum density or FAR allowed by the underlying subdistrict;
5. The owner of the transferring property shall execute a covenant with the City that records the transfer of units. The covenant must be found to meet the requirements of this section and be recorded before building permits are issued; and
6. All other applicable development standards, including setbacks and building heights, shall continue to apply when a density transfer occurs.

4.1452 Modification of ESRA-PV Boundary. The ESRA-PV subdistrict boundary may have to be adjusted occasionally to reflect the true location of a resource and its functional values on a site as a result of a site specific environmental survey. Also, in those cases where an Environmental Report demonstrates that the Pleasant Valley Significance Matrix does not apply to a site-specific area. Also, in those cases where mitigation occurs outside the current ESRA-PV and/or part of a site within the ESRA-PV has been developed, the ESRA-PV boundary must be adjusted to recognize the relocation of the resource. Modifications of the ESRA-PV shall be processed under the Type II permit procedure.

The ESRA-PV boundary may be adjusted after the following has been met, as applicable:

1. Adding a mitigation area to the ESRA-PV subdistrict: An approved mitigation plan has been successful and a new restored, or enhanced resource site presently exists outside the ESRA-PV which should be included in the ESRA-PV for future protection.
2. Removing a recently developed area from the ESRA-PV subdistrict: All of the following has been met:
 - a. All approved development in the ESRA-PV subdistrict has been completed;
 - b. All mitigation required for the approved development, located within the ESRA-PV, has been successful; and
 - c. The previously identified resources and functional values on the developed site no longer exist or have been subject to a significant detrimental impact.
3. Correcting a map error: The proposed ESRA-PV boundary accurately reflects the true location of the resources and functional values on the site based on a site survey. The resources are identified in the natural resources inventory for Pleasant Valley.
4. Correcting application of Significance Matrix. The proposed ESRA-PV boundary adjustment demonstrates in an Environmental Report prepared by one or more qualified professionals with experience and credentials in natural resource areas, including wildlife biology, ecology, hydrology and forestry, that a resource function(s) and/or land feature(s) does not apply to a site-specific area.

4.1453 Corrections to Violations. For correcting violations, the violator must submit a remediation plan that meets all of the applicable standards of the ESRA-PV subdistrict. If one or more of these standards cannot be met then the applicant's remediation plan must demonstrate that there will be:

1. No permanent loss of any type of resource or functional value;
2. A significant improvement of at least one functional value; and
3. There will be minimal loss of resources and functional values during the remediation action until it is fully established.

4.1454. Consistency and Relationship to Other Regulations.

1. Where the provisions of the ESRA-PV subdistrict are less restrictive or conflict with comparable provisions of the Gresham Community Development Code, other City requirements, regional, state or federal law, the provisions that are more restrictive shall govern.
2. Development in or near wetlands and streams may require permits from the Oregon Division of State Lands (D.S.L.) and the U.S. Army Corps of Engineers. If a federal permit is required, a water quality certification from the Oregon Department of Environmental Quality may also be required. The Manager shall notify the Division of State Lands and the Army Corps of Engineers when an application for development within the ESRA-PV subdistrict is submitted. Because these agencies may have more restrictive regulations than the City, applicants are encouraged to contact them before they prepare their application.

Chapter 7. Transportation System Plan

Introduction

The purpose of the Pleasant Valley Transportation System Plan (TSP) is to establish a framework for addressing the transportation needs for this new urban community as urbanization occurs with the implementation of the Pleasant Valley Plan District. It is important that this TSP works within the framework provided by other related state, regional and local plans.

The Pleasant Valley TSP is not intended to be a “stand-alone” TSP but rather will be used by the Cities of Gresham and Portland to amend their respective Transportation System Plans specific to Pleasant Valley. For the City of Gresham it will amend Volume 4 – Transportation System Plan, Gresham Community Development Plan

Transportation System Plan

- Section 1 -- Planning Framework
- Section 2 -- Policies and Strategies
- Section 3 -- System Inventory and Assessment
- Section 4 -- Forecast and Alternatives
- Section 5 -- System Plans
- Section 6 -- Implementation – Projects and Funding

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 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, including preliminary cost estimates and funding strategies, including likely financing approaches.

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* project. Needed transportation facilities for the planned new urban uses were identified, rough cost estimates and likely funding strategies were developed, and a map depicting the general location arterial, collector and connecting local streets was included.

As a follow up to the concept planning, the *Implementation Plan* further defines the transportation system for the area by including the following elements:

- Functional Classification for Streets
- Street Design Types
- Connectivity Plan
- Bike and Trail Plan
- Illustrative Street Plan
- Transit Plan

The *Implementation Plan* project also identified transportation elements for a Public Facility Plan, consistent with Oregon Administrative Rules, specifically OAR 660-011-00. These elements are similar to those required for a Transportation System Plan, consistent with Oregon Administrative Rules, specifically OAR 660-012-00. Key requirements of the Transportation System Planning Rule include:

- A determination of transportation needs
- A road system of arterials and collectors and standards for the layout of local streets and other important non-collector street connections
- A public transportation plan
- A bicycle and pedestrian plan
- A transportation financing program including a list of planned transportation facilities and major improvement; a general estimate of the timing for facilities and improvements; a determination of rough cost estimates; and policies to guide selection of facility and improvement projects.

A key component to the successful implementation of the Transportation System Plan is the coordination of the multiple government agencies involved in Pleasant Valley, most notably the cities of Gresham and Portland. A March 2004 Gresham and Portland IGA provides a map showing future governance and urban services boundary for the two jurisdictions and generally provides the urban services will be provided by Gresham in areas that Gresham annexes (Area A) and by Portland in areas Portland annexes (Area B). Transportation services currently involved agreements with Multnomah County, which currently controls public roads in Pleasant Valley. The future status of roads in Pleasant Valley is part of an on-going discussion between Gresham and Portland. For planning purposes, the TSP assumes all major roads in Area A will belong to Gresham and conform to City of Gresham street design standards.

For the remainder of Pleasant Valley, which is in Clackamas County (Area C), a final decision on who will provide transportation services to most of this area has not yet been determined. The Cities of Portland and Gresham can serve this area, but do not have agreements in place with the county for doing so.

For planning purposes and to demonstrate that the area can urbanize in a manner that complies with Goal 11, the TSP assumes the cities of Portland and Gresham will serve the balance of Area C. The cities have plans in place that demonstrate its capacity to serve Area C. It can be noted that Clackamas County is a potential transportation service provider in Area C

The proposed Pleasant Valley TSP combines the results of the *Concept Plan* transportation inventory, needs analysis and the goals and policies development that resulted in conceptual transportation plan with the results of the *Implementation Plan* that details street classifications, street designs, connectivity and bike/pedestrian plans along and a public facility plan.

Section 1 -- Planning Framework

Background

Pleasant Valley is an area that was added to the region's urban growth boundary in December 1998 to accommodate forecasted population growth in the region. Pleasant Valley is planned as a new, urban community. It is 1,532 acres located south and east of the current city limits for Gresham and Portland. The City of Gresham, in partnership with the City of Portland, has been working with its regional partners and the community since 1998 to create a plan for the future urbanization of this rural area. This extensive planning process has created a vision and a plan for the transition of a rural community of 800 residents into an urban community of approximately 12,000 residents and 5,000 jobs.

Over the last four years the Pleasant Valley Plan District (Plan District) has been drafted. Crafted during the Pleasant Valley Concept Plan (Concept Plan) project and the follow-up Pleasant Valley Implementation Plan (Implementation Plan) project, it was created with the help of public input from open houses and community forums, numerous advisory committees, and staff from both the cities of Gresham and Portland and other agencies. The *Concept Plan* project created maps and text that provide a blueprint for future development of the area located south of Gresham and east of Portland. The *Implementation Plan* project provided a "bridge" document between the *Concept Plan* and these *Comprehensive Plan Amendments*.

On May 14, 2002, the Pleasant Valley Concept Plan Steering Committee endorsed a Concept Plan and set of Implementation Strategies for the valley. The central theme of the plan is to create an urban community through the integration of land use, transportation and natural resource elements. The Concept Plan has been refined into the Plan District. The Plan District consists of a map of proposed comprehensive plan designations, with associated code text, and other maps, diagrams and background findings.

The Plan District will fulfill the goal of the Concept Plan to create a quality living environment, with a sense of place that is unique to Pleasant Valley. To achieve this goal, the Plan District will implement compact mixed-use neighborhoods, a town center, neighborhood edges and centers, a variety of housing options, transportation alternatives, pedestrian friendly urban design and the integration of the natural environment into the design of the community. Critical to the sense of place in Pleasant Valley are the valley's natural resources and extensive network of streams and wetlands. The Plan District will allow the valley to develop in such a way that minimizes impact on these natural features, while allowing these features to enhance the built environment.

The *Pleasant Valley Concept and Implementation Plans* projects addressed the entire 1,532-acre study area to achieve the overall goal of "creating a complete community." The cities of Gresham and Portland have agreed to adopt similar policies and development code to achieve this goal. In addition, the cities reached an agreement on future governance that entails Gresham annexing about 1,004 acres and Portland about 268 acres in Multnomah County. No service or governance agreement exists in Clackamas County. However, the cities did agree upon a boundary if such an agreement was reached that provided for Gresham and Portland governance. If that happened about 197 acres are Gresham annexation areas and about 38 acres are Portland annexation areas. The remaining 25 acres is a separate area in Clackamas County that has an existing mobile home park and that has been partially annexed by the City of Happy Valley.

The Pleasant Valley Plan District provides the basis for a land use plan that is consistent with the goals of the Concept Plan. The central theme of creating an urban community through the integration of land use,

transportation and natural resource protection is reflected by the following key elements of the Plan District:

- A mixed-use town center as the focus of retail, civic and related uses.
- A variety of housing organized in eight neighborhoods. The variety includes low, medium and high-density housing with standards that guide how variety is planned within neighborhoods.
- Planned housing that is 50 percent attached, 50 percent detached and has an overall density of 10 dwelling units per net residential acre. The estimated housing capacity is approximately 5,000 dwellings.
- Two 5-acre mixed-use neighborhood centers.
- Employment opportunities provided in the town center, mixed-use employment district and general employment districts and as home-based jobs. Employment capacity is estimated at approximately 5,000 jobs.
- A framework for protection, restoration and enhancement of the area's streams, floodplains, wetlands, riparian areas and major tree groves through the designation of areas as "environmentally sensitive and restoration areas" (ESRAs).
- Designation of a "neighborhood transition design area" adjacent to the ESRA so that neighborhood development is compatible with adjacent green corridors.
- A new elementary school and middle school located adjacent to 162nd Avenue.
- Nine neighborhood parks dispersed throughout and a 29-acre community park centrally located between the utility easements north of Kelley Creek.
- A "green" stormwater management system intended to capture and filter stormwater close to the source through extensive tree planting throughout the valley, "green" street designs, swale conveyance and filtration of run-off, and strategically placed stormwater management facilities.
- A network of trails including east-west regional trails paralleling Kelley Creek and north-south regional trails following the BPA power line easement.
- A reorganization of the valley's arterial and collector street system to create a connected network that will serve urban levels of land use and all modes of travel.
- Re-designation of Foster Road from arterial to local street status between Jenne Road and Pleasant Valley Elementary School. The intent is to preserve the two-lane tree-lined character of Foster Road and to support restoration efforts where Mitchell Creek and other tributaries flow into Kelley Creek.
- A network of transit streets that serve three mixed-use centers and seven nodes of attached housing.
- The location of major roads away from important historic resources and "park blocks" that connect the town center to the historic central section of Foster Road.

Planning Context for Transportation

Regional Context

Adopted in 1995, the 2040 Growth Concept establishes the region's policy for regional growth and development. Pleasant Valley is almost equal distance between the two largest regional centers in this part of the region: the Gresham and the Clackamas regional centers. The same is true for the two closest

town centers: Lents and Damascus. Each of the region's centers is unique, and Pleasant Valley's town center will have its own individual scale and character.

Pleasant Valley enjoys a unique geographical location within a series of lava domes and wooded buttes in the southeast portion of the Portland metropolitan region. The area also contains a significant number of environmentally sensitive streams and wetlands, including Kelley and Mitchell creeks. While these natural features provide scenic vistas and recreational opportunities, they also provide challenges from a transportation perspective.

Pleasant Valley is connected to its surrounding landscape. Powell Butte, Butler Ridge and the western ridgeline provide a dramatic framing of the valley. Kelley Creek and its tributaries are key water features that connect the surrounding watershed to Johnson Creek and have influenced historical land use patterns. Kelley Creek also serves as a regional migration route for large and small animals traveling between the buttes. These features underlie a strong sense of place that residents of the valley expressed during the Concept Plan process and in previous interviews.

The Concept Plan study area extends to the regional urban growth boundary located about 2,000 feet south of the Multnomah-Clackamas County line. However, Pleasant Valley's landscape, social and historical connections extend south to the Damascus area.

Pleasant Valley Concept Plan

The Concept Plan was developed by a 23-member Steering Committee representing residents and property owners; Portland, Gresham and Happy Valley planning commissions; Multnomah and Clackamas counties; citizen advisory committees, business and neighborhood associations; Centennial School District, watershed councils, and environmental/livability organizations. The committee met 15 times between November 2000 and May 2002.

The major steps in the process were:

- Inventory of base conditions and projections of land use, transportation, natural resource and infrastructure needs.
- Establishment of project goals.
- Development of four alternative concept plans.
- Evaluation of alternatives and preparation of a hybrid Concept Plan.
- Refinement of the Concept Plan and preparation of implementation strategies.
- Endorsement of the final Concept Plan and implementation strategies.

The following is a summary of the key parts of the project approach:

Integration of Land Use, Transportation and Natural Resources. The integration of these themes is the central unifying concept for the plan. It was implemented on all levels: staffing, inventory, joint work team meetings, communications with the public and evaluation of alternatives on various issues.

Consensus Decision Making. The Steering Committee adopted "operating principles" that included a model for making decisions by consensus. The definition of consensus: "You either support the proposed action or can live with it." The committee took votes on some issues where there was not full consensus – minority viewpoints were recorded.

Project Partners. The process was a partnership of the cities of Gresham, Happy Valley and Portland, Metro, and Clackamas and Multnomah counties. Staff from these partnering governments worked together on the project's six work teams.

Working With the Community at Each Milestone. Five community forums were held to involve the public at each stage of the process and allow the public to participate in preparation of recommendations before final action by the Steering Committee. The forums, held on Saturday mornings, included open house display of working maps, presentation and large group discussion, small group discussion and exit questionnaires.

Subwatershed Planning. Pleasant Valley is at the headwaters of the Johnson Creek watershed. The tributaries to Johnson and Kelley creeks that flow through Pleasant Valley comprise eight individual “sub” watersheds that were used in the planning process. The subwatersheds were the basis for extensive information gathering and subsequent modeling of runoff under both “green” practices and traditional piped stormwater management.

Transportation Modeling and Regional Coordination. The land use alternatives and the hybrid Concept Plan were analyzed in Metro’s regional transportation model. Key assumptions included the transportation facility improvements that are adopted in the Regional Transportation Plan and urbanization of the Damascus area as evaluated by Clackamas County in the Damascus Concept Planning Study. The modeling was the basis for street alignments and classifications, transit routing, signal locations and recommendations for further study.

Green Streets. The Concept Plan includes “green” street designs as developed by Metro that are intended to reduce environmental impacts on streams from street runoff and contribute to community livability through creation of walkable tree-lined streets.

Compliance with Metro Title 11. Concept plans must follow the requirements and guidelines of Title 11 of Metro’s Urban Growth Management Functional Plan. The project work plan was organized around the topical elements of Title 11. The Steering Committee endorsed using Title 11 in the evaluation of the plan alternatives.

Coordination with State and Federal Agencies. The project began with an outreach effort to 20 state and federal agencies, including 12 interviews. As with the citizen effort, each agency was invited to participate at each major milestone. Supplemental contacts were made with agencies to involve them in meetings with the project work teams.

The Concept Plan process provided extensive opportunities for citizens to participate. These opportunities included input during many of the Steering Committee meetings, participation in five community forums and the design charrette and submittal of written comments.

Citizen input covered many topics and many levels of detail. Many citizens were concerned that the transportation system would not be adequate to carry the estimated levels of traffic in the future. This concern was coupled with support for specific elements of the plan’s proposed transportation system.

A number of goals endorsed by the Steering Committee on May 2, 2001, reflect the vision and values underlying the Pleasant Valley Plan District. They were endorsed at the end of the project inventory phase, just prior to the design charrette. They were subsequently used in evaluating the four plan alternatives.

The transportation goal was:

H. Provide transportation choices. Pleasant Valley will be a community where it is safe, convenient and inviting to walk and ride a bike. The plan will set the stage for future community-level transit service that connects to regional transit service, including street designs, land use types and densities that support transit. Recommendations will be developed to correct transportation safety issues, to address through traffic and to provide adequate capacity for future growth. The plan will coordinate with surrounding jurisdictions to create effective regional connections and a balanced regional transportation system. A well-connected street system will be planned, using a variety of street types that reinforce a sense of community and provide

adequate routes for travel. Streets will accommodate walking and biking, with special pedestrian features on major transit streets.

Other goals were to:

A. Create a community. The plan will create a “place” that has a unique sense of identity and cohesiveness. The sense of community will be fostered, in part, by providing a wide range of transportation choices and living, working, shopping, recreational, civic, educational, worship, open space and other opportunities. Community refers to the broader Concept Plan area, recognizing that it has (and will have) unique areas within it. Community also refers to Pleasant Valley’s relationship to the region – relationships with Portland, Gresham and Happy Valley, Multnomah and Clackamas counties, and the unique regional landscape that frames Pleasant Valley.

B. Create a town center as the heart of the community. A mixed-use town center will be the focus of retail, civic and related uses, and services that serve the daily needs of the local community. The town center will be served by a multi-modal transportation system. Housing will be incorporated into mixed-use buildings and/or adjacent apartments and townhomes. A central green or plaza will be included as a community gathering space. Streets and buildings will be designed to emphasize a lively pedestrian-oriented character for the town center. The town center will have strong connections to adjacent neighborhoods and commercial services that are centralized and convenient to pedestrian-oriented shopping.

C. Integrate schools and civic uses into the community. The number, type and location of schools will be coordinated with the Centennial School District. Schools and civic uses will be integrated with adjacent neighborhoods and connected by a system of bicycle and pedestrian routes. The number, type and location of mixed-use centers will be considered as schools and civic uses are integrated into the plan.

D. Celebrate Pleasant Valley’s cultural and natural history. The plan will retain the best of the past and incorporate the area’s cultural and natural history, as appropriate, into the new community form. Important cultural and natural names, places and themes will be included.

E. Preserve, restore and enhance natural resources. The plan will identify, protect, restore and enhance significant natural resource areas, including stream corridors, forested areas and buttes. Resource areas will provide the basis for identifying buildable and nonbuildable areas, and will serve as open space amenities for the community. Resource protection will include strategies to protect endangered species, water quality and the aquifer. Resource protection and enhancement will be a shared responsibility and partnership of property owners, governments and developers.

F. Use “green” development practices. The plan will incorporate community design and infrastructure plans that produce minimal impacts on the environment, including flooding and water quality within Johnson Creek. The plan will incorporate guidelines for stormwater quality and quantity and resource management for each subwatershed, and will also enhance natural hydrologic systems as a fundamental part of managing drainage and water quality. The plan will incorporate green street designs. The plan will integrate green infrastructure with land use design and natural resource protection. The plan will incorporate energy-savings measures.

G. Locate and develop parks and open spaces throughout the community. Neighborhood parks, small green spaces and open spaces will be within a short walk of all homes. A network of bicycle and pedestrian routes, equestrian trails and multi-use paths will connect the parks and open spaces. The park and trail system will be connected to the Springwater Trail, Powell Butte and other regional trails and greenspaces.

I. Provide housing choices. A variety of housing choices will be provided, with a focus on home ownership options. Housing options will accommodate a variety of demographic and income needs, including appropriate affordable choices and housing for seniors. The plan will provide for an overall

average residential density of 10 dwelling units per net residential acre (i.e., including only residential land), based on a mix of densities. Walkable neighborhoods will form the organizing structure for residential land use. Natural features will help define neighborhood form and character.

J. Provide and coordinate opportunities to work in and near Pleasant Valley. The plan will identify opportunities for home-based work and employment areas within Pleasant Valley. A range of employment opportunities will be considered, including retail and other employment. The plan also will consider the relationship of Pleasant Valley to existing employment centers in the East Metro area and potential new employment areas near Damascus.

Pleasant Valley Concept Transportation Plan

The key elements of the transportation plan (as integrated with land use and natural resources) are to:

- Create a network of arterial, collector, neighborhood connector and local streets that accommodates travel demand and provides multiple routes for travel. Key new street extensions and connections include:
 - 172nd Avenue extension north to Giese Road
 - Giese Road west to Foster Road
 - Clatsop Street west to Cheldelin Road
 - 182nd Avenue south to Cheldelin
 - Butler Road west to 190th Avenue
 - Sager Road east to Foster Road
 - Long-term arterial connection from 172nd to 190th Avenue south of the study area.
- 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 Pleasant Valley, with direct connections to Happy Valley, Clackamas regional center, Damascus, Lents, Gresham, the Columbia Corridor and downtown Portland. Transit streets include 172nd Avenue, Giese Road, 182nd Avenue, 190th Avenue, a new east-west collector south of Giese Road and Clatsop Street-Cheldelin Road.
- 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.
- Use “green” street designs that are an integral part of the stormwater management system and provide walkable tree-lined streets.
- Downgrade the function of Foster and Richey roads to serve as local access streets and develop a strategy to disconnect and potentially vacate these streets in the confluence area of Kelley Creek.
- Plan for a long-term major arterial connection south of the study area from 172nd Avenue to 190th Avenue to serve long-term regional mobility needs if future urbanization occurs in Damascus. This will be evaluated more fully by Metro as part of urban area planning for the Damascus area.
- Evaluate needed capacity improvements to address long-term travel demand for key gateway routes if future urbanization occurs in Damascus. This will be evaluated as part of a Powell/Foster corridor study (beginning in summer 2002), continued Damascus area planning, and the next Regional Transportation Plan update.

Transportation and Community Systems Preservation (TCSP)

The Pleasant Valley Concept Plan was initiated under a federal highway TCSP grant. It was a pilot project – the specific goal being to link a balanced land use plan and a multi-modal transportation system with an efficient circulation system with good connection in an environmentally constrained area. Environmental considerations included creating strategies to help protect steelhead and cutthroat trout salmonoids, minimize stormwater runoff in the Johnson Creek watershed and avoid further degradation of water quality.

Acknowledging the TCSP goals, the Steering Committee adopted a series of purpose statements. Included, as a purpose, was to “determine land use and transportation patterns minimizing the impact to environmentally sensitive areas” and to “link with regional context such as the regional transportation system, the Johnson Creek watershed and the Gresham Regional Center.”

Metro Powell/Foster Corridor Refinement Plan

Metro, along with the cities of Gresham and Portland, Multnomah County and Clackamas Counties; TriMet and the Oregon Department of Transportation has been conducting the Powell/Foster Corridor Transportation study. The overall goal of the project was to define and preliminarily evaluate an initial range of multi-modal alternatives that will accommodate the 2020 corridor travel demand in a way that supports the 2040 Concept Plan. This work serves as a first phase of a multi-modal corridor plan and refinement plan for the Powell/Foster transportation corridor.

The study was funded under a Transportation and Growth Management program grant and concluded in June 2003. Because the study area included portions of the Pleasant Valley Concept area, Gresham Pleasant Valley project staff participated on the Powell/Foster Technical Advisory Committee (TAC). Similarly, Metro Powell/Foster staff participated on the Pleasant Valley TAC, Stakeholder Advisory Group and public forums.

An existing conditions and needs analysis identified Jenne Road / 174th Avenue from Powell Boulevard to Foster Road as a particular trouble spot in achieving needed capacity between Pleasant Valley and points north. Jenne Road, in Pleasant Valley, has a functional classification as a minor arterial street. As there were concerns about widening Jenne Road (due to severe slopes, adjacent riparian habitat areas and existing substandard curves), three new options to Jenne Road was created and modeled:

Two-lane option. Jenne Road widened to include one lane in each direction plus turn pockets as needed from Powell Boulevard to Foster Road.

Extra southbound lane option. Jenne widened to three lanes with one lane northbound and two lanes southbound.

New road option. Construct a new two-lane road with turn pockets near 174th from Jenne to Giese and add turn pockets to Jenne as needed. This option would create a new 172nd/174th Avenue from the Springwater Trail to the proposed SE Giese Road in the Pleasant Valley project area. A preliminary engineering sketch would have the new road utilize the existing Platt Road north of McKinley Road and then go south to Giese Road creating a new stream crossing. It would be a two-lane road with turn pockets as needed. It would likely connect at Giese Road to the west of the proposed town center. With this option Jenne Road would become classified as a local street.

Preliminary findings of the modeling, as reported by Metro, include:

- Reconstructing Jenne and building a new road would range in cost from \$7 to \$16 million.
- The extra southbound direction lane option would only address traffic congestion in one direction.

- Constructing a new road would relieve congestion on Jenne and improve north-south connections, but it would increase traffic on Southeast 174th south of Powell.
- If a new road was built, it could be designed as a “green street” that helps to protect, enhance and restore the natural environment.
- Any of the options would require some property acquisition. The new road would impact more undeveloped property.
- Widening Jenne would affect a more sensitive environmental area, but the new roadway would require an additional stream crossing.
- All options would need to be evaluated in the context of the Pleasant Valley planning efforts (see comment below).
- Gresham, Portland and Metro should jointly further evaluate these options as part of future transportation system planning for Pleasant Valley.

It should be noted that Option 3 could significantly affect the design of the land uses and circulation in the Town Center area. The evaluation of Option 3 should be conducted with two major components that support the traffic impact perspective:

1. A review of the land use, natural resource and urban design implications of the options.
2. Opportunities to comment by Pleasant Valley stakeholders.

Section 2 – Policies and Strategies

Background

The Metro Council brought the Pleasant Valley area into the Urban Growth Boundary (UGB) in December 1998. 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 restoration; public facilities and services including parks and open spaces; and schools.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. The goals addressed a town center, housing, transportation, natural resources, neighborhoods and schools. The goal for transportation stated:

The area has inadequate rural road improvements and suffers from traffic congestion and unsafe road conditions and driving behaviors. Development of the area should be timed to coincide with road improvements. The transportation plan should include a system of local collectors and arterials that will provide sufficient north-south and east-west connectivity. Transit bus service should be included in any transportation plan. Other modes of transportation should also be available. Some of the roads in the area may be difficult to widen without significant environmental impacts. In some cases, a realignment or replacement should be considered. In general, roads should be planned and designed for speeds consistent with local uses rather than regional through traffic. For example, Foster Road provides for slower, safer speeds, particularly in the town center area. Biking and walking should be safely accommodated on all arterials and collectors.

Transportation Goal, Policies, Strategies

A transportation work team conducted a number of sessions during the Pleasant Valley Concept Plan process. The transportation work team consisted of transportation planning, land use planning and traffic engineering professionals from the Cities of Gresham and Portland, Multnomah and Clackamas Counties, Metro, TriMet, the Oregon Department of Transportation and DKS Associates (a private consultant firm).

The transportation work team identified four principles for a well-planned street system to help prevent traffic congestion, while promoting walking, transit and bicycling. Good design can also avoid the effects of heavy traffic on neighborhood safety and the environments.

Principle 1 – Spread out the Traffic. When designing streets it is important to not only consider the roadway's traffic function, but also other modes of travel and character of the surrounding community that the street will serve. Well designed arterial, collector and local streets are a good starting point for spreading out traffic in communities, and avoiding overly wide streets as a community and its neighborhoods grow.

Principle 2 – Design for Livability. The design of our streets directly affects our quality of life. Street design can promote community livability by emphasizing local travel needs and creating a safe, inviting space for community activity. Street design elements such as sidewalks, crosswalks, landscaped sidewalk buffers, bikeways, on-street parking, street trees, landscaping, street lighting, bus shelters, benches and corner curb extensions provide an environment that is not only attractive, but can slow traffic and encourage walking, bicycling and use of transit. Metro's handbook *Creating Livable Streets* provides examples of better design. Additionally streets can be designed to be "green", where features like streets,

landscaped swales and special paving materials can be used to limit stormwater runoff, which, in turn, helps protect stream habitat. Metro's *Green Streets* handbook is a resource for green street design and issues.

Principle 3 – Connectivity Works. On average, each household generates 10-12 automobile trips per day. A well-connected street system with reasonably direct connections encourages walking, bicycling, and transit use, and can reduce the number and length of these automobile trips. In well-connected street systems, local traffic is more dispersed, rather than focused on arterials where it combines with through-traffic to create congestion. With a well-connected system that provides multiple routes to local destinations, any single street will be less likely to be overburdened by excessive traffic. Police and fire response also benefits from a well-connected street system. Other benefits include: travel is more direct, better serves the development of main street and town centers as alternatives to commercial strip development, ideal for walking and biking because of more direct routes that are safer streets, allows streets to be narrower reducing costs, saving energy and reducing stormwater runoff, and allows for more frequent transit stops and ease of walking to transit stops.

Principle 4 – Copy What Works. There are a number of good street system examples in the Metro region. Older areas such as Laurelhurst (Portland), East Hill and Southeast Roberts (Gresham), Eastmoreland (Portland) and newer areas such as Fairview Village (Fairview), Tualatin Commons (Tualatin) and Orenco Station (Hillsboro).

GOAL

Pleasant Valley will be a community where a wide range of safe and convenient transportation choices are provided.

POLICIES

1. Pleasant Valley will be a community where it is safe, convenient, and inviting to walk, ride a bike and use transit. The network of streets shall accommodate walking and biking, with special pedestrian features on transit streets.
2. The community will be served by a balanced transportation system that serves all modes of travel and is coordinated with Gresham, Portland, Happy Valley, Clackamas County, Multnomah County, TriMet, ODOT, Metro and other transportation service providers to provide effective regional connections to the Pleasant Valley community.
3. The community will be served by community level transit service that connects to regional transit service, and include street designs, land use types, patterns and densities and pedestrian and bicycle improvements that support transit.
4. An efficient, well-connected street system will be planned, using a variety of street types that reinforce a sense of community, provide adequate routes for travel by all modes and preserve adequate right-of-way to serve future transportation needs.
5. Existing transportation safety issues will be addressed.
6. The Pleasant Valley Plan District map will serve as the basis for providing opportunities for through-travel on arterial streets and local access to community destinations on collectors, neighborhood connectors and local streets.
7. The plan district will provide a bicycle and pedestrian system that provides for safe, convenient, attractive and accessible bicycle and pedestrian routes on all streets. These routes shall connect the multi-use trail and parks and open spaces system, and to major activity centers such as schools, civic uses, neighborhood centers, employment areas and the town center.

8. The plan district will provide a multi-use trail system to serve as important off-street bicycle and pedestrian connections to schools, parks, commercial areas and neighborhoods within the Pleasant Valley community, particularly in areas near the confluence of Kelley and Mitchell creeks where streams limit street connectivity.
9. Transportation plans will use green street designs, as described in Metro's handbook titled *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and *Trees for Green Streets* as a resource in the development and design of streets.

ACTION MEASURES

1. As a near-term objective, downgrade the function of Foster and Richey roads in the confluence area of Kelley Creek to serve as local access streets. As a long-term objective, develop a strategy to disconnect and potentially vacate the vehicular function of these street segments while maintaining the opportunity for a local trail opportunity.
2. Establish street design standards that respect the characteristics of the surrounding land uses, natural features, and other community amenities. All streets shall be designed to support adjacent land uses, accommodate pedestrians and bicyclists and include green streets design elements that help minimize stormwater runoff. Design shall be based on the Pleasant Valley Street Designs adopted in the Pleasant Valley Concept Plan Implementation Strategies. In developing street designs utilize Metro publications *Creating Livable Streets*, *Green Streets: Innovative Solutions for Stormwater and Stream Crossings* and *Trees for Green Streets*. The plan district street design standards shall provide for:
 - a. Planting and preservation of trees in the street rights-of-way.
 - b. Continuous sidewalks along both sides of all arterial, collector, and local streets. Sidewalks should connect to side streets and adjacent sidewalks and buildings. Pervious sidewalk treatments should be considered.
 - c. Landscaped buffer separating travel lanes from sidewalks.
 - d. Direct and logical pedestrian crossings at transit stops and marked crossings at major transit stops.
 - e. Short and direct public right-of-way routes to connect residential uses with nearby commercial services, schools, parks and other neighborhood facilities.
 - f. Street design elements that discourage traffic infiltration and excessive speeds on local streets, such as curb extensions, on-street parking, and wider sidewalks and narrowed travel lanes.
 - g. Secure bicycle storage facilities such as bicycle racks and other park and lock accommodations at major destination points including the town center, transit center, recreation areas and office, commercial and employment centers.
 - h. Minimize impervious area and utilize the natural drainage system where practical.
 - i. Designing bridges to serve as civic gateways or focal points in the community. Establishing guidelines to help determine most appropriate stream crossing solution for each individual crossing.
 - j. Locating road and multi-use path stream crossing alignments to have the lowest level of impact on a stream or ESRA. Locational considerations shall include crossings perpendicular to the stream and along narrow stream segments. Trail crossings shall consider the needs of equestrians, where appropriate, and pedestrian and bicycle travel.

3. Adopt a local street network plan that includes functional classifications for streets, street design types, connectivity plan and standards and a bike and trail plan for the plan district. The local street network plan will:
 - a. Consider opportunities to incrementally extend streets from nearby areas.
 - b. Limit the use of cul-de-sac designs and other closed end street systems to situations where barriers such as existing development, topography and environmental constraints prevent full street connections.
 - c. Provide bicycle and pedestrian accessways where full street connections cannot be provided.
 - d. Investigate off-street bike and pedestrian connections where needed to link major community destinations, such as the town center, transit center, recreation areas and office, commercial and employment centers.
4. Realign 172nd Avenue as it passes through Kelley Creek ESRA to not follow creek and reduce impact area by keeping it as far west of confluence as practical and minimizing the bridge footprint in the creek and adjacent riparian area.
5. The plan district will allow for and encourage:
 - a. Efficient use of on-street parking to help reduce off-street parking needs
 - b. Shared parking agreements to reduce the size and number of parking lots
 - c. Shared driveways between adjacent development projects
 - d. Minimizing impervious area when developing parking lots
6. Educate business groups, employees, and residents about trip reduction strategies, and work with business groups, residents, and employees to develop and implement travel demand management programs, such as carpool matching, vanpool matching, flexible work hours, transit subsidies, parking management, bikes on transit and telecommuting to reduce peak-hour single occupant vehicles in Pleasant Valley.
7. Gresham, in coordination with Portland, will work with Metro, ODOT, Multnomah County, Clackamas County and other agencies as appropriate to:
 - a. Investigate needed safety and capacity improvements to address future travel demand in the Foster Road and Powell Boulevard corridors and implement study recommendations.
 - b. Evaluate the long-term need for an arterial connection between 172nd Avenue and 190th Avenue as part of urban area planning that responds to future urban growth boundary decisions.
 - c. Implement needed transportation improvements to serve Pleasant Valley and correct existing safety issues.
 - d. Implement regional corridor study recommendations and projects identified in the Regional Transportation Plan for key gateway routes, such as Sunnyside Road, Foster Road, Powell Boulevard, 172nd Avenue and 190th Avenue.
8. Expand the TriMet service boundary to include areas within Clackamas County to allow TriMet to serve this area. Work with TriMet to develop a transit plan for Pleasant Valley that:
 - a. Establishes a transit hub within the town center zoning district that provides transfer opportunities between regional and community transit routes
 - b. Implements recommended community and regional transit service.

- c. Determines appropriate locations and design of bus loading areas and transit preferential treatments such as reserved bus lanes and signal pre-emption to enhance transit usage and public safety and to promote the smooth flow of traffic.
 - d. That, with other transit service providers, and employers and social service agencies' efforts enhances access for elderly, economically disadvantaged, and people with disabilities.
9. Work with emergency service providers to designate emergency access routes.
10. Develop and implement a public facility and capital improvement plan that identifies, prioritizes and adequately funds transportation improvement, operation and maintenance needs.
- a. Consider system development charges, traffic impact fees, local improvement district fees, parking fees, street utility fees and other fee mechanisms to help pay for transportation improvements, including transit.
 - b. Apply for federal, state and regional funds through the Metropolitan Transportation Improvement Program (MTIP).
 - c. Encourage creative partnerships (e.g., federal, state, regional, multiple jurisdiction, private) to fund transportation improvements.
 - d. Develop a right-of-way preservation strategy for 172nd Avenue, Giese Road, 190th Avenue, and Clatsop Street extension to Cheldelin Road.
11. Work with Metro to amend the Regional Transportation Plan to reflect Pleasant Valley Plan District recommendations, including:
- a. Motor vehicle functional classification system, transit system, pedestrian system, bicycle system and street design classification system.
 - b. Transportation improvements and rough cost estimates.

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Section 3 – System Inventory and Assessment

Background

Existing transportation conditions were evaluated by a transportation work team that consists of planning and transportation staff from Portland, Gresham, Multnomah and Clackamas counties, TriMet, Metro, the Oregon Department of Transportation and consultants as part of the Pleasant Valley Concept Plan. The initial task of the work team was to develop a baseline inventory of the existing transportation system. The team conducted an inventory of the existing road network and transportation improvements identified in local and regional plans, and identified a preliminary list of issues for consideration as part of the Pleasant Valley Concept Plan process.

Transportation Conditions

During the past 30 years this farming community has evolved into a rural residential area. The area is currently served by a transportation system that was designed primarily to serve the farm-to-market travel needs of the agricultural uses that once occupied the valley. Foster Road, 172nd Avenue, Jenne Road, 190th Avenue, 182nd Avenue and Sunnyside Road are the primary routes that connect Pleasant Valley to other parts of the region.

Traffic volumes

Most travel out of Pleasant Valley is via Foster Road, which is limited in its ability to accommodate future traffic growth. Foster Road carries as many as 25,000 vehicles per day west of Jenne Road and 9,900 vehicles per day east of Jenne Road. (See Figure 2)

Jenne Road, which carries approximately 10,300 vehicles per day north of Foster Road, experiences a significant amount of traffic due to the lack of arterial street connections between Pleasant Valley and Gresham. 172nd Avenue also provides an important north-south connection for travel between Highway 212 and Foster Road. 172nd Avenue carries approximately 6,900 vehicles per day north of Sunnyside Road and 3,500 vehicles per day south of Sunnyside Road. Figure 1 shows one-way and two-way traffic volumes on major streets in Pleasant Valley.

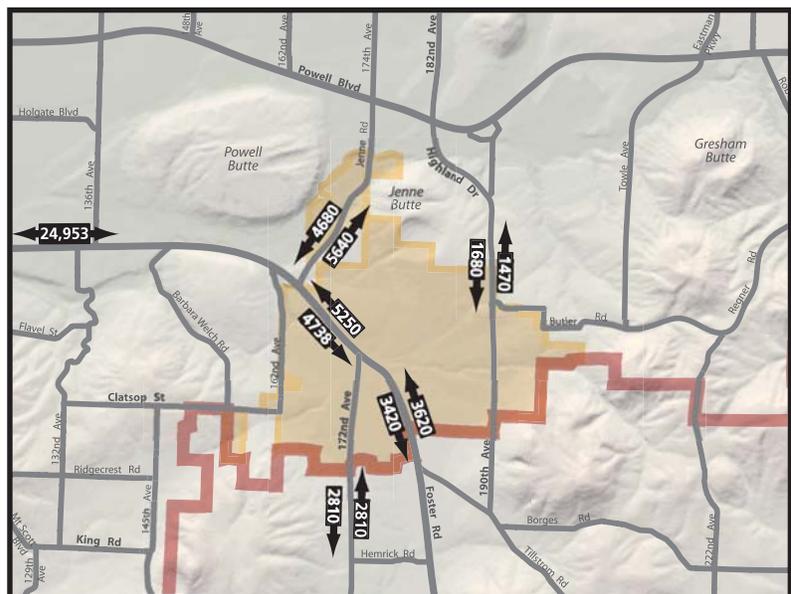


Figure 1. One-way and two-way traffic volumes on major streets in Pleasant Valley

Data sources: Data for Foster Road west of 136th Avenue is from 2000 City of Portland traffic counts. Data for Jenne Road is from 1996 Multnomah County traffic counts. Data for Foster Road between Richey Road and Cheldelin Road is from 1996 Multnomah County traffic counts. Data for Foster Road between 162nd Avenue and 172nd Avenue is from 1998 Multnomah County traffic counts. Data for 172nd Avenue from Foster Road to the Multnomah County line is from 1997 traffic counts.

Safety

Safety issues exist throughout the area due to topography, awkward intersections with difficult sight distances, and high speeds and traffic volumes. More than 20 intersections were identified by participants

in the first community forum as being unsafe because of one or more of these issues. In addition, many individuals indicated they often travel significantly out of direction to avoid congested locations and routes or intersections they feel are dangerous.

Transit travel

Pleasant Valley is not currently served by transit service. The nearest transit center and park-and-ride lot locations are Clackamas Town Center and Gresham regional center. The closest TriMet bus routes are the 157, which provides hourly service between Happy Valley and Clackamas Town Center, and the 82, which provides hourly service between Rockwood and Gresham.

Bicycle and pedestrian travel

Currently, bicyclists and pedestrians share roadways with motor vehicle traffic in Pleasant Valley. Bicycle and pedestrian travel is made difficult by limited connectivity in the area, narrow shoulders, high traffic volumes on major streets and difficult intersections. Few people walk in the area because of dispersed land-use patterns and a lack of pedestrian facilities. Metro's 1999 Bike There map designates Sunnyside, Foster and Jenne roads as caution areas for travel by bicycle. The Springwater Corridor Trail is the only multi-use trail serving the area. Other potential trail connections will be considered as part of the Pleasant Valley Concept Plan process.

Pleasant Valley Transportation Issues

This section identifies seven key transportation issues identified by the transportation work team and community forum participants. Each issue is followed by a general discussion of ideas the work team identified for further consideration as part of the planning process.

Issue 1: Develop a network of arterial and collector streets adequate to serve future growth in Pleasant Valley, while protecting environmentally sensitive areas and adjacent neighborhoods and rural reserves from the effects of urbanization.

Traffic analysis conducted as part of the update to the Regional Transportation Plan (RTP) demonstrated that future growth in Damascus and Pleasant Valley would likely have widespread effects on the regional transportation system, despite significant improvements to the primary routes serving the area. Additional analysis will be conducted as part of the Pleasant Valley Concept Plan process. It will be important to design the transportation system in a manner that supports the land use goals of the community, protects the natural features that define the area and improves community access by all modes of travel by providing a variety of travel choices. It will be equally important to locate the land uses in a manner that the transportation system can best serve it.

Issue 2: Currently, most travel out of Pleasant Valley is via Foster Road, which is limited in its ability to accommodate future growth in traffic. The cost of any improvements in the Foster Road corridor will likely be high due to topographic and environmental constraints.

Foster Road is an important connection between the Damascus/Pleasant Valley area and employment areas in the I-205 corridor and Portland. Foster Road has two functional segments. The first segment, from Portland central city to I-205, experiences significant levels of congestion today. The second segment, from I-205 to Pleasant Valley, is expected to experience heavy travel demand in the future.

Four related concerns have been identified for the eastern portion of Foster Road. First, intersections at 162nd/Foster Road and Jenne Road/Foster Road have safety problems today that need to be addressed. Next, environmental and topographic constraints limit future capacity expansion of Foster Road east of I-205. In addition, I-205 experiences significant congestion

today and directing most traffic to I-205 from Pleasant Valley via Foster Road will likely have significant implications for I-205 in the future. Finally, RTP analysis showed that despite widening Foster Road to five lanes from I-205 to Damascus and implementation of high quality bus service and a limited arterial and collector street network, the corridor experienced significant levels of traffic congestion. Any improvements to Foster Road will need to be evaluated in the context of the environmental and community impacts.

If an additional north/south route is provided (such as Foster/190th to 182nd Avenue) and the function and capacity of Powell Boulevard east of I-205 is upgraded to serve longer trips, then Foster Road could function more like a collector in the town center area. This strategy would be consistent with the RTP. Foster Road could be relocated/realigned to orient traffic onto north/south routes (i.e., 162nd Avenue or 190th Avenue). The potential for a new north/south connection east of Foster Road could also be examined. The location and shape of the Pleasant Valley town center should be designed in the context of the function of Foster Road.

The RTP recommended evaluation of street connectivity, potential parallel route improvements, system management strategies and rapid bus service along Foster Road. RTP analysis showed rapid bus service is expected to generate good ridership levels. Any transit improvements should include improvements to the pedestrian environment along the road, bus priority treatment at signals and improved access to bus stops.

Issue 3: Safety issues exist for all modes of travel due to topography, awkward intersections and high speeds and traffic volumes. Walking and biking is also made difficult due to a lack of facilities for these modes of travel.

Safety issues exist throughout the area due to topography, awkward intersections with difficult sight distances, and high speeds and traffic volumes. More than 20 intersections were identified by participants in the first community forum as being unsafe because of one or more of these issues. In addition, many individuals indicated they often travel significantly out of direction to avoid congested locations and routes or intersections they feel are dangerous. Cut-through traffic on existing roads was also identified as a significant issue.

Issue 4: 172nd Avenue could serve as an important link between the future Sunrise Highway to the south and the Columbia Corridor via 182nd Avenue to the north. Regional transit service in this corridor could also link Pleasant Valley neighborhoods to the commercial services in the town center and the Gresham and Clackamas regional centers.

Currently, 172nd Avenue is a narrow two-lane farm-to-market road. The 2000 RTP evaluated the comparative advantages of 172nd Avenue over Foster Road (east of 172nd Avenue) as the primary connection to Highway 212. 172nd Avenue has fewer topographic constraints, and provides more direct access to planned industrial areas along Highway 212. 172nd Avenue is also more centrally located to the Pleasant Valley/Damascus area. Based on this evaluation, the 2000 RTP upgraded 172nd Avenue to be a Major Arterial. This change in classification could transform this route into the north/south spine for the area, linking Pleasant Valley to the future Sunrise Corridor Highway to the south and Gresham and the Columbia Corridor via 182nd Avenue to the north. The location and shape of the Pleasant Valley town center should be designed in the context of the function of 172nd Avenue. The RTP recommended providing parallel routes to 172nd Avenue and more direct regional bus service linking Gresham, Pleasant Valley and Clackamas along the Sunnyside Road/172nd Avenue/Towle Road/Eastman Parkway alignment.

Issue 5: The existing street system is not adequate to serve future town center growth. Connect Pleasant Valley to major streets in Gresham, Portland and Happy Valley in a manner that provides alternatives to Foster Road while protecting existing neighborhoods from traffic infiltration.

Additional connections and improvements to existing streets are needed to increase access from Pleasant Valley to other parts of the region. Currently, there is a lack of north/south arterial routes serving this area, which could create significant traffic congestion in the future without additional street connections in Pleasant Valley. An evaluation of new north/south street connections would need to address the potential impact of traffic generated in the Pleasant Valley area on adjacent neighborhoods. A number of potential connections could take pressure off the Jenne Road route that is currently used. Possible connections to be examined include: 172nd Avenue extension to 190th, Foster Road to Towle Road and 172nd Avenue to 162nd Avenue around Powell Butte. 162nd Avenue is one of the few north/south routes that connect to the Columbia Corridor employment area. The area around the base of Powell Butte has significant topographic and environmental constraints. Highland Drive is currently a three-lane collector street that connects SW Gresham to Powell Boulevard and 182nd Avenue. The route traverses Jenne Butte and crosses Johnson Creek.

Pleasant Valley also lacks an adequate number of east/west arterial routes to serve this area. It will be important to identify potential east/west connections to improve access from the Pleasant Valley area to Clackamas regional center area to reduce demand for Sunnyside Road to the south. The current Happy Valley TSP identifies only one potential east-west connection to the Pleasant Valley area given environmental and topographic constraints. The committee felt the planning process should address the Scouter's mountain "island," potentially using the future street plan for Pleasant Valley to define the edges of this rural reserve. One possible connection could be an extension of Clatsop Street to Foster Road.

RTP analysis showed that expanded transit service via Sunnyside Road and 172nd Avenue was promising in combination with improvements to parallel routes and widening Sunnyside Road between the Clackamas regional center and Pleasant Valley. The RTP recommended evaluation of additional street connectivity, potential parallel route improvements and system management strategies along the eastern portions of Sunnyside Road.

As new arterial street connections are identified, it will be necessary to balance land use and transportation planning to keep neighborhood infiltration to a minimum. Implementation strategies could include measures within these adjoining neighborhoods to make them less attractive to through-traffic intrusion.

Issue 6: By providing local circulation and access from growing neighborhoods to the town center, community level transit service will be an important component of serving travel needs in Pleasant Valley.

Pleasant Valley is not currently served by transit service. Implementation of more locally oriented transit service and connecting local service to regional service will need to be addressed as part of the transportation plan for the area, including connections to Gresham transit center, Clackamas transit center and downtown Portland. Some sort of a transit hub could be established as part of the land use and transportation plan for the town center to serve that important connection.

Issue 7: The topography of Pleasant Valley and the need to protect streams will require an emphasis on providing bicycle and pedestrian connections where full street connections are not possible. These connections could be further complemented by multi-use trails that connect Pleasant Valley neighborhoods to schools, parks, commercial services, existing multi-use trails and Damascus. As a result, bicycle and pedestrian access and safety, including an extended trail system, will also need to be addressed as part of the transportation plan for this area.

Street connectivity within the town center is important, and should complement the broader goals of tying together existing and future streets so that the town center has a high level of

connectivity. Improved street connectivity can help keep local auto trips on local streets without placing an undue burden on the arterial streets like Foster Road and Sunnyside Road, and provides better access for pedestrians, bicycles and transit users. With an interconnected system that provides multiple routes to local destinations, any single street will be less likely to be overburdened by excessive traffic. Emergency response vehicles also benefit from a well-connected street system.

Community forum discussions revealed that many people drive to access the Powell Butte and Springwater Corridor trail systems and share a desire to have a network of sidewalks, bike facilities and multi-use trails linked to existing trails systems. Better equestrian access to trails and natural areas in Pleasant Valley was also identified as important to many people during the first community forum. In addition, a safer equestrian crossing at SE 162nd Avenue and Foster Road to improve access to Powell Butte has been identified as a need.

Green street designs help reduce impervious surface and incorporate on-site stormwater management within the right-of-way through the use of vegetative filter strips, swales, linear detention basins, infiltration trenches, permeable pavement and tree planting. Street alignments should follow natural contours and features as much as possible, which can help optimize implementation of green street designs. Metro has studied green streets over the same timeline as the Pleasant Valley Concept Plan study using Pleasant Valley as a case study. It recommends innovative approaches to stormwater management and stream crossings using green streets in its handbook – Green Streets – Innovative Solutions for Stormwater and Stream Crossing. Also published by Metro is the Trees for Green Streets – An illustrated guide handbook.

Metro's Green Streets manual states that bridges are preferred for all stream crossings but they tend to be a more expensive option than culverts. It notes that bridges tend to become more economically justifiable when required hydraulic opening exceeds 15 feet in span (active channel width) or 10 feet in diameter. It also notes that bridges are preferred for fish passage when stream channel slopes exceed 5 percent. A bridge design principle is that bridge abutments, piers and foots should be located outside the bankfull channel.

Section 4 – Forecasts and Alternatives

Summary

The year 2020 forecast travel volumes were simulated using the Metro regional travel demand model. For travel forecasting, land use assumptions are broken down into geographic areas called transportation analysis zones (TAZs). Typically, a TAZ encompasses commercial districts, community areas or neighborhoods within its boundaries. These TAZ areas form the basis for estimating travel for each person.

Population and employment information is assigned to each TAZ based on the adopted comprehensive plans, or, in the case of Pleasant Valley, on the alternative concept plan designations. The travel model translates these assumptions into person trips on the transportation system. Traffic volume projections from these simulations help identify future road needs and alternative arterial and collector street networks. Due to limitations with the regional model, it is not possible to effectively analyze walking, biking or local street traffic volumes.

The 2020 priority system of improvements adopted in the Regional Transportation Plan served as the basis for the future road and transit network assumed for this analysis, with the addition of a more detailed street network for Pleasant Valley and Damascus.

Household and Employment Assumptions for Pleasant Valley and Damascus

Pleasant Valley Household and Employment Assumptions

Household and employment assumptions for Pleasant Valley were developed using Geographic Information Systems (GIS). The capacity for households and employment was calculated and assigned to TAZs for traffic analysis. Table 1 provides a detailed summary of the household and employment assumptions by TAZ for the March Hybrid Concept Plan. Table 2 summarizes household and employment information for the March hybrid that was modeled and the final concept plan endorsed by the Pleasant Valley Steering Committee on May 14, 2002. A traffic analysis of the May 14, 2002 Pleasant Valley Concept Plan was not performed because the March hybrid plan and the final Concept Plan have the same major road system and only a very minor difference in land use assumptions. Figure 2 shows the TAZ boundaries used for analysis of this part of the region.

Table 2. Pleasant Valley 2020 Land Use Forecasts

Land Use	2020 March Hybrid	Final Concept Plan
Households	5,092	5,048
Retail Employees	556	495
Other Employees	4,608	4,498

Source: OTAK and Metro

Table 1. Summary of March Hybrid Concept Plan Household and Employment Assumptions for Refined 1260 TAZs

Refined 1260 TAZ	Households	Retail Jobs	Non-Retail Jobs
476*	1,277	0	217
539*	463	0	46
564	421	41	65
565*	553	70	397
580*	304	0	30
581*	861	0	199
1300*	537	0	201
1305*	977	0	162
1306	420	41	65
1307	830	104	596
1308	1,382	174	993
1309	577	10	106
1310*	577	10	106

* indicates portion of Pleasant Valley study area is located in TAZ.

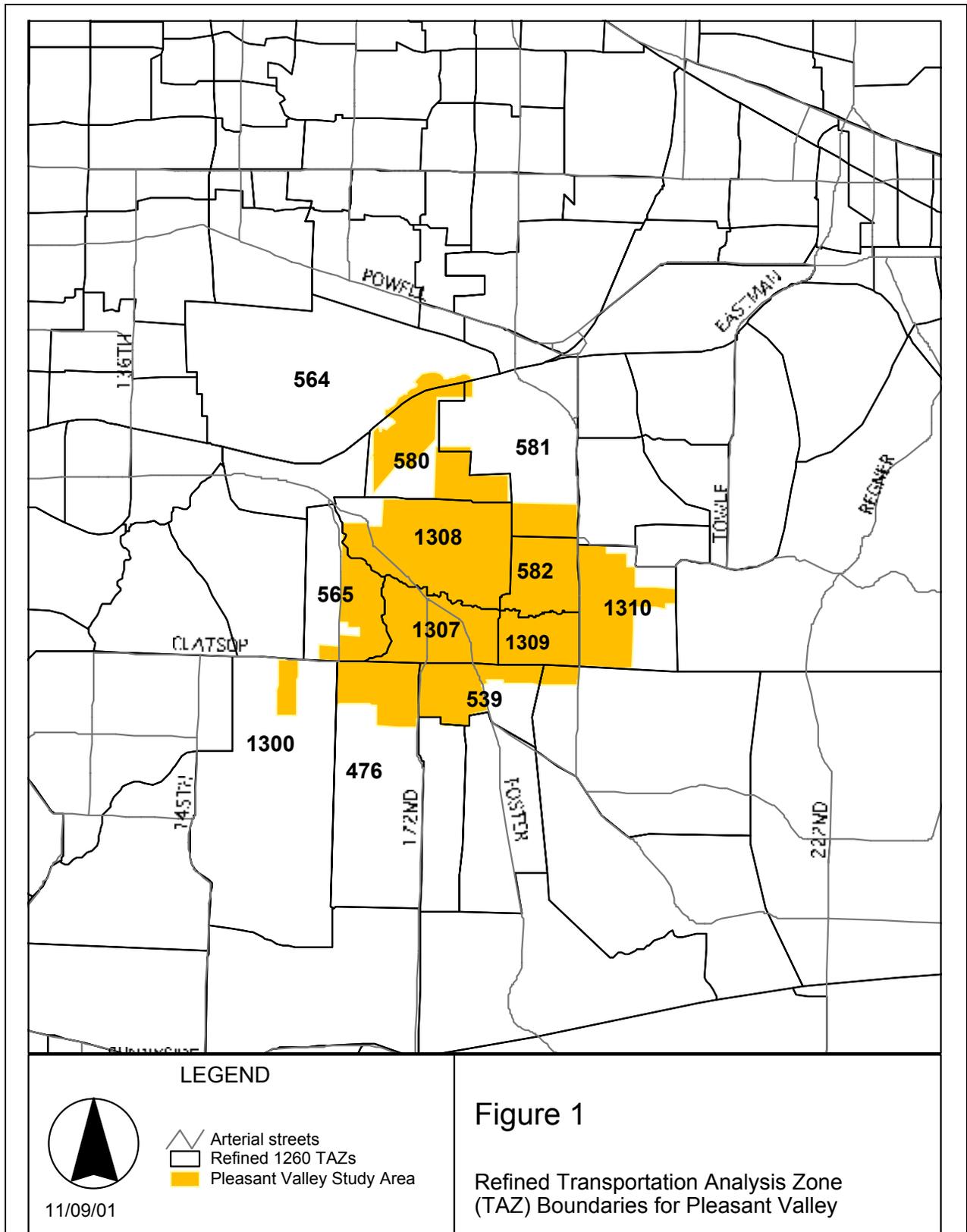


Figure 2. Refined Transportation Analysis Zone (TAZ) Boundaries for Pleasant Valley

Damascus Household and Employment Assumptions

Household and employment assumptions from Test Scenario 2 of the Damascus Concept Planning Study were used for purposes of modeling with two exceptions:

- **Additional housing is assumed to meet regional requirements.** As modeled in the Damascus Study, Test Scenario 2 provided 9 dwelling units per buildable residential acre for a total of 10,372 dwelling units within the Damascus study area. This does not meet the regional requirement for a minimum of 10 dwelling units per buildable residential acre. In order to meet the regional requirement and for purposes of Pleasant Valley modeling, the dwelling unit assumption for Test Scenario 2 was factored up 10 percent, to a total of 11,409 dwelling units. The increase in dwelling units was assumed within and adjacent to the two town centers identified in Test Scenario 2.
- **Southwest corner of the study area is assumed to be employment.** As modeled in the Damascus study, Test Scenario 2 provided 11,651 jobs. The Damascus study found that the southwest corner of the study area included the largest sites with the greatest opportunity for land assembly to create strategic employment sites. In Test Scenario 1, the southwest corner was assumed to provide nearly 3,000 jobs. In addition, the 2040 Growth Concept identifies this area as employment. Test Scenario 2 assumed neighborhoods in the southwest corner of the study area. Based on these two factors, the southwest corner of the study area will be assumed to be employment uses for purposes of Pleasant Valley modeling, adding the nearly 3,000 jobs assumed in Test Scenario 1. This change in land use assumptions increases the amount of employment within the study area to 13,170 jobs. The 574 dwelling units assumed in Test Scenario 2 will be assumed within and adjacent to the two town centers.

Table 3. Damascus Land Use Summary

Land Use	2000	2020
Households	1,481	11,409
Retail Employees	238	2,869
Other Employees	950	10,301

Source: Damascus Concept Planning Study with modifications explained above.

Transportation Assumptions for Pleasant Valley and Damascus

Pleasant Valley arterial and collector street network

In Pleasant Valley, a system of arterial and collector streets was developed for modeling purposes. Figure 3 shows the transportation network and corresponding 2-Hour PM Volumes. Table 4 summarizes arterial and collector assumptions.

Table 4. Pleasant Valley Transportation Summary

Key Roads	Number of lanes	Speeds
Major arterials	4 lanes with turn lanes	20-35 mph
Minor arterials	2 lanes with turn lanes	20-35 mph
Collectors	2 lanes with turn lanes	20-35 mph

Note: Speeds vary by land use. Speeds are assumed to be 20-25 mph in town centers and near parks and schools. Speeds are assumed to be 35 mph in other areas. Speed assumptions do not have a significant impact on travel behavior in the model, but are intended to simulate driver behavior given free-flow traffic conditions (as opposed to posted speed).

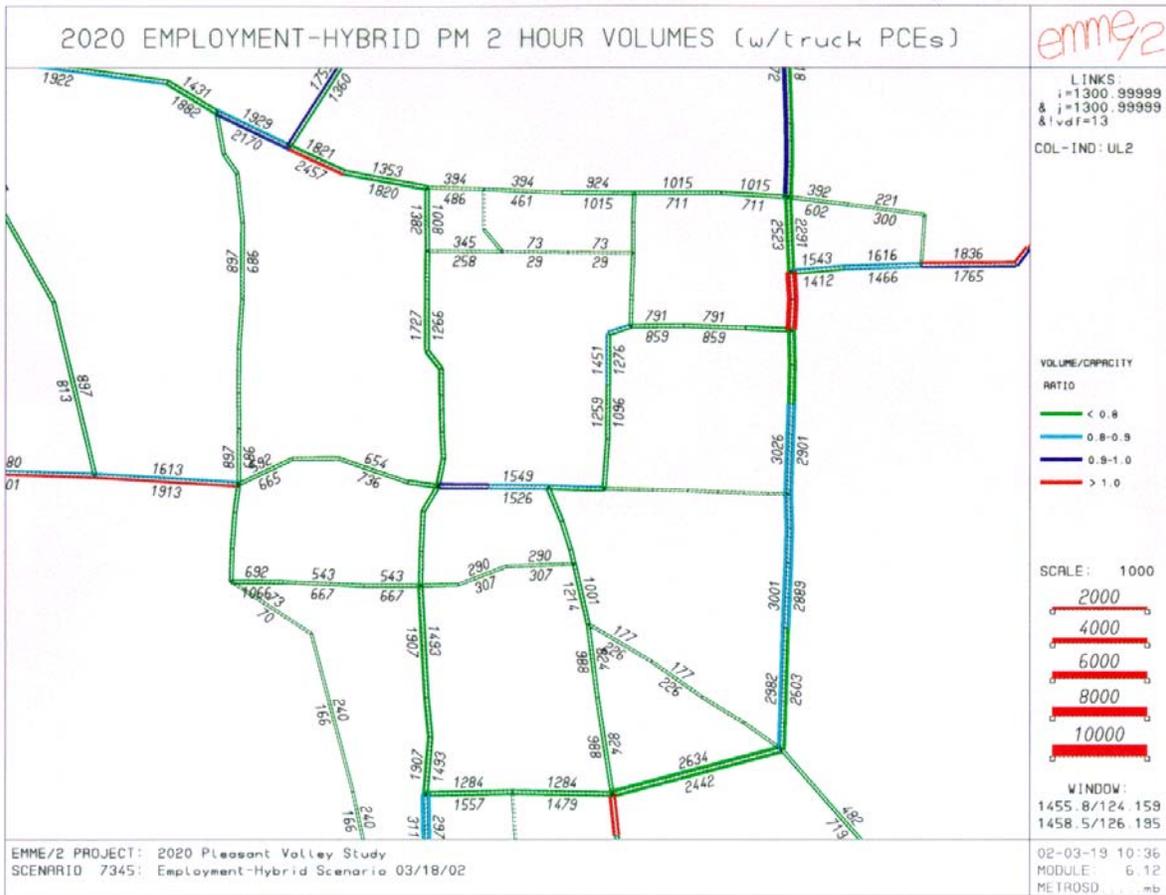


Figure 3. March Hybrid Pleasant Valley 2-hour PM Volumes

Damascus arterial and collector street network

In Damascus, the street network assumptions also include several east-west and north-south collector streets that were modeled as part of the Damascus study. Though these are conceptual in nature, they are roughly equal in spacing and capacity to streets being tested in the Pleasant Valley study. Figure 3 shows the transportation network assumed for the Damascus area and the corresponding 2-hour PM volumes. Table 5 summarizes assumptions for key roads in Damascus. The assumptions for Foster Road and

Table 5. Damascus Transportation Summary

Key Roads	Number of lanes	Speeds
Foster Road	2 lanes with turn lanes	20-35 mph
172nd Avenue	4 lanes with turn lanes	20-35 mph
Sunnyside Road	4 lanes with turn lanes west of 172 nd Ave. 2 lanes with turn lanes east of 172 nd Ave.	20-40 mph
Sunrise Corridor	4 lane freeway with interchanges at Hwy. 224, 172 nd Ave., 242 nd Ave. and US 26	55 mph
Highway 212	4 lanes with turn lanes	35-40 mph

172nd Avenue are the same across both study areas. The assumptions for the Sunrise Corridor and Highway 212 are consistent with the Regional Transportation Plan.

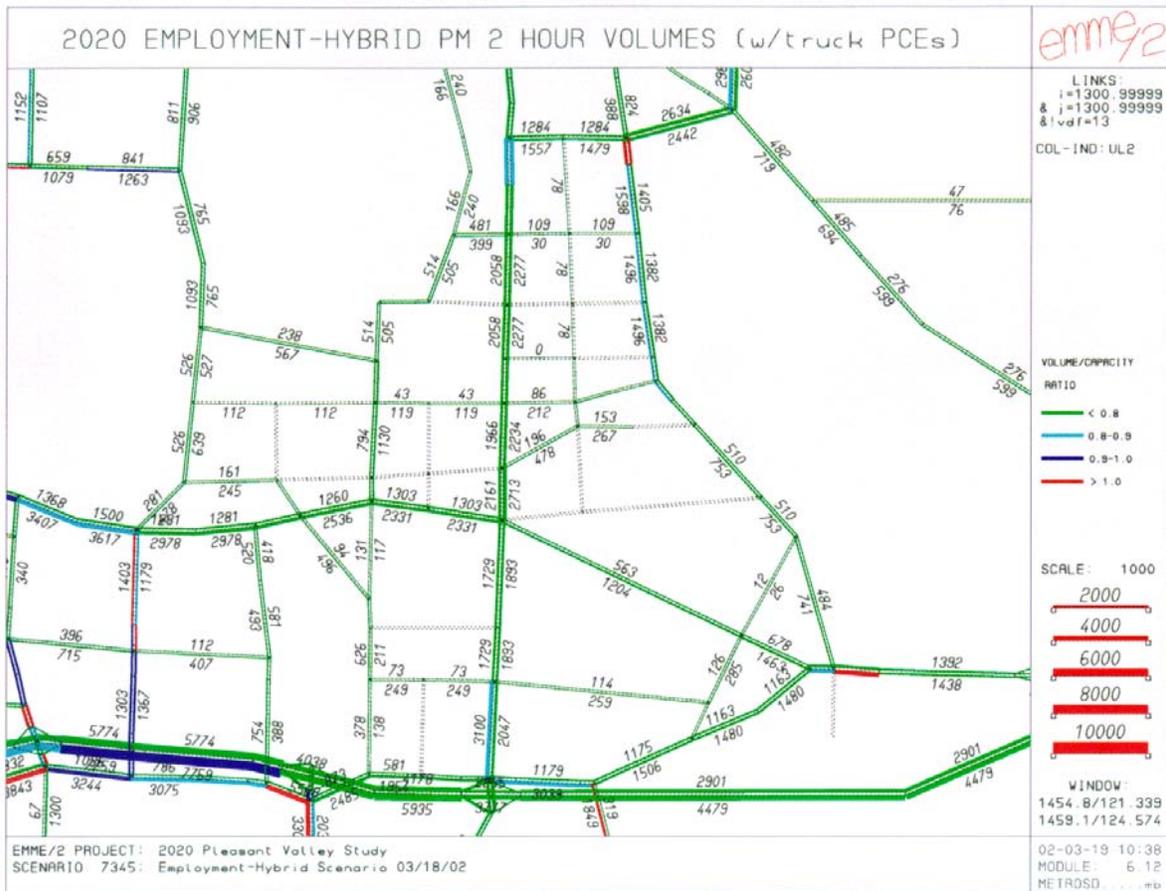


Figure 4. March Hybrid Damascus 2-hour PM Volumes

Pleasant Valley local street network

Additional neighborhood connector and local streets were assumed for each alternative, but were not modeled for traffic impacts due to limitations with the regional travel demand model. Neighborhood connectors serve as important connections for local access within Pleasant Valley as the primary network for local trips. Local streets are intended to provide access between people’s homes and the neighborhood connectors. The local street system includes local and neighborhood connector street connections every 530 feet except where prevented by existing development or environmental and topographic constraints. Bike and pedestrian accessways are provided every 330 feet where full street connections cannot be provided.

Pleasant Valley stream crossings

In general, the stream crossing locations followed Metro’s *Green Streets* handbook guidelines for full street crossings every 800-1200 feet and bike/pedestrian only crossings in sensitive environmental areas

or where additional connections were needed to provide access to community activity areas such as the town center, schools and parks. Local street stream crossings have also been identified for each alternative.

Pleasant Valley multi-use trail system

A multi-use trail system is also assumed for each Pleasant Valley Concept Plan alternative to complement the arterial, collector and local street network by providing additional off-street connections to community destinations such as schools, parks, commercial services and the regional trails network. The trail system was the same for each alternative.

1. A trail on either side of the main stem of Kelley Creek running east and west. At the east edge of the project area the trail head north to connect with the Gresham Butler Creek trail and south to connect with Metro’s open space parcel.
2. A trail that runs north and south through the project area via the BPA/Northwest Natural Gas line easement. This trail connects with the Springwater Corridor trail and bisects the Kelley Creek Trail.
3. A north and south trail at the west end of the project area. The trail connects with the Springwater Corridor trail at about the 162nd Avenue grid line and runs partially along the Kelley Creek trail and then runs along Mitchell Creek.

Transit Service

Regional and community transit service is provided on key roads in Pleasant Valley, with direct connections to Happy Valley, Clackamas regional center, Damascus, Lents, Gresham, the Columbia Corridor and Portland for each alternative. In general, the transit service modeled in the 2000 RTP Priority System served as the starting point for developing these assumptions. The coverage and frequency of transit service was the same for each concept alternative. Routing of service varies within the Pleasant Valley study area for each alternative, reflecting the different street systems. A transit center location has not been identified to serve Pleasant Valley, however, transfer opportunities are provided within the Pleasant Valley town center for modeling purposes.

Table 6 summarizes the transit service that will be modeled in each alternative. A more detailed description of the service and passenger amenities follows Table 6.

Table 6. Pleasant Valley Transit Summary

Service Type	Route	To/From	Peak Service	Off-Peak Service
Rapid Bus	Powell Boulevard/Foster Road	Downtown Portland to Damascus	Every 10 minutes	Every 15 minutes
	Foster Road	Lents to Damascus	Every 10 minutes	Every 15 minutes
Frequent Bus	Sunnyside Road	Clackamas regional center to Damascus	Every 7 minutes	Every 15 minutes
	172nd Avenue/190th Avenue	Damascus to Gresham	Every 10 minutes	Every 15 minutes
Regional Bus	Town center/190th Avenue/181st Avenue/Airport Way	Pleasant Valley town center to Columbia Corridor	Every 15 minutes	Every 15 minutes

	82nd Avenue/Sunnyside Road/97th/Stevens/ Mather Road/122nd/ 145th/Clatsop/172nd/ Foster Road	Clackamas regional center to Lents	Every 10 minutes	Every 15 minutes
Community Bus	Foster Road/ Butler Road/Towle Road	Damascus to Gresham	Every 15 minutes	Every 30 minutes
	Pleasant Valley loop	Within study area	Every 15 minutes	Every 30 minutes

Rapid bus

Typically, this service runs at least every 15 minutes. Passenger amenities are concentrated at transit centers. Rapid bus passenger amenities include schedule information, ticket machines, special lighting, benches, covered bus shelters and bicycle parking. Rapid bus stops are located approximately every 1/2-mile.

Frequent bus

Typically, this service runs at least every 10 minutes and includes transit preferential treatments such as reserved bus lanes and signal preemption and enhanced passenger amenities along the corridor and at major bus stops such as covered bus shelters, curb extensions, special lighting and median stations. Frequent bus service provides slightly slower, but more frequent, service than rapid bus service.

Regional bus

Typically, this service operates at maximum frequencies of 15 minutes. Transit preferential treatments and passenger amenities such as covered bus shelters, special lighting, signal preemption and curb extensions are appropriate at high ridership locations.

Community bus

Community bus lines provide localized access from Pleasant Valley neighborhoods to Happy Valley, Damascus, Gresham, and regional transit service and community destinations, such as parks, schools and the town center. Community bus will connect to regional bus service within Pleasant Valley and Gresham via Butler Road/Towle Road in each alternative. Community bus service runs as often as every 30 minutes on weekdays. Weekend service is provided as demand warrants. This service could be implemented through a partnership between TriMet and local jurisdictions.

Alternatives

Four concept plan alternatives were created during a five-day design charrette (May 15 – 19, 2001). Some key features and advantages of this design charrette were to:

- Provide a forum for ideas on how to fulfill the project goals and make a great community.
- Provide immediate feedback to the designers, and the ability to test illustrated ideas in real time.
- Build consensus by giving mutual authorship to the plan by all those who participate.
- Promote participation (and working together) by a wide variety of people potentially affected by the plan.

The four concept plan alternatives chiefly varied in the major road system alignment and resulting companion land use patterns. See Figure 5.

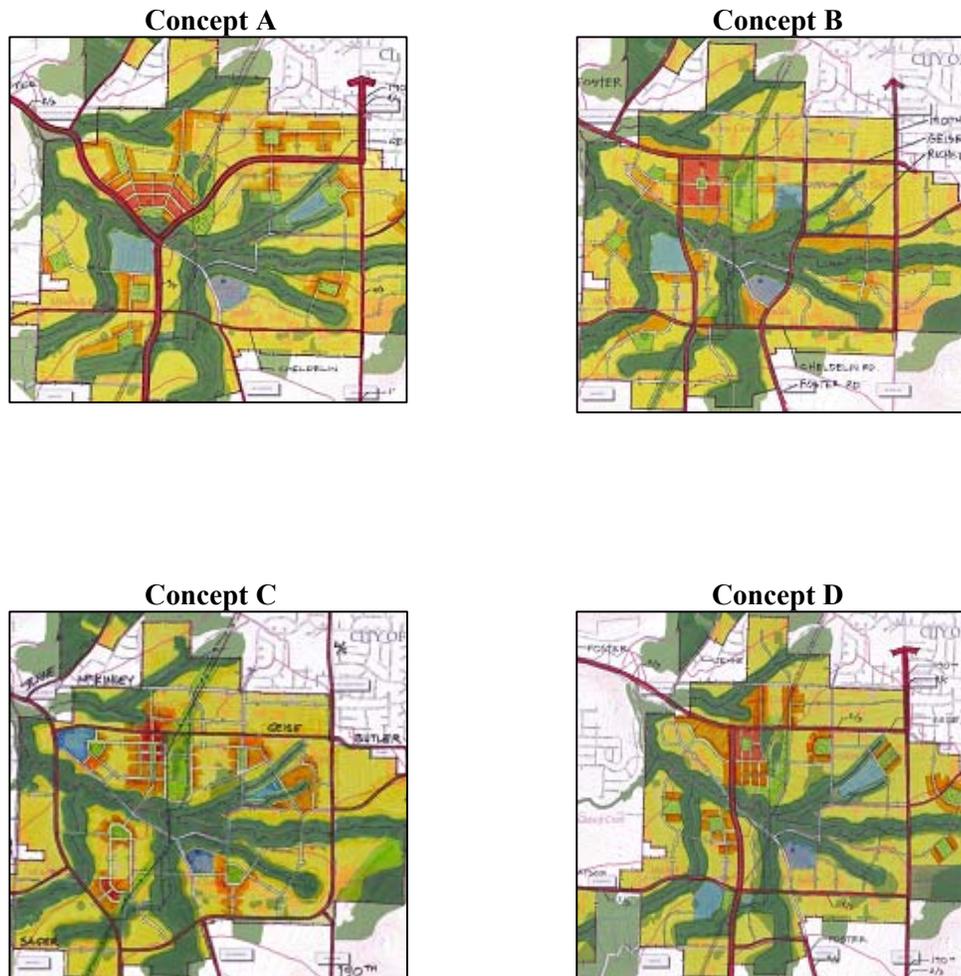


Figure 5. Four Design Charrette Alternatives

The Transportation Work Team analyzed the four concept plan alternatives using the regional travel demand model and other data to determine how well each of the concepts meet the Transportation Goal and other transportation-related goals. The Steering Committee endorsed evaluation measures to assist in the evaluation. Transportation related measures were:

- The plan is consistent with regional level-of-service standards as indicated by an evaluation of key gateway locations.
- The plan is consistent with regional connectivity standards (530 feet for streets/330 feet for accessways) and street design guidelines.
- The plan includes an adequate hierarchy of streets that serve different functions (e.g., arterials, neighborhood connectors and local streets) as indicated by a street system that provides opportunities for through-travel on arterial streets and local access to community destinations on neighborhood connectors and local streets.
- The plan includes community and regional transit service that is supported by street design, a mix of land uses and transit-supportive densities.

- The plan provides for bicycle and pedestrian routes on all streets. These routes are connected to a multi-use trail and parks and open spaces system and to major activity centers such as schools, civic uses and the town center.
- The number of homes within 1/4-mile without crossing an arterial street (for elementary schools) and 1/4-mile crossing no more than one arterial street (for middle schools).
- The number of housing units within 1/4-mile of future regional transit service.

The evaluation process led to the creation of a “hybrid” concept plan. The hybrid concept plan included elements of the different alternatives that were deemed to best meet goals. It also included new ideas and elements that were identified as meeting the goals better than any of the alternatives.

In summary, the transportation analysis found that the arterial and collector street system was sized appropriately within the study area for all concepts for the 20-year plan period, with Concept D costing the least and performing the best in terms of level-of-service. The arterial and collector street systems in Concepts B and D best address Goal H in terms of providing the most direct and frequent connections to community destinations in the study area and the strongest north/south oriented arterial and collector network of streets for circulation by all modes of travel within the study area. Concepts A and C best address long-term regional mobility needs with a strong north/south arterial connection from 172nd Avenue to 190th Avenue to connect Clackamas County and Damascus with Gresham. Bicycle and pedestrian travel is further enhanced in Concepts B and D by a strong east/west multi-use trail system that provides additional off-street connections to community destinations where full street connections cannot be provided. Concepts B and D also provide the best access to the town center by all modes of travel as a result of the well-connected arterial and collector network that abuts directly to the town center. All concepts were well served by transit service and provided good connections to the town center. Concept B was best served by transit service, with 85 percent of the Pleasant Valley households located within 1/4-mile of transit streets. However, in some cases in each concept, there are higher density land uses not served by transit, particularly in the southeastern corner of the study area.

The transportation analysis found the demand for gateway routes remained the same in all four concepts, regardless of the configuration of the internal Pleasant Valley arterial and collector street system. As a result, the arterial and collector street system for the preferred alternative could be in a variety of configurations as long as the arterial and collector street system provides direct connections to the gateway routes, particularly between 172nd Avenue and 190th Avenue and to commercial areas within Pleasant Valley. The analysis also identified the need for transportation improvements on “gateway” routes that connect the study area to surrounding communities, such as 172nd Avenue, 190th Avenue, Powell Boulevard, Sunnyside Road and Foster Road west of the study area. One critical refinement recommended by the work team is the addition of a more direct major arterial connection from 172nd Avenue to 190th Avenue south of the study area if Damascus urbanizes in the future.

The evaluation process also resulted in changes to other goal elements. A significant change affecting the transportation process was adding a significant amount of employment land to the concept resulting in a more balanced job to housing ratio. What follows is the results of the modeling done for, first, the four alternatives and second, for the March hybrid concept plan.

DKS Associates assisted the Pleasant Valley project staff in conducting the transportation system analysis for the Pleasant Valley Planning Area. Metro staff took the lead in preparing travel forecast with a refined version of the latest regional travel demand model. The refinements were purposed to better represent the intensity and location of possible development within the valley, and to more clearly understand the travel dynamics associated with long-term growth in both Pleasant Valley and the Damascus area in Clackamas County. Our role in this study has included the following technical areas:

- General circulation planning and development of transportation alternatives
- System performance and alternatives evaluation

- Transit Evaluation
- Recommended System Plan Elements
- Preliminary Cost Estimates

Concept Plan Alternatives

DKS participated in the open houses and public workshops to help formulate the Pleasant Valley concept plan alternatives. The four concepts that have succeeded through to the evaluation stage were comprised of a similar mix of land use types with different arrangements of their locations with respect to the natural and transportation system network of the valley. Each concept plan had basically the same quantity of the following elements although there was minor variation as noted below (source: Pleasant Valley Concept News, October 2001):

- The total number of residential units ranged from 5,300 to 5,500.
- The employment within and around the designated town center ranged from 470 to 700.
- The park acreage ranged from 49 to 84 acres.
- The total population at build-out ranged from 13,300 to 13,800.

Overall, the total travel demand associated with these concept plans was very similar as a result of the similarity in land use intensities. The essential difference between them was found in how they were arrayed around the valley. In other words, the key findings of our evaluation tested the relative merits of each concept plan based on how the selected street patterns and the relative location of housing, town center, park and school uses related to each other. The street system components were identified and mapped by Metro staff. The tabulations of roadway facilities for each concept plan area is summarized in Table 7.

Table 7: Pleasant Valley - Roadway Cross-Section Length Comparison

Classification	Alt A (ft)	Alt B (ft)	Alt C (ft)	Alt D (ft)
Major Arterial - 92'	10,501	4,918	11,984	5,992
Major Arterial - 111'	939	1,448	0	1,867
Minor Arterial - 62'	5,984	5,987	6,358	5,380
Minor Arterial - 70'	25,930	38,305	26,131	27,591
Minor Arterial - 80'	2,303	992	472	832
Collector - 60'	17,348	26,641	22,479	19,358
Collector - 70'	5,591	2,345	3,371	1,067
Collector - 74'	3,722	2,987	8,688	1,660
Neighborhood Connector - 64'	0	0	0	0
Total	72,318	83,623	79,483	63,747

Each concept plan also assumed the full build-out of the Damascus Concept Plan area to the south in Clackamas County. The recent planning work done by the county in June 2001 for this area was used as the basis for assumed land development. The alternative referred to as the Neighborhoods scenarios was selected for use in this study. That plan included 10,500 jobs and households covering 2,700 acres of land between the Sunrise Corridor and the Pleasant Valley plan area (source: Damascus Concept Planning Study: Executive Summary, June 30, 2001). The overall size of the development is more than twice as large as the Pleasant Valley area, and its associated travel demands will significantly shape and impact streets within the Pleasant Valley study because its size and proximity.

Furthermore, the assumptions at the regional gateways leading away from the valley were constant across each of the concept plans. The major roadways were all assumed to have the same connectivity and capacity for each case. Major roadways included Foster Road (west and south of the valley), 190th Avenue leading to Highland Avenue and Powell Boulevard, Butler Road to leading to Towle Avenue, 172nd Avenue to the south, and Clatsop Street to the west. The number of travel lanes assumed for each case was consistent with the current transportation plans for the respective city or county at the initial stage of analysis.

Alternative Performance Evaluation

Four plan alternatives were evaluated using the 2020 regional travel demand model based on the land use plans associated with each concept. The growth assumed in the travel forecasts included the expected 2020 development within the region, plus full build-out of Pleasant Valley and Damascus. This is significant since it is very likely that both Pleasant Valley and Damascus will continue to be urbanized beyond a 20-year horizon. Assuming full build-out by 2020 will tend to overstate the travel demand at the gateways, but it will help to ensure that adequate facilities are planned either within 20 years or shortly thereafter.

A performance analysis was made of the travel forecasts to consider:

- Overall system performance
- Changes to major roadways assumptions to better match travel demand
- Gateway intersection performance
- Transit service coverage
- Outstanding Plan Issues

Overall System Performance

System performance was evaluated during the afternoon peak 2-hour period based on forecasts provided by Metro. The forecasted travel demand was compared to the roadway capacity along major street corridors, and those that were found to exceed planned capacity were highlighted. In many cases, the assumed capacity applies to roadways that are not yet built. A case where forecasted travel exceeds the planned capacity helps to direct attention to refinements in either circulation or land use planning or both. For those cases where the roadway already is built to its ultimate width then new facilities will be required, or improvements will be needed beyond those already planned. Many cases noted in Table 8 have volumes within 10 to 20 percent above planned capacity. This is relatively minor exceedance in a 20-year horizon, especially given the built-out assumptions noted previously for Pleasant Valley and Damascus. A few links are expected to grossly exceed planned capacity, and those are noted accordingly. As summarized in Table 8 below, the overall system impacts of Plan D is better than other plans. The most impacting case is Plan B. Specific observations from the system performance analysis are summarized in the next section.

Table 8: Study Area Road Links Exceeding 2-Hour Peak Capacity based on 2020 Forecasts

Description	Plan A	Plan B	Plan C	Plan D
Powell Boulevard (162 nd to Jenne)	□	□	□	□
Jenne Road (Powell to Foster)	□	□	□	□□
Highland Road (Powell to 190 th)		□	□	
190 th Avenue (Giese to Richey)	□	□		
190 th Avenue (Highland to Butler)	□	□	□	
Butler Road (Binford to Towle)		□		□
Foster Road (122 nd to Barbara Welch)	□□	□□	□□	□□
Foster Road (Barbara Welch to Jenne)				
Foster Road (Jenne to 172 nd)		□	□	
Clatsop Road (145 th to Barbara Welch)	□	□□		□
Clatsop Road (Barbara Welch to 162 nd)	□	□	□	□

□ = Moderate Impact: Roadway forecasted volume exceed planned capacity by less than 20 percent.

□□ = Major Impact: Roadway forecasted volume exceed planned capacity by more than 20 percent.

Overall, the system impacts outside of the Pleasant Valley plan area were very similar between alternative plans. A variation of Alternative A was tested to determine the Pleasant Valley area impacts of not constructing the second unit of the Sunrise Highway within the 2020 horizon. It was found that the major street volumes and roadway performance within the valley would not be significantly different than for Alternative A. Other more specific performance findings are highlighted in the next section.

Specific Performance Observations

The unique terrain and environmental constraints of the Pleasant Valley area tend to focus the highest motor vehicle travel onto a few major corridors. Several of these corridors are expected to operate near planned capacity with full build-out of Pleasant Valley and Damascus Valley (may occur beyond the 2020 horizon assumed in this analysis). Specific observations for further plan considerations are noted below.

Foster Road Corridor — Travel demand in the Foster Road corridor is severely constrained east of NE 122nd Avenue. The most critical segment appears to be between NE 122nd Avenue and Barbara Welch where forecasted peak period volumes were nearly two times the planned capacity. Expanding road capacity east of NE 122nd Avenue to 172nd Avenue was found to increase travel forecasts by 10 to 30 percent in the corridor. Marginal reductions to traffic volumes on parallel east-west facilities (Clatsop Road, Powell Blvd.) were noted. The proposed “break” in Foster Road in Concepts B, C and D caused no significant “overload” of traffic on parallel routes. Foster Road south of Pleasant Valley performs well with three lanes until its terminus at Highway 212.

North-south travel into Gresham — Peak direction travel demand via 162nd Avenue, Powell Boulevard, and Jenne Road generally exceeds planned capacity during the busiest two-hour period. Parallel routes via Highland Road, and 190th Avenue are at or near capacity in most alternatives, except Plan D. Together, these findings show a very high north-south demand at the northern gateways into Gresham.

However, routes further east than 190th Avenue are not as attractive for north-south travel. The Butler Road to Towle Road route is moderately used in most plans and well within planned capacity.

Clatsop Road — The segment between 162nd and 145th Avenue are at or near capacity for most plans. Access limitations and “T” shaped intersections should provide sufficient operational capacity without expanding the number of travel lanes.

Gateway Performance Testing

The peak hour intersection levels of service were evaluated for consistency with regional performance measures described in the RTP. The gateway locations for this study were selected to provide an overall assessment of the intersection operating characteristics.

The results of the LOS analysis summarized in Table 9 show that most of the gateway locations will operate within the performance standards described in the RTP with LOS E or better during the peak 2-hours. The notable exceptions are at Foster Road/122nd Avenue where additional east-west capacity is required to achieve acceptable performance.

Table 9: Forecasted 2020 Peak Hour Intersection Level of Service

Intersection	Plan A			Plan A without Sunrise Unit 2			Plan B			Plan C			Plan D		
	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C
Signalized															
Foster/122 nd	78.1	E	1.15	75.1	E	1.14	77.5	E	1.15	80.0	F	1.16	78.3	E	1.15
Foster/172 nd	58.3	E	0.98	59.6	E	0.99	50.0	D	0.94	42.9	D	0.90	27.0	C	0.70
Foster/Jenne	51.2	D	0.97	54.5	D	0.99	39.9	D	0.82	33.2	C	0.70	40.4	D	0.82
Powell/Jenne	27.2	C	0.81	38.2	D	0.90	36.1	D	0.87	38.8	D	0.88	37.8	D	0.88
Powel/182 nd	42.8	D	0.88	46.5	D	0.91	47.2	D	0.93	56.6	E	1.00	47.7	D	0.95
Powell/Eastman	51.6	D	0.88	65.1	E	0.97	54.1	D	0.88	54.2	D	0.91	49.4	D	0.85
Powell/Hogan	45.2	D	0.79	44.2	D	0.77	45.8	D	0.79	45.5	D	0.80	46.7	D	0.80
172 nd /Clatsop	52.1	D	0.94	52.7	D	0.95	70.2	E	1.04	27.5	C	0.68	46.5	D	0.88
172 nd /Sunnyside	53.4	D	0.93	100.9	F	1.16	53.2	D	0.92	56.6	E	0.96	51.5	D	0.91
172 nd /Hwy 212	49.5	D	0.94	106.5	F	1.36	49.9	D	0.95	54.4	D	1.07	49.2	D	0.94
Foster/Hwy 212	16.2	B	0.70	43.2	D	1.06	15.5	B	0.70	14.0	B	0.68	15.3	B	0.70
Unsignalized	Major/Minor LOS			Major/Minor LOS			Major/Minor LOS			Major/Minor LOS			Major/Minor LOS		
King/147 th	A/E			A/F			A/E			A/E			A/E		

Notes:

Signalized Intersection LOS: Delay=Average stopped delay per vehicle, LOS=Intersection level of service, V/C=Volume-to-Capacity ratio

Unsignalized Intersection LOS: A/A = Major street turn LOS/minor street turn LOS

*The forecast volumes used for this analysis are raw model volumes (2-hr PM Peak) factored by 0.52 to peak hour volumes. Assumed geometries are based on the modeled roadway lanes and capacities (with some refinement from Gresham TIF data).

Intersection Performance

Intersection service levels were evaluated for the afternoon peak period at the same locations considered in the alternatives analysis. Table 10 below compares the performance of the March Hybrid Plan with the other four alternatives and the previous Hybrid Plan that did not include 60 acres of employment uses. Overall, there are minor differences between each of the gateway locations. The results are essentially the same as for Plan D and the January 24th Hybrid Plan. It is notable that the travel demands for the March Hybrid Plan included 60-acres of employment uses that were not included in the other four cases. The impacts of added a higher intensity land use do not appear to significantly change intersection performance at any of the gateway locations.

Table 10: March 6 Hybrid Plan Intersection Performance Relative to Alternative Plans

Intersection	Plan A	Plan B	Plan C	Plan D	Hybrid Plan	Hybrid Plan		
					(Jan. 24)	(March 6)	Delay	LOS
Signalized	LOS	LOS	LOS	LOS	LOS	Delay	LOS	V/C
Foster/122 nd	E	E	F	E	F	84.6	F	1.18
Foster/172 nd	E	D	D	C	C	30.1	C	0.81
Foster/Jenne	D	D	C	D	D	41.6	D	0.88
Powell/Jenne	C	D	D	D	D	42.9	D	0.91
Powell/182 nd	D	D	E	D	D	51.3	D	0.96
Powell/Eastman	D	D	D	D	D	53.7	D	0.91
Powell/Hogan	D	D	D	D	D	46.6	D	0.80
172 nd /Clatsop	D	E	C	D	D	43.3	D	0.78
172 nd /Sunnyside	D	D	E	D	D	50.0	D	0.93
172 nd /Highway 212	D	D	D	D	D	50.2	D	0.95
Foster/Hwy 212	B	B	B	B	B	19.6	B	0.70
<i>STOP Sign Control</i>	<i>LOS</i>	<i>LOS</i>	<i>LOS</i>	<i>LOS</i>	<i>LOS</i>	<i>Major/Minor LOS</i>		
King/147 th	A/E	A/E	A/E	A/E	A/E	A/E		

Notes:

LOS (signals): Delay=Average stopped delay per vehicle, LOS=Intersection level of service, V/C=Volume-to-Capacity ratio

LOS (stop signs): A/A = Major street turn LOS/minor street turn LOS

**The forecast volumes used for this analysis are raw model volumes (2-hr PM Peak) factored by 0.52 to peak hour volumes. Assumed geometries are based on the modeled roadway lanes and capacities (with some refinement from Gresham TIF data).*

The Foster Road corridor remains at capacity near 122nd Avenue, but operates adequately at Jenne Road and 172nd Avenue according to the demand forecasts. As noted previously, the bottleneck just east of 122nd Avenue (transition from 4-lane to 2-lane road cross-section) will create very significant queues and delays that will extend the peak period in this segment of the corridor. The bottleneck will also constrain the eastbound volumes on Foster Road in the p.m. period, which allows the intersections further east to

operate satisfactorily with planned capacity. The Foster Road and Powell Boulevard corridors will be further studied by Metro and the City of Portland for appropriate system improvements to serve planned development.

Forecasted turning volumes at Foster Road and 172nd Avenue showed that the peak hour demand was high on the west and south legs, and relative low on the east leg. The 2020 forecast showed 1,650 vehicles in the peak hour using this intersection. Of those, about 300 vehicles (20%) use the east leg in either travel direction. This finding points to the possible need to re-orient the intersection such that the major “through” movements from west to south (and south to west) become the major street, and the east leg of Giese Road become a minor approach. Our operational showed that it could work during peak hours adequately with either configuration, but reducing right-turning movements at this intersection could be a significant improvement for pedestrian safety.

Transit System Coverage

Transit coverage Level of Service (LOS) was analyzed based on the *2000 Highway Capacity Manual* (HCM) methodology. The method compares the transit service area and frequency to land use. The transit service area is analyzed as a buffer zone from transit routes and/or stops. The distances used for defining the buffer are based on the estimated walking trip length that is determined reasonable for the general public. Walking distances of 0.25 miles were used to define the transit buffer around bus routes. Transit service frequency analysis was based on the proposed transit route headways for the PM peak and off peak periods.

Transit buffers were defined for proposed transit system for each of the four concept plans. Land use associated with Transportation Analysis Zones (TAZs) was used to determine which TAZs meet the 2000 HCM minimum density criteria for being transit supportive. The criteria were defined as densities of at least 3 households/acre or 4 employees per acre.

The results of the transit coverage analysis indicate all concept plans have adequate transit coverage with the exception of the area along 190th Avenue in the southeast corner of the valley. No transit service was expected along that portion of 190th Avenue in the travel forecasts, and the walking distance to the nearest route was found to be too great to adequately serve transit needs. The plans that assumed higher density housing along this area would not be adequately served. It is recommended that these types of uses be relocated to other corridors to better encourage transit ridership.

The transit route frequencies (headways) assumed for these scenarios range from 10 to 15 minutes in the PM peak and 15 to 30 minutes in the off peak period. Based on the 2000 HCM methodology, 10 to 15 minute headways correspond to a transit LOS of B to C during the PM peak period. Headways of 15 to 30 minutes correspond to a transit LOS of C to D during the off peak period. The LOS for the transit buffers, using the assumed transit route headways, should adequately serve the study area during both the PM peak and off peak periods.

Preliminary Cost Estimates

Cost estimates were developed for the major components of the transportation facilities to compare the relative investment between the four concept plans. The preliminary cost estimates were made for new and improved roadways classified as arterial or collector facilities. Lower functional classes roadways are more likely to be shaped and funded through development plans, and no estimate was made for these streets. Typically, the local and collector streets are fully constructed by the development as a condition of approval. The higher tiered streets are constructed through joint public funding programs at the city, county or regional level.

Table 11: General Cost Assumptions

Construction Category	Cost Per Square Foot
ROW	\$10
Pavement Construction	\$10
Bridge Work	\$125
Contingency Factor	1.25
Bridge Length (feet)	200

The streets and bridges costs were estimated by applying general assumptions based on recent construction projects of a similar nature. The assumptions used for this study are listed in Table 11 for the right-of-way, pavement, and bridge construction. The other elements of the street design including street lighting, drainage, traffic signal controls, etc. are not included in this estimate.

The tally of functional class by concept plan was previously listed in Table 1. A similar tally was made of the number of bridge crossings required for each concept plan as shown in Table 12. This shows that 22 to 29 bridges will be required to implement these street systems. The breadth of the bridges varies according to the type of street as shown in the table. For the purposes of this study, all bridges were assumed to be 200 feet in length.

Table 12: Number of Stream Crossings by Functional Classification in Pleasant Valley

Class	Street Right-of-Way	Bridge Width	Plan A	Plan B	Plan C	Plan D
Major Arterial	92	68	1	1	1	1
Major Arterial	111	68				
Minor Arterial	62	46	2	1	2	1
Minor Arterial	70	46	8	9	4	5
Minor Arterial	80	46				
Collector	60	44	5	8	8	6
Collector	70	44	2			
Collector	74	44		2	2	
Neighborhood Conn.	64	34	3	2	3	10
Local	56	32	7	6	2	2
Trail	10	10				
Total			28	29	22	25

The results of the preliminary cost estimate are listed in Table 13 in \$1,000s of dollars (2001). The cost elements are divided into right-of-way and roadway/bridge costs. It was noted that the least right-of-way cost was for Plan A while the most right-of-way was required for Plan B. The overall least cost for the major street improvements was in Plan D with \$97.5 million.

Table 13: Major Roadway Preliminary Costs (\$1,000)

Cost Element	Plan A	Plan B	Plan C	Plan D
ROW Costs	\$26,781	\$37,323	\$42,197	\$23,121
Number of Bridges/Crossing	28	29	22	25
Construction Costs	\$64,970	\$69,380	\$62,543	\$54,932
Total Costs	\$114,689	\$133,379	\$130,924	\$97,566

Section 5 – System Plans

Preferred Plan

The Steering Committee selected a hybrid of the four alternatives presented above for the transportation system to serve the valley. The March Hybrid Plan was primarily based on the configuration reflected in Plan D. Adjustments to this network were made to reduce environmental impacts at stream crossings, and to provide more direct travel between neighborhoods and proposal school locations. Changes to the land use plan included additional neighborhood commercial centers, and a significant addition of 60-acres of employment uses in place of proposed residential uses in the prior alternatives analysis. The travel forecasts for the March 6 Hybrid Transportation Plan and revised land use plans were evaluated by Metro staff using the travel demand tools that were applied in the alternatives analysis. The following section presents the transportation performance, recommended functional class and transit map elements, and the final preliminary cost estimates for the March 6 hybrid transportation system.

On May 14, 2002 the Steering Committee endorsed a preferred Concept Plan. See Figure 1 for the preferred network of arterial, collector and neighborhood connector streets. In summary, the key elements of the street plan (as integrated with land use and natural resources) are to:

- Create a network of arterial, collector, neighborhood connector and local streets that accommodates travel demand and provides multiple routes for travel. Key new street extensions and connections include:
 - a) 172nd Avenue extension north to Giese Road
 - b) Giese Road west to Foster Road
 - c) Clatsop Street west to Cheldelin Road
 - d) 182nd Avenue south to Cheldelin
 - e) Butler Road west to 190th Avenue
 - f) Sager Road east to Foster Road
- Long-term arterial connection from 172nd to 190th Avenue south of the study area.
- 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 Pleasant Valley, with direct connections to Happy Valley, Clackamas regional center, Damascus, Lents, Gresham, the Columbia Corridor and downtown Portland. Transit streets include 172nd Avenue, Giese Road, 182nd Avenue, 190th Avenue, a new east-west collector south of Giese Road and Clatsop Street-Cheldelin Road.
- 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.
- Use “green” street designs that are an integral part of the stormwater management system and provide walkable tree-lined streets.
- Downgrade the function of Foster and Richey roads to serve as local access streets and develop a strategy to disconnect and potentially vacate these streets in the confluence area of Kelley Creek.

- Plan for a long-term major arterial connection south of the study area from 172nd Avenue to 190th Avenue to serve long-term regional mobility needs if future urbanization occurs in Damascus. This will be evaluated more fully by Metro as part of urban area planning for the Damascus area.
- Evaluate needed capacity improvements to address long-term travel demand for key gateway routes if future urbanization occurs in Damascus. This will be evaluated as part of a Powell/Foster corridor study (beginning in summer 2002), continued Damascus area planning, and the next Regional Transportation Plan update.

2020 Volume Forecasts

The raw model volumes were adjusted to correct cases where intersection controls and street design types would yield different results. For example, the route including Richey Road and the north-south collector street (182nd Avenue) were “assigned” a volume that did not account for traffic signals and higher design speeds on 190th Avenue. A manual adjustment was made to better reflect these factors. Another link worth noting is 162nd Avenue that has a forecast of about 8,000 vehicles daily. Initially, this seemed high for a collector considering that relatively little land development is connected to it; however, it was noted that the elementary and middle school sites rely primarily on 162nd Avenue, and that these sites alone generate 3,000 to 5,000 daily vehicles. Therefore, the 162nd Avenue forecast of 8,000 vehicles seems reasonable.

The resulting volumes of the Pleasant Valley area (**Table 14**) illustrate a range of daily traffic volumes on the arterials (Foster Road, Giese Road, 190th Avenue, 172nd Avenue) from 9,000 to 39,000 vehicles daily. The highest volumes in the valley were noted on 190th Avenue between Giese Road and Cheldelin Road. Collector facilities (162nd Avenue, Butler Road, Sager Road) show daily volumes from 3,000 to 15,000 vehicles in both directions. Volumes on Cheldelin Road between 190th Avenue and 172nd Avenue could be substantially higher if the proposed connector immediately south of the plan area is not constructed. In that case, the Cheldelin Road segment could be considered a major arterial. Traffic volumes on neighborhood connector routes are expected to be below 5,000 vehicles daily.

Table 14: 2020 Pleasant Valley Travel Demands by Major Corridor (2-Hour PM Peak)

Major	PV Demand	Percent of Total External Traffic	Total Demand	PV Percent of Total Demand
<i>Eastern Corridor</i>				
Powell Blvd. E/o 190 th	390	4%	4250	9%
Binford Lake Pkwy E/o 190 th	290	3%	1900	15%
Butler Road E/o 190 th	840	9%	3600	23%
<i>Southern Corridor</i>				
172 nd S/o Sager Road	1410	15%	3400	41%
Foster Road S/o Sager Road	840	9%	1810	46%
<i>Northern Corridor</i>				
Jenne Road N/o Foster	640	7%	3120	20%
190 th Ave S/o Highland Drive	1650	18%	6090	27%
<i>Western Corridor</i>				
Powell Blvd. W/o Jenne Road	940	10%	5930	16%
Foster Road W/o 162 nd Ave.	1300	14%	3310	39%
Clatsop Road W/o 162 nd Ave.	900	10%	3530	25%
Total	9,230		36,940	25%

Select Zone Analysis

Gateway activity associated with Pleasant Valley was reviewed using a select-zone analysis for all of the plan area TAZs. This process shows the proportion of PV traffic using each of the major roadways within the study area. The results are useful to illustrate the major travel orientation for trips that start or end within Pleasant Valley, and also for showing what proportion of the total 2020 travel demand can be directly associated with Pleasant Valley traffic. The results summarized in Table 14 show that the Pleasant Valley component of the future traffic stream along the major arterials feeding the valley vary from 10 to 45 percent. The most significant corridors are to and from the west and south with roughly 30% in either cardinal direction. The table also shows the proportion of Pleasant Valley traffic relative to the total 2020 travel demand for the same corridors. Overall, approximately 25% of the 2020 trips through the gateway arterials are attributed to Pleasant Valley. The corridors with the highest share of trips originating or terminating in Pleasant Valley are the western and southern corridors, with percent shares ranging from 15 to 46%.

Sager Road Issues

Sager Road between 172nd Avenue and Foster Road is forecasted to carry about 3,000 to 5,000 vehicles daily. Clatsop Road parallel to the north will serve 13,000 to 15,000 vehicles. One possible modification to the March 6 Hybrid network would be a discontinuous Sager Road to reduce the number of stream crossings and wetland area impacts. If this approach is taken, the volume on Clatsop Road would rise about 10 percent in this segment, and the junction of Clatsop Road and 172nd Avenue would have a similar increase. We expect that Clatsop Road can adequately serve this volume, but the Clatsop Road intersection at 172nd Avenue may require additional turn lanes on its approaches to serve the added vehicle volume during peak hours. Other side effects include out-of-direction travel for the neighborhood, and wider street approaches that may detract from the safety and convenience of pedestrian crossings. In conclusion, Sager Road is needed in the future street network to serve as an important parallel route to Clatsop Street.

2020 Link Performance

The ratio of roadway planned capacity and 2020 p.m. peak demand volumes is illustrated in Figure 6 for the Pleasant Valley Area. The street network is shown schematically, and is color-coded to indicate the volume-to-capacity (V/C) ratio for each of the modeled links. Generally, most of the roadway links operate a less than 80% of capacity, and these are indicated with the color green. Higher v/c ratios up to 1.00 are indicated on:

- 190th Avenue north of Giese Road
- Butler Road
- 190th Avenue near Cheldelin
- Clatsop west of 162nd Avenue
- Jenne Road southbound
- Foster Road eastbound up to Jenne Road

A few links are expected to exceed 1.00 v/c ratio, which means that the link volume will exceed the prototypical link capacity. These include:

- Highland Road southbound
- Butler Road near High School site
- Foster Road east of Jenne Road
- 190th Avenue south of new Butler Road connection

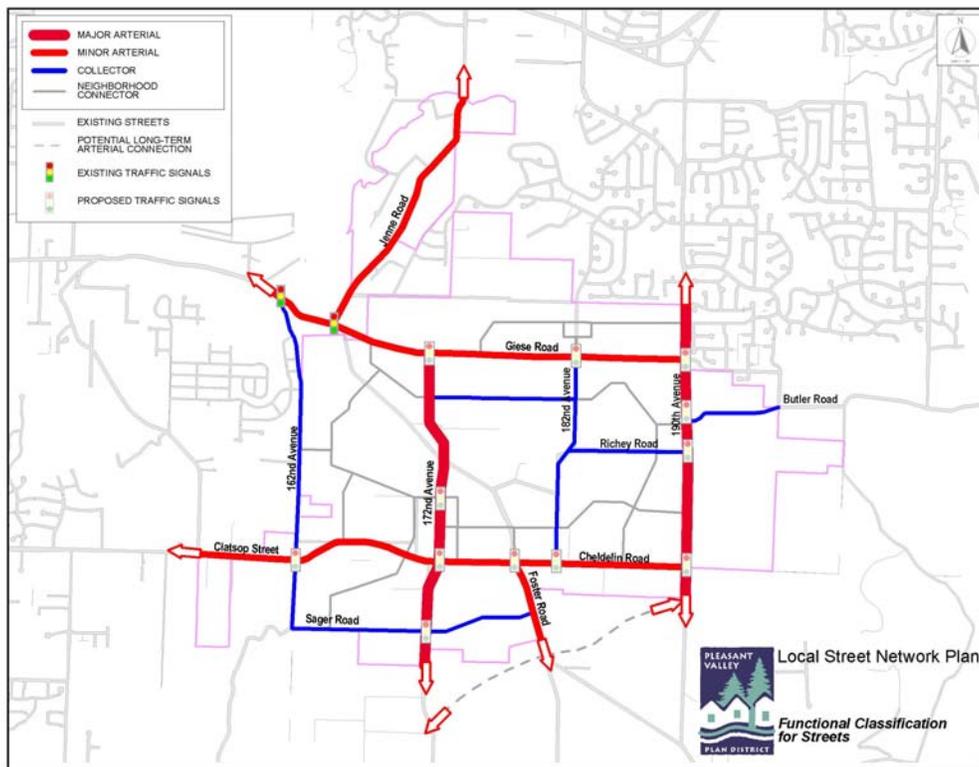
Typically, the maximum daily volume on a three-lane facility is 15,000, and 30,000 vehicles daily for a five-lane facility. Higher volume can be served than this with implementation of higher standards for access control, prohibition of on-street parking and more intersection capacity. The cases noted above will require consideration of additional turn lanes at major intersections and higher levels of access controls mid-block (medians) to sustain higher than average link capacities.

Street System

Functional Classification

The functional classification designations complement existing designations for the connecting routes outside the study area including Foster Road in City of Portland, 190th Avenue – Highland Road in the City of Gresham, and Foster Road in Clackamas County. The new segment of Butler Road was identified as a collector road to be consistent with existing City of Gresham plans. Of all the facilities considered in this plan, Butler Road is one that would be a candidate for a re-designation to another classification. Given the future daily volumes approach 15,000 vehicles, and the relatively limited access because of terrain, it is suggested that the City of Gresham consider re-designating Butler Road to be a minor arterial. The length of Butler Road between 190th Avenue and its easterly terminus at Regner Road is roughly 1.5 miles. The combination of Butler Road and Regner Road provides one of the few east-west routes between US 26 and 190th Avenue in this sector of the city, and generally conforms to the broader definition of an arterial facility.

Figure 6. Network of Arterial, Collector and Neighborhood Connector



Streets

Arterial streets

Purpose

Arterial streets serve longer, through trips and interconnect communities within the region. They also serve shorter, more localized travel within a community, linking major commercial, residential, industrial and institutional areas.

Characteristics

Arterial streets usually carry between 10,000 and 30,000 vehicles per day. These streets are divided

into major and minor classifications, and usually have two to four travel lanes (one or two in each direction). Major arterials function to serve longer, through trips and serve more of a regional traffic function. Minor arterials function to serve shorter, more localized travel within a community. As a result, major arterials usually carry more traffic

Arterial streets are typically designed within 70 to 111 foot right-of-way and with a design speed of between 25 and 35 mph, depending on adjacent land uses. Arterial streets located in the plan district will mix a significant amount of motor vehicle traffic with public transportation, bicycle and pedestrian travel. These streets have many street connections and some driveways, although combined driveways are preferable. These facilities may include on-street parking when possible, particularly in the town center. The center median serves as a pedestrian refuge and allows for left-turn movements at intersections. Swale medians with left turn refuges

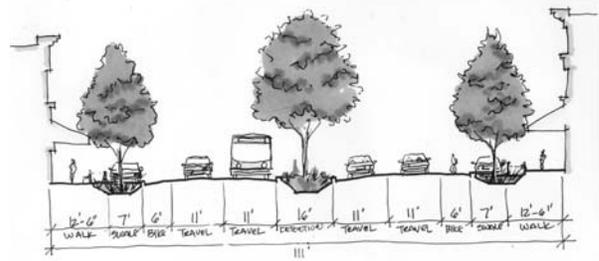


Figure 7. Regional boulevard (major arterial in town center)

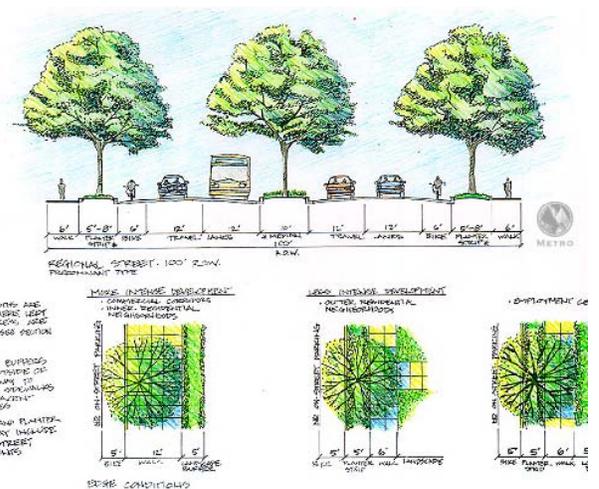


Figure 10. Community street (minor arterial with median outside town center)

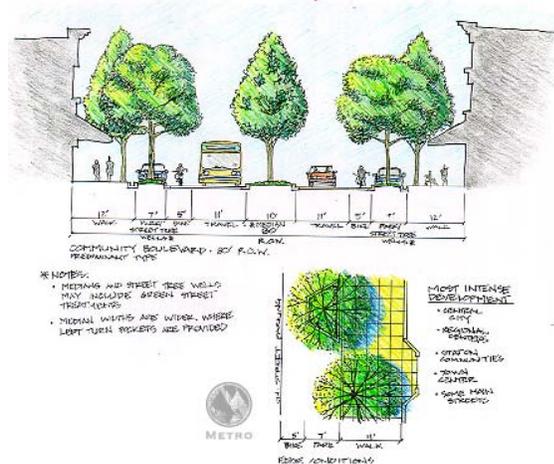


Figure 9. Community boulevard (minor arterial within town center)

shall be provided on arterial streets in the plan district, including Giese Road, 172nd Avenue, Clatsop Street and 190th Avenue.

Arterial streets in the plan district are designed to be transit-oriented, with high-quality service and substantial transit amenities at stops and station areas. Pedestrian improvements are substantial on streets in the town center, including broad sidewalks, pedestrian buffering, special street lighting and crossings at all intersections with special crossing amenities at major intersections. These streets have bike lanes. They also serve as primary freight routes and may include loading facilities within the street design. Loading facilities should occur on side streets, where feasible.

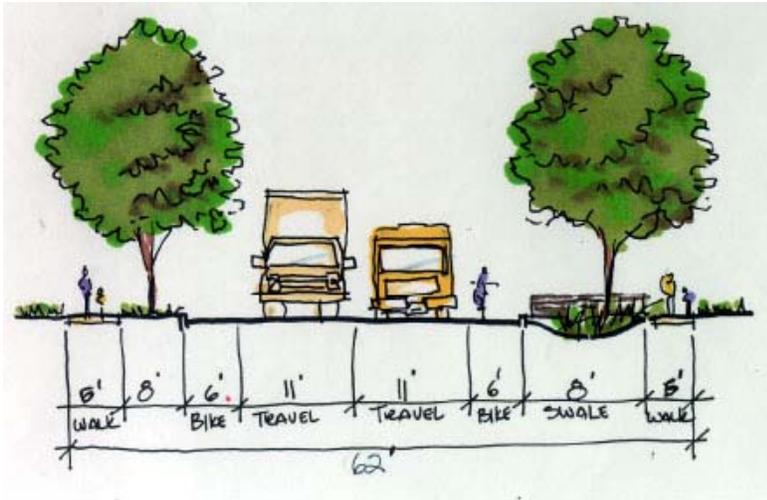


Figure 11. Community street (minor arterial without median outside town center)

Collector Street

Purpose

Collectors serve neighborhood traffic and provide local alternatives to arterials. They provide both circulation and access within residential and commercial areas, helping to disperse traffic that might otherwise use the arterial system for local travel.

Characteristics

Collectors usually carry between 1,000 and 10,000 vehicles per day. Collector streets are usually have two travel lanes (one in each direction) and are spaced at half-mile intervals, or midway between arterial streets. Access control on collectors is lower than arterials, and direct driveway connections from residential, commercial, and employment uses are allowed.

Collector streets are typically designed within 60 to 70 foot right-of-way and with a design speed of between 25 and 35 mph, depending on adjacent land uses. Collector streets are designed to carry vehicle traffic while providing for public transportation, bicycle and pedestrian travel. These facilities serve lower-density residential neighborhoods as well as more densely developed corridors and main streets, where buildings are often oriented toward the street at main intersections and transit stops. Collector streets have few driveways that are shared when possible.

Collector streets are transit-oriented in design when they are also transit streets, with transit amenities at stops and station areas. Although less substantial than in arterial streets in the town center, pedestrian improvements are important on collector streets, including sidewalks that are buffered from motor vehicle travel, crossings at all intersections and special crossing features at major intersections. Collector streets have striped or shared bikeways depending on traffic volumes and other safety considerations. These facilities also serve as secondary freight routes and may include loading facilities within the street design

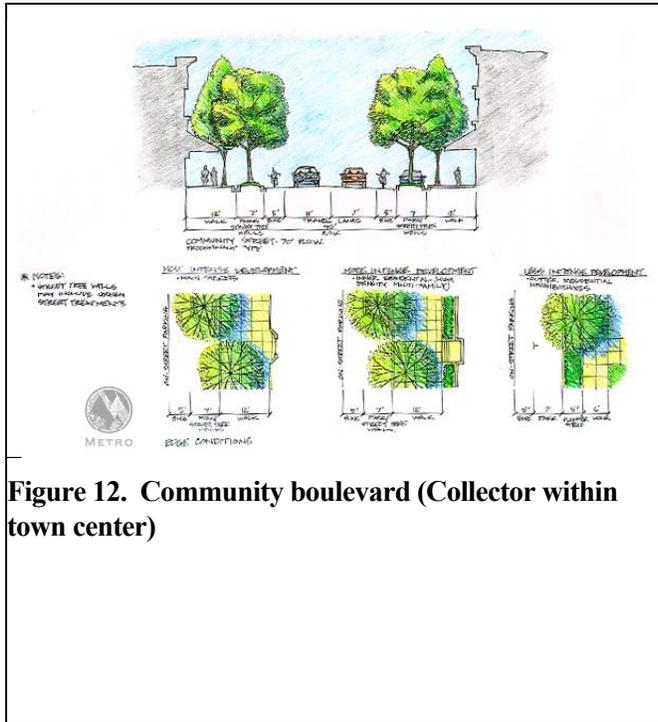


Figure 12. Community boulevard (Collector within town center)

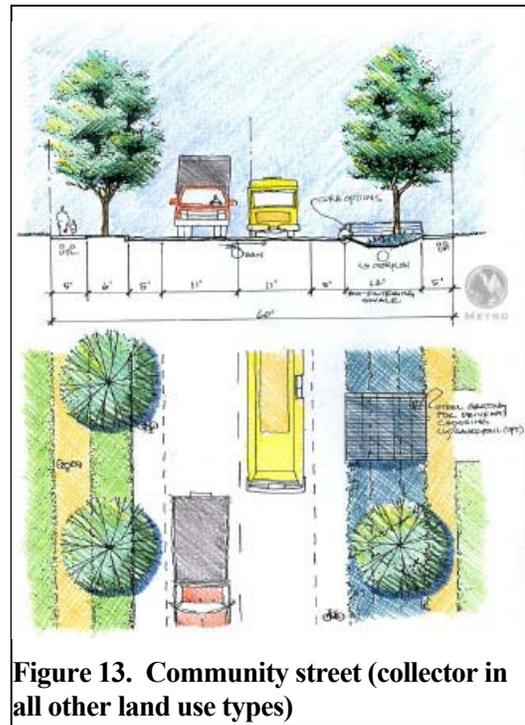


Figure 13. Community street (collector in all other land use types)

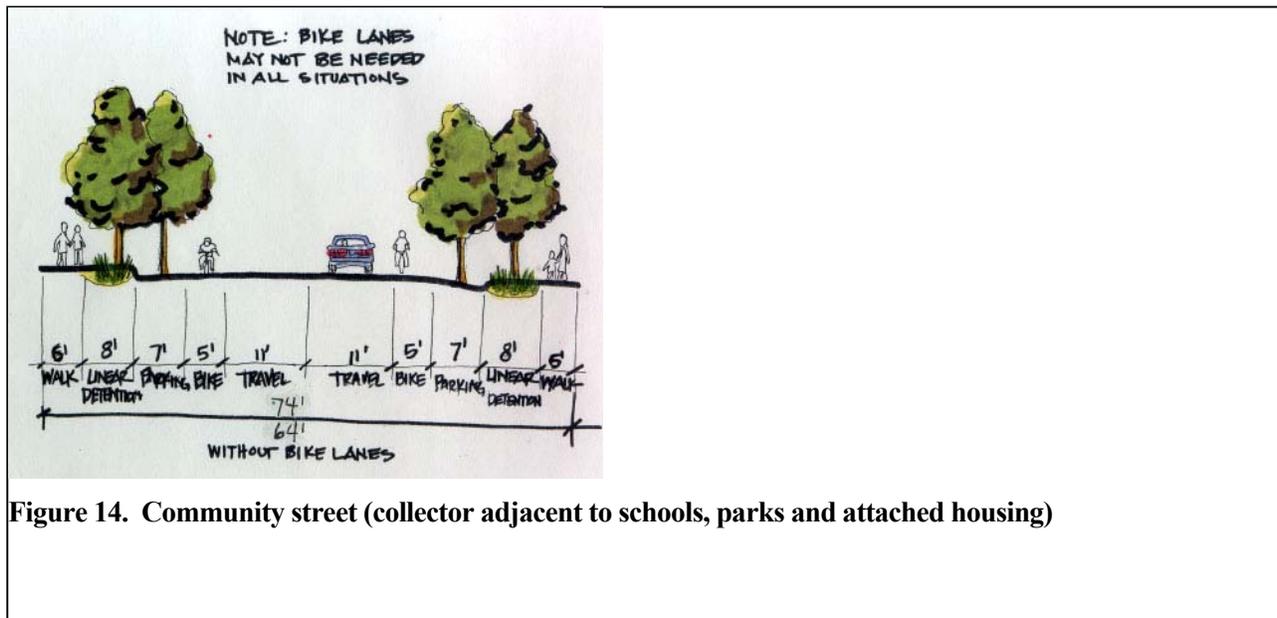


Figure 14. Community street (collector adjacent to schools, parks and attached housing)

in the town center and neighborhood centers, where appropriate. Loading facilities should occur on side streets, where feasible.

Neighborhood connectors

Purpose

Neighborhood connector streets serve residential neighborhoods and provide connectivity to the collector and arterial street system. They are intended to serve travel between neighborhoods and provide options to the arterial and collector streets for travel within the community.

Characteristics

Neighborhood connectors serve more traffic than local streets, but still less than 5,000 vehicles per day. Neighborhood connectors usually have two travel lanes (one in each direction) and include on-street parking, a landscaped buffer between the travel lanes and sidewalks, curb extensions, sidewalks and bike lanes depending on traffic volumes.

Neighborhood connector streets are typically designed within 60 to 70 foot right-of-way and with a design speed of between 10 and 25 mph, depending on adjacent land uses. Street design elements include sidewalks, bike lanes depending on traffic volumes, on-street parking and a landscaped buffer between travel lanes and sidewalks.

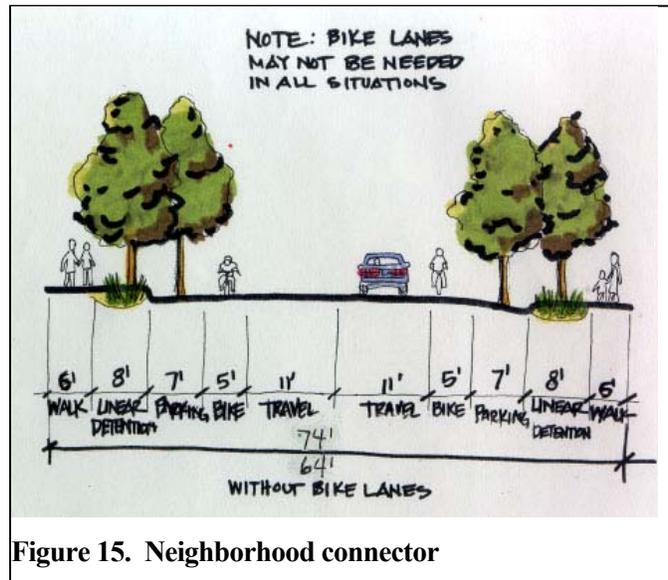


Figure 15. Neighborhood connector

Local streets

Purpose

These streets provide direct access to adjacent land. Local streets provide access between people's homes and the neighborhood connectors.

Characteristics

Local streets are multi-modal and are designed to serve most short automobile, bicycle and pedestrian trips. Local streets usually carry fewer than 1,000 vehicles per day. Local street designs include many connections with other streets, every 530 feet except where prevented by existing development or environmental and topographic constraints. Bike and pedestrian accessways are provided every 330 feet where full street



Figure 16. Local street examples

connections cannot be provided. Local streets are typically designed within 20 to 50 foot rights-of-way and with a design speed of between 10 and 20 mph.

On average, each household generates between 10-12 automobile trips per day. A well-connected street system with reasonably direct connections encourages walking, bicycling, and transit use, and can reduce the number and length of these automobile trips. In well-connected street systems, local traffic is more dispersed, rather than focused on arterials where it combines with through-traffic to create congestion. With a well-connected system that provides multiple routes to local destinations, any single street will be less likely to be overburdened by excessive traffic. Police and fire response also benefits from a well-connected street system.

Street Design

All streets will be designed to support adjacent land uses and accommodate bicycles and pedestrians, with special pedestrian amenities on transit streets. All streets include “green streets” design elements that help minimize stormwater run-off, including pervious curbs and the use of buffer treatments that include street trees, swales, infiltration trenches and linear detention basins. Refer to Metro’s *Green Streets: Innovative Solutions for Stormwater and Street Crossings* handbook for more information on these street design elements.

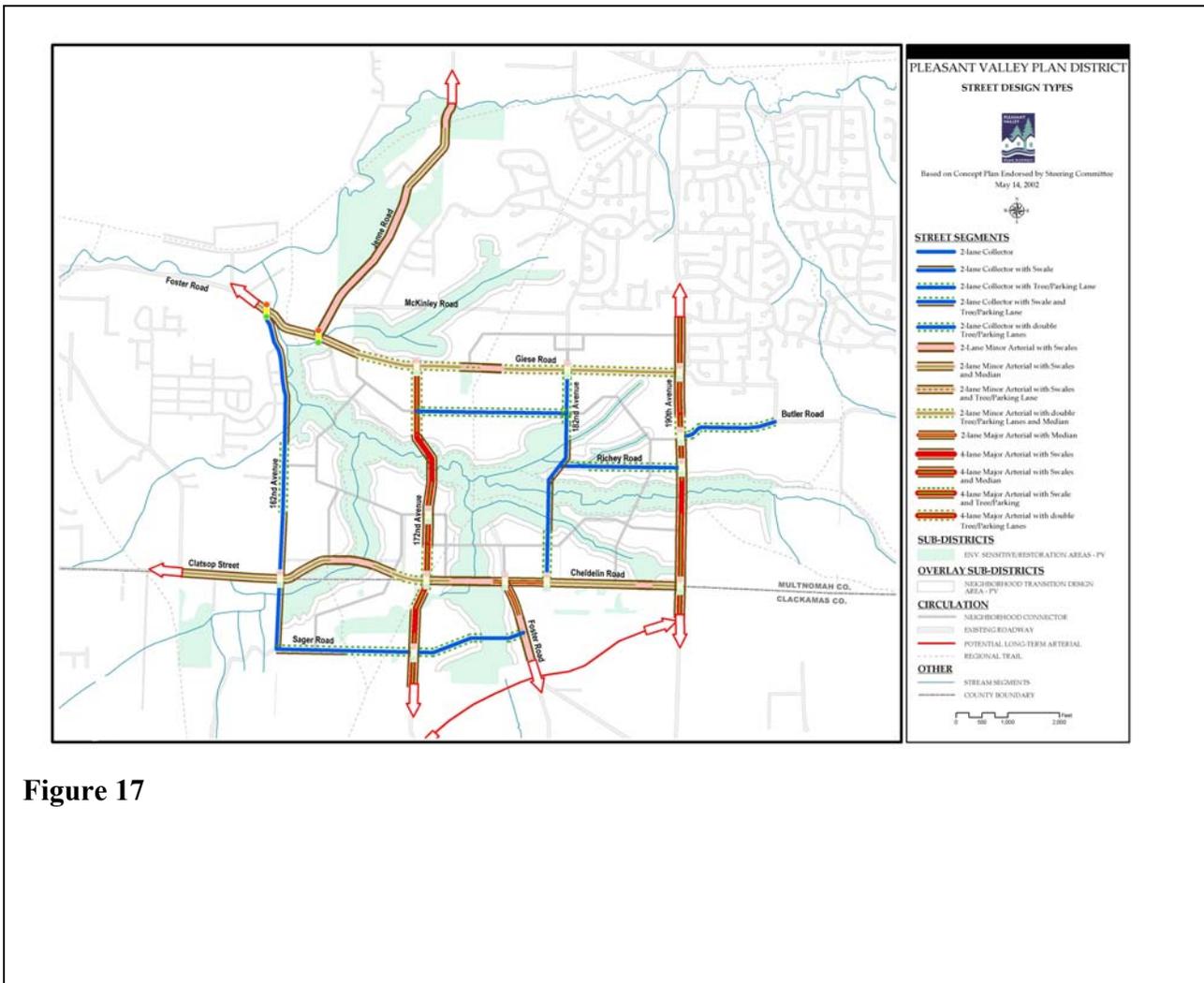


Figure 17

Table 15 summarizes the preferred street cross section for streets in Pleasant Valley by functional classification and adjacent land use. Many variables will be taken into account when the cross sections are implemented locally. Local implementation of these street designs should provide opportunities to mix and match various street design elements and to vary from preferred dimensions in areas where natural constraints exist. For example, the cross sections include the option of a landscaped buffer and center median that can be adjusted at intersections to allow for turn lanes without needing to dedicate more right-of-way than has been identified.

Though street design features are not part of the Metro transportation model, there are assumptions made in the modeling process that reflect these street design assumptions, including the degree to which walking, bicycling and access to transit are affected by street design.

The Street Design Type Map is a plan that illustrates the location of specific street cross-sections in Pleasant Valley. This work was begun in the Concept Plan, which included text describing where the various cross-sections should be located within the community. The Street Design Type Map takes this work one step further and recommends refinements (i.e., further detailing) of the location of the street designs in concert with adjacent land uses, natural resources, and urban design opportunities. See Figure 17.

The Street Design Type Map is essentially a site-specific application of the Concept Plan recommendations for street types. As noted above, it includes refinements and detailing, which are summarized as follows:

1. On major arterials, on-street parking is included adjacent to the neighborhood centers. This would apply to about 500 feet of frontage along 190th and 172nd Avenues.
2. On minor arterials outside the town center, on-street parking is included on selected streets adjacent to high and medium density residential, mixed-use, and employment areas.
3. On neighborhood collectors, on-street parking is included adjacent to all residential, mixed-use, civic and employment areas, but not adjacent to the Environmentally Sensitive and Restoration Areas (ESRAs).
4. Within the ESRAs, center swales are not included in the street cross-section. Swales are retained at the edge of the street.

Refinements (1)-(3) above introduce on-street parking in selected areas to promote pedestrian character and walkable streets. This is consistent with the overall vision and many of the implementation strategies for Pleasant Valley. It is also appropriate given the small nature of the sub-areas within the community.

The section of Geise Road between 190th and 182nd provides a good example of the benefits of refining the street types in selected areas. This section is about three blocks long and will form the edge between two adjacent neighborhoods. On-street parking will help create a street character for Geise that connects these neighborhoods, rather than separates them. This same situation is true for most of the sub-areas in the valley: between most major intersections, and between major streets and ESRAs, there is a recurrent three-to-five block dimension. Collector or arterial streets should be planned with as much pedestrian character as is practical to form good “edge” conditions for these areas. On-street parking is one tool to support pedestrian character and a good neighborhood edge.

Refinement (4) is intended to reduce the width of streets within the ESRAs, and therefore the grading impacts and cost. The cross-section is still a green street.

Table 15: Pleasant Valley Street Design Parameters

Motor Vehicle Functional Classification	Street Design Classification	Preferred Street Design Elements							
		R/W	Speed	Travel Lanes (11')	Swale Median	Bike Lane	On Street Parking	Swale	Side walk
Major arterial within TC	Regional boulevard	111'	20-25 mph	4	16'	6'	7'	No	12.5'
Major arterial outside TC	Regional street	100'	35 mph	4	16'	6'	No	8'	6'
Minor arterial within TC	Community boulevard	80'	20-25 mph	2	10'-14'	6'	7'	No	10'
Minor arterial with median outside TC	Community street	70'	35 mph	2	10'-14'	6'	No	8'	6'
Minor arterial w/o median outside TC	Community street	62'	35 mph	2	No	6'	No	8'	6'
Collector within TC	Community boulevard	70'	20-25 mph	2	No	5'	7'	No	12'
Collector adjacent to schools, parks and MF housing	Community street	74'	20-25 mph	2	No	5'	7'	8'	6'
Collector other areas	Community street	60'	20-25 mph	2	No	5'	No	8'	6'

Notes:

1. All streets will be designed to support adjacent land uses and accommodate bicycles and pedestrians with special pedestrian amenities on transit streets.
2. All streets include "green streets" design elements that help minimize stormwater runoff, including pervious curbs.
3. Swales may include infiltration trenches and/or linear detention basins as possible treatments.
4. Bike lane and sidewalk dimensions may be reduced when natural constraints exist. The need for and width of bike lanes will be determined based on traffic volumes and other safety considerations.
5. On-street parking lanes will include tree planters. Tree well curb extensions should be designed to accommodate street sweepers.
6. Twelve-foot outside travel lane may be considered on Regional Streets that are planned to accommodate local freight movement or buses.
7. Local implementation of these street designs should provide opportunities to mix and match various street design elements and to vary from preferred dimensions listed above in areas where natural constraints exist.
8. Cross sections include the option of a landscaped buffer and center median that can be adjusted at intersections to allow for turn lanes without needing to dedicate more right-of-way than has been identified.

Street Connectivity

Connectivity standards are required by Metro for newly urbanizing areas. Draft objectives for local streets were prepared to form a basis for more detailed connectivity standards. They are based upon guiding statements from the Pleasant Valley Concept Plan Summary and Recommendations, Pleasant Valley Concept Plan Technical Appendix (Transportation Chapter), Southwest and Far Southeast Master Street Plan (City of Portland), Final Report and Recommendations, and Pleasant Valley Implementation Project Statement of Work.

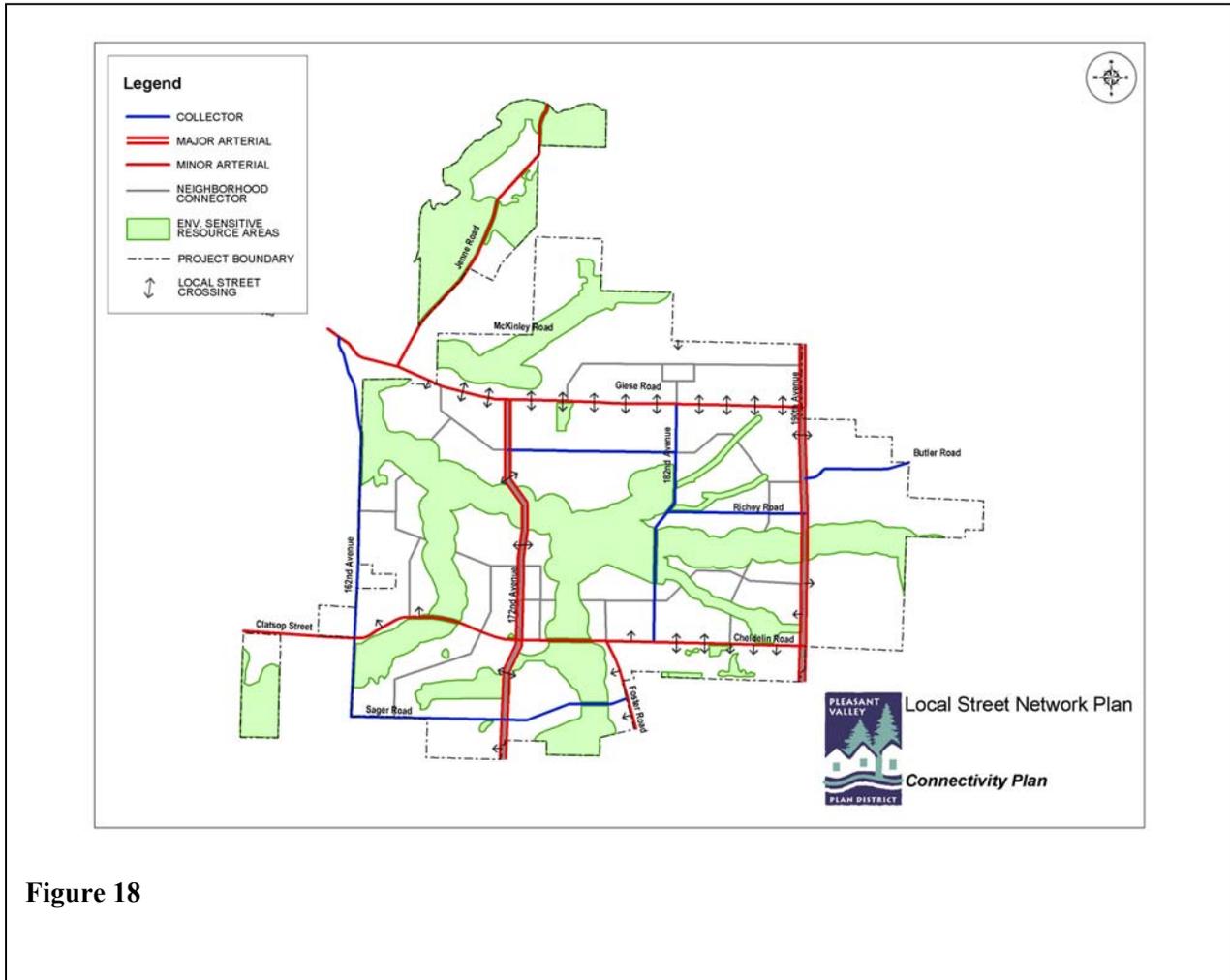


Figure 18

Local street connectivity is important to the overall success of Pleasant Valley, including the integration of land use, transportation, and natural resources. Adequate local street connections contribute to the creating a community where it is safe, convenient, and inviting to walk, ride a bike, and use transit. It also improves the functional capacity and efficiency of the transportation system by providing direct, local access between neighborhoods and local destinations, reducing the number of short, local trips on the arterial and collector streets. Finally, local streets provide routes for emergency vehicle access to local neighborhoods.

From a local street perspective, Pleasant Valley is essentially a “greenfield” setting. That is, the existing network of streets is rural and an entirely new network of connections will be needed to implement the Concept Plan’s vision for a new, urban community. Additionally, the creation of the transportation network will occur over a long time – perhaps 20-40 years. Therefore, the local street plan must strike a

balance between the certainty that is needed for creating a good network and the flexibility that is needed for long term implementation and adaptability to local conditions.

The strategy for Pleasant Valley’s street connectivity implementation is to focus on two fundamental elements of the local network:

1. The general location and number of local streets that intersect with the arterial network, implemented through a Connectivity Plan.
2. Code standards that will be applied when actual local streets are proposed through the development review process.

The Connectivity Map illustrates a recommended layout of intersections of local streets with arterials. Each intersection is shown with a crossing “arrow” symbol. This map is intended as graphic tool to supplement the tables of regulatory intersection spacing standards that are in the Transportation System Plans. The number of local streets that cross the arterials is intended to be the required number of cross streets, subject to evaluation of site-specific feasibility. The locations of the local crossings are general, that is, there is flexibility for their final location, subject to city approval.

To supplement the connectivity map, three standards are recommended for use during the review of proposed local streets in Pleasant Valley:

1. Streets will be designed to form a system of complete blocks and a connected circulation network.
2. Block length will be limited to the maximums designated in Table 16.
3. Changes and exceptions to the above standards will be permitted when one or more of the following situations apply:
 - a. Without the change, there could be no public street access from the parcel(s) to the existing street;
 - b. The change is necessary to support circulation and access for bicycles and/or pedestrians;
 - c. The change is necessary due to topographic constraints, preservation/restoration/enhancement of natural resources, existing structures and similar physical constraints.

Regarding block lengths, the Pleasant Valley Concept Plan Transportation Implementation Strategies Report states: “Local street designs include many connections with other streets, every 530 feet except where prevented by existing development, or environmental or topographic constraints. Bike and pedestrian access ways are provided every 330 feet where full street connections cannot be provided.”

The 530-foot spacing referenced above complies with Metro requirements and provides good overall guidance. However, a shorter maximum block length will result in a more walkable community. The following block lengths are recommended:

Table 16. Local Street Connectivity Standard

Plan Designation	Maximum Block Length
Residential Subdistricts (outside Town Center)	400 feet
Town Center	see diagram (Figure 19)
Neighborhood Center	400 feet
Mixed Use Employment	400 feet
Employment (Geise road)	400 feet
Employment (172 nd Ave)	600 feet
All other areas	None

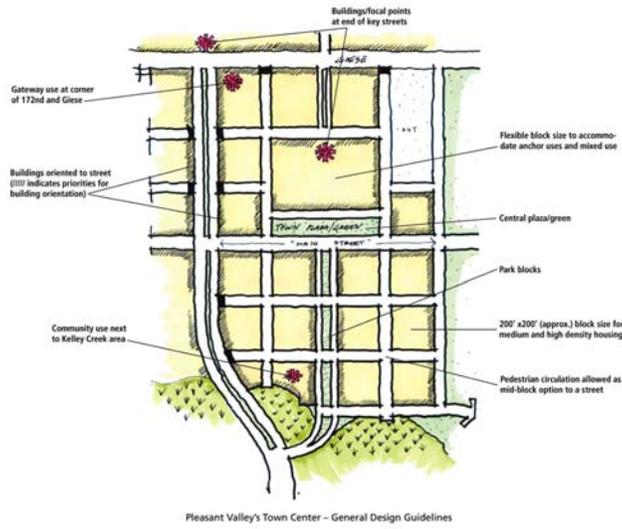


Figure 19.

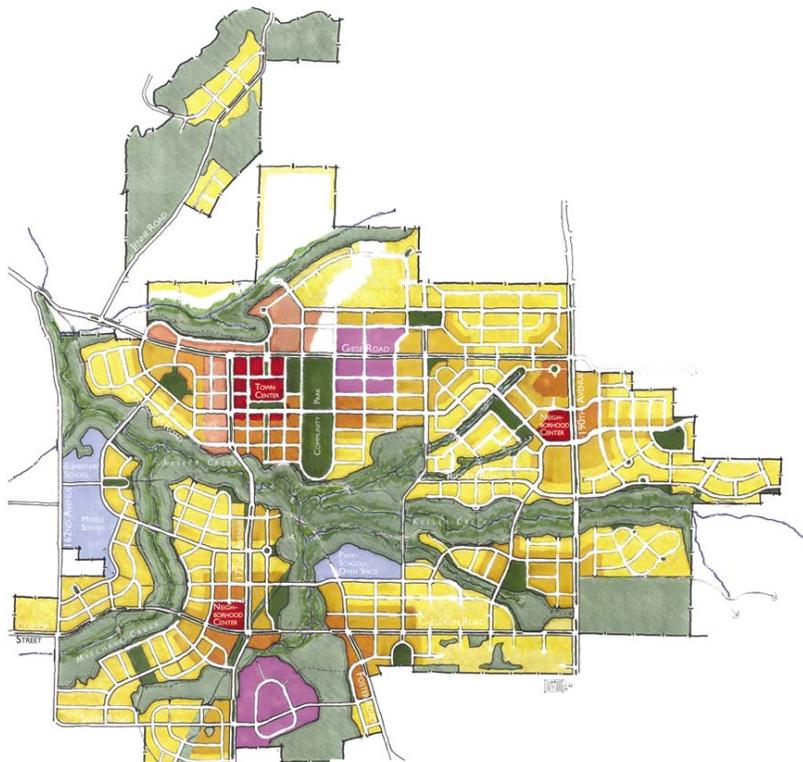


Figure 20. Illustrative Street Plan

Illustrative Street Plan

The Illustrative Street Plan, see Figure 20, was prepared as a tool to help guide the development of the other local street network maps listed above. It is purely illustrative – no attempt has been made to try to identify, reconcile and illustrate all the specific site conditions that will influence actual development and redevelopment in Pleasant Valley. The Illustrative Street Plan shows how the implementation of the connectivity standards works with the overall concept for the Pleasant Valley community, and the relationships between land use, transportation and natural resources that result from these connections. The cities may wish to adopt the illustrative plan as a guiding, but non-binding, resource to use in land use reviews and future planning.

Future Traffic Signals

A preliminary evaluation of traffic signal location was made based on the forecasted travel volumes. The list of intersections that could be controlled by traffic signals at build-out of the Pleasant Valley area include the following:

- Foster /162nd (existing)
- Foster / Jenne (existing)
- Foster / 172nd (future)
- Giese / N-S collector (future)
- Giese / 190th (future)
- Clatsop / 172nd (future)
- Clatsop / 162nd (future)
- Cheldelin /Foster (future)
- Cheldelin / N-S collector (future)
- Cheldelin / 190th (future)
- New Butler / 190th (future)
- Old Butler / 190th (future)
- Richey / 190th (future)
- Neighborhood route leading to schools / 172nd (future)
- Sager Road / 172nd (future)

These locations are noted on Figure 5 to indicate where existing and potential traffic signals may be located. Additional signals may be required depending on the specific land development proposals, and compliance with city or county access spacing standards.

Transit System

Regional transit service

Purpose

Regional transit service is provided on key roads in Pleasant Valley, with direct connections to Happy Valley, Clackamas regional center, Damascus, Lents, Gresham, the Columbia Corridor and Portland. Transit service shall lead development and be included on the front-end of community planning efforts to

encourage transit-supportive development. For Pleasant Valley, three types of regional transit service are provided: rapid bus, frequent bus and regional bus. See Figure 21 below.

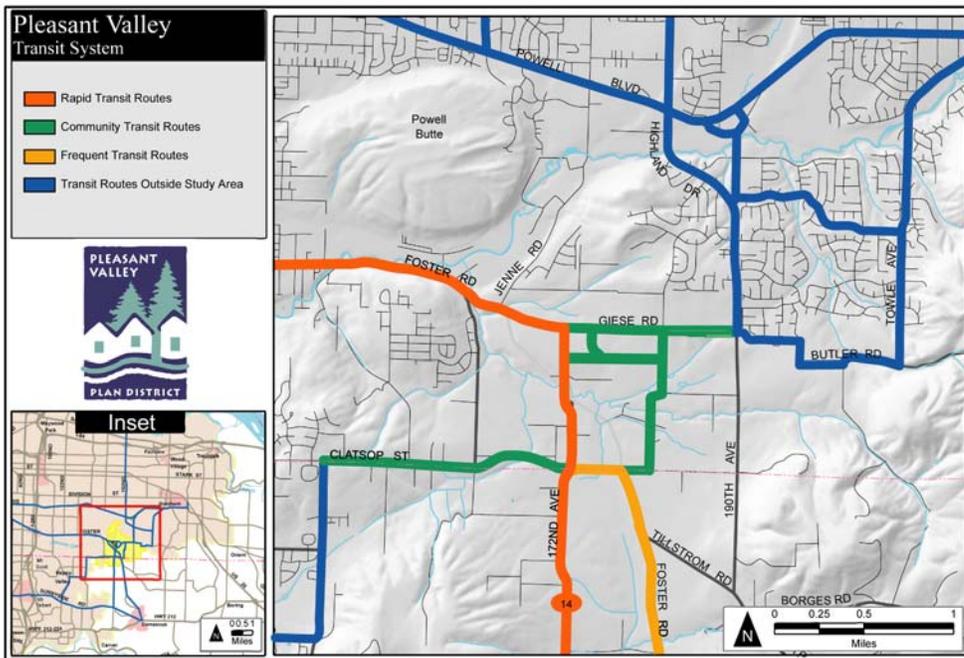


Figure 21.
Characteristics

Typically, rapid service runs at least every 15 minutes. Passenger amenities are concentrated at transit centers. Rapid bus passenger amenities include schedule information, ticket machines, special lighting, benches, covered bus shelters and bicycle parking. Rapid bus stops are located approximately every 1/2-mile. Rapid bus has been identified along Powell Boulevard/Foster Road from downtown Portland to Damascus via Pleasant Valley town center.

Typically, frequent bus service runs at least every 10 minutes and includes transit preferential treatments such as reserved bus lanes and signal preemption and enhanced passenger amenities along the corridor and at major bus stops such as covered bus shelters, curb extensions, special lighting and median stations. Frequent bus service provides slightly slower, but more frequent, service than rapid bus service. Frequent bus service has been identified along 172nd Avenue/190th Avenue between Clackamas and Gresham regional centers via Damascus and Pleasant Valley.

Regional bus service generally operates at maximum frequencies of 15 minutes. Transit preferential treatments and passenger amenities such as covered bus shelters, special lighting, signal preemption and curb extensions are appropriate at high ridership locations. Regional bus service has been identified to connect Pleasant Valley to the Columbia Corridor, Clackamas regional center, Happy Valley and Lents.

Community bus service

Purpose

Community bus lines provide localized access from Pleasant Valley neighborhoods to Happy Valley, Damascus, Gresham, regional transit service and community destinations, such as parks, schools and the town center. Community bus service will connect to regional bus service within Pleasant Valley and Gresham via Butler Road/Towle Road.

Characteristics

Community bus service runs as often as every 30 minutes on weekdays. Weekend service is provided as demand warrants. This service could be implemented through a partnership between TriMet and local jurisdictions.

Transit streets

Purpose

Transit streets are arterial, collector and, in some cases, neighborhood connector streets designated to serve community and regional transit routes. These streets connect major transit stops and include street designs, land use types, patterns and densities and pedestrian and bicycle improvements that support transit.

Characteristics

A transit street shall be designed to promote pedestrian travel with such features as wide sidewalks with buffering from adjacent motor vehicle traffic, frequent street crossings (unless there are no intersections, bus stops or other pedestrian attractions), special crossing amenities at some locations, special lighting, benches, bus shelters, awnings and street trees. The plan district shall provide pedestrian facilities leading to bus stop waiting areas and make the waiting areas safe, comfortable, and attractive with passenger amenities such as covered bus shelters, special lighting, and curb extensions. Consideration shall be given to the special access needs for elderly, economically disadvantaged, and people with disabilities.

Major Transit stops

Purpose

Major transit stops provide transfer opportunities between regional and community transit routes and provide a high degree of transit passenger comfort and access.

Characteristics

In Pleasant Valley, major transit stops are designated where bus lines intersect at Clatsop Street/172nd Avenue, Giese Road/172nd Avenue and 190th/Butler Road. Major transit stops shall provide schedule information, lighting, benches, shelters and trash cans. Other features may include real time information, special lighting or shelter design, public art and bicycle parking. Retail, office and institutional buildings on sites at major transit stops shall be located within 20 feet of the major transit stop or provide a pedestrian plaza at the major transit stop and provide reasonably direct pedestrian connections between the transit stop and building entrances on site. A transit street in the town center district shall serve as a transit hub that provides transfer opportunities between regional and community transit routes and be designed to include the features of a major transit stop. Consideration shall be given to the special access needs for elderly, economically disadvantaged, and people with disabilities.

Pedestrian districts

Purpose

Pedestrian districts are areas with street and site design standards that provide special pedestrian amenities (e.g., landscaping, curb extensions, pedestrian street lighting, benches and shelters, building entrances oriented to the street, on-site pedestrian circulation system) in the town center, neighborhood centers, employment districts and along transit streets. All streets within pedestrian districts are important pedestrian connections.

Characteristics

A pedestrian district shall be designed to provide safe and convenient pedestrian circulation, with a mix of uses, density, and design that support high levels of pedestrian activity and transit use. Pedestrian districts shall be characterized by buildings oriented to the street and boulevard-type street design features such as wide sidewalks with buffering from adjacent motor vehicle traffic, marked street crossings at all intersections with special crossing amenities at some locations, special lighting, benches, bus shelters, awnings and street trees. Consideration shall be given to the special access needs for elderly, economically disadvantaged, and people with disabilities.

Table 17. Recommended regional transit service

Transit route	To/From	Short-term Implementation (0-10 years)	Long-term Implementation (10-20 years)
Powell Boulevard/ Foster Road	Downtown Portland to Pleasant Valley	Regional bus (15 minute peak/15 minute off-peak)	Extend Rapid Bus to Damascus
Foster Road	Lents to Damascus	No service	Rapid bus (10 minute peak/15 minute off- peak)
Sunnyside Road	Clackamas regional center to Damascus	Regional bus (15 minute peak/30 minute off-peak)	Frequent bus (7 minute peak/15 minute off- peak)
172nd Avenue/190th Avenue	Damascus to Gresham	Regional Bus (15 minute peak/15 minute off-peak)	Frequent bus (10 minute peak/15 minute off- peak)
Town center/190th Avenue/ 181st Avenue/Airport Way	Pleasant Valley town center to Columbia Corridor	Regional Bus (15 minute peak/30 minute off-peak)	Regional Bus (15 minute peak/15 minute off- peak)
82nd Avenue/Sunnyside Road/97th/Stevens/ Mather Road/122nd/ 145th/Clatsop/172nd/ Foster Road	Clackamas regional center to Happy Valley to Pleasant Valley to Lents	Regional Bus (15 minute peak/30 minute off-peak)	Regional Bus (10 minute peak/15 minute off- peak)
Foster Road/ Butler Road/Towle Road	Damascus to Gresham	No service	Community bus (15 minute peak/30 minute off-peak)

Pleasant Valley loop	Within study area	Community bus (15 minute peak/30 minute off-peak)	Community bus (15 minute peak/30 minute off-peak)
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Bike and Trail Plan

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 a natural setting 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. About 6.6 miles of regional trails are proposed. Regional trails may multi-use paths (10-12 feet wide with 2 feet shoulders) or hiking trails (4-6 feet wide with 2 foot shoulders).

These trails connect to the Springwater Corridor, Powell Butte and other regional trails and green spaces. They also connect to major destinations – such as the Community Park, town center, employment districts and elementary/middle school complex. They include: the East Buttes Powerline Corridor Trail follows the BPA powerline easement and provides an important north/south connection from the Springwater Corridor Trail and the proposed Gresham/Fairview Trail to the Clackamas River Greenway near Damascus; and the East Buttes Loop Trail goes through the heart of Pleasant Valley and parallels Kelley Creek on its north and south sides. The East Buttes Loop Trail connects historic and natural landmarks with the town center and neighborhoods.

The Bike and Trail Plan, see Figure 22, includes the regional trails, along with additional local walking/hiking trails. The local walking/hiking trails are intended as supplemental routes that connect the regional trails with local destinations and streets in Pleasant Valley. There should be flexibility to build these trails as separated paths, or as widened sidewalks adjacent to streets, depending on the local conditions and development proposals.

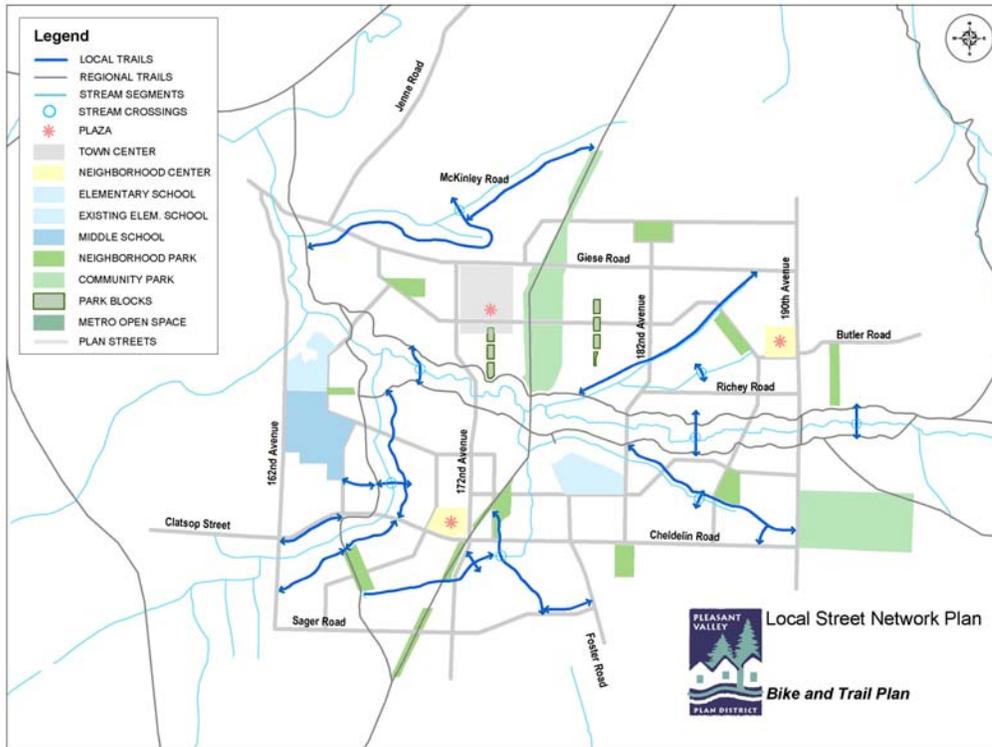


Figure 22

Section 6 – Implementation

Preferred Plan Cost Estimate

The estimated cost to provide the planned transportation system in Pleasant Valley is approximately \$90 million for the collector and arterial street system and associated stream crossings. The primary funding sources for the development of the transportation system in Pleasant Valley 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 Pleasant Valley Plan District will include special green street designs for local, collector and arterial streets. The process for establishing these designs will occur incrementally. Gresham does not have a set of green street designs that can be applied directly to Pleasant Valley. The approach will be to prepare a model green street standard, possibly connected with an early development proposal or as separate staff-level effort, and adopt this standard as part of the plan district. Given the importance of green streets to the overall plan for Pleasant Valley, 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.

Projects and Funding Plan

Project	Project	Description	Cost ¹	Timing	Responsible Jurisdiction	Funding Source
	New Roads					
R1	Foster North	New extension - 1,395 LF	\$1,767,000	6 to 20	Portland/Gresham	SDC/STP/Private
R2	Giese Ext.	New extension - 2,018 LF	\$2,940,000	6 to 20	Portland/Gresham	SDC/STP/Private
R3	Butler Ext.	New extension - 2,835 LF	\$3,990,000	6 to 20	Portland/Gresham	SDC/STP/Private
R4	Clatsop Ext.	New extension - 2,938 LF	\$3,720,000	6 to 20	Portland/Gresham	SDC/STP/Private
R5	Foster South	New extension - 2,581 LF	\$1,953,000	6 to 20	Portland/Gresham	SDC/STP/Private
	Existing Roads					
1	Segment 1	Boundary to Butler - improvement to existing - 122,137.5 LF	\$4,104,750	6 to 20	Portland/Gresham	SDC/Local
2	Segment 2	Butler to Richey - improvement to existing - 787.5 LF	\$1,632,750	6 to 20	Portland/Gresham	SDC/Local
3	Segment 3	Richey to Cheldelin - improvement to existing - 1,912.5 LF	\$3,825,000	6 to 20	Portland/Gresham	SDC/Local
4	Segment 4	Cheldelin to So Boundary - improvement to existing - 600	\$1,200,000	6 to 20	Portland/Gresham	SDC/Local
	On Butler					

Project	Project	Description	Cost ¹	Timing	Responsible Jurisdiction	Funding Source
5	Segment 5	190th to Ea. Boundary - improvement to existing - 1,800 LF	\$2,328,000	6 to 20	Portland/Gresham	SDC/Local
	On Richey					
6	Segment 6	182nd to 190th - improvement to existing - 2,325 LF	\$2,958,000	6 to 20	Portland/Gresham	SDC/Local
	On 182nd					
7	Segment 7	Giese to Richey - improvement to existing - 2,025 LF	\$2,682,000	6 to 20	Portland/Gresham	SDC/Local
8	Segment 8	Richey to Cheldelin - improvement to existing - 2,362.5 LF	\$2,992,500	6 to 20	Portland/Gresham	SDC/Local
	On 172nd					
9	Segment 9	Giese to Butler Ext. - improvement to existing - 900 LF	\$1,998,000	6 to 20	Portland/Gresham	SDC/Local
10	Segment 10	Butler Ext to unknown - improvement to existing - 1,537.5 LF	\$3,075,000	6 to 20	Portland/Gresham	SDC/Local
11	Segment 11	unknown to Cheldelin - improvement to existing - 1,275 LF	\$2,657,250	6 to 20	Portland/Gresham	SDC/Local
15	Segment 15	Cheldelin to Boundary - improvement to existing - 1,800 LF	\$3,600,000	6 to 20	Portland/Gresham	SDC/Local
	On Cheldelin					
12	Segment 12	172nd to 182nd - improvement to existing - 2,325 LF	\$3,255,000	6 to 20	Portland/Gresham	SDC/Local
13	Segment 13	182nd to 190th - improvement to existing - 2,550 LF	\$3,570,000	6 to 20	Portland/Gresham	SDC/Local
	On Clatsop					
14	Segment 14	162nd to Boundary - improvement to existing - 1,912.5 LF	\$2,371,500	6 to 20	Portland/Gresham	SDC/Local
	On 162nd					
16	Segment 16	Foster to unknown - improvement to existing - 3,000 LF	\$3,978,000	6 to 20	Portland/Gresham	SDC/Local
17	Segment 17	unknown to Clatsop - improvement to existing - 2,175 LF	\$2,988,000	6 to 20	Portland/Gresham	SDC/Local
18	Segment 18	Clatsop to Boundary - improvement to existing - 1,350 LF	\$1,620,000	6 to 20	Portland/Gresham	SDC/Local

Project	Project	Description	Cost ¹	Timing	Responsible Jurisdiction	Funding Source
	On Sager Road					
19	Segment 19	162nd to 172nd - improvement to existing - 2,662.5 LF	\$3,331,500	6 to 20	Portland/Gresham	SDC/Local
20	Segment 20	172nd to Foster - improvement to existing - 2,137.5 LF	\$2,680,500	6 to 20	Portland/Gresham	SDC/Local
	On Giese					
21	Segment 21	172nd to 182nd - improvement to existing - 2,925 LF	\$4,305,000	6 to 20	Portland/Gresham	SDC/Local
22	Segment 22	182nd to 190th - improvement to existing - 2,175' LF	\$3,045,000	6 to 20	Portland/Gresham	SDC/Local
	On Jenne Rd					
23	Segment 23	All - improvement to existing - 4,500 LF	\$5,580,000	6 to 20	Portland/Gresham	SDC/Local
	Traffic Signals					
S1	Signal	190th and Giese	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S2	Signal	190th and Butler	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S3	Signal	190th and Richey	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S4	Signal	190th and Cheldelin	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S5	Signal	182nd and Giese	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S6	Signal	172nd and Giese	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S7	Signal	Jenne and Giese	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S8	Signal	172nd (south of Foster)	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S9	Signal	172nd and Cheldelin	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S10	Signal	172nd and Sager	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S11	Signal	Cheldelin and 182nd	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S12	Signal	Cheldelin and Foster	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S13	Signal	Foster and 162nd	\$250,000	6 to 20	Portland/Gresham	SDC/Local
S14	Signal	Clatsop and 162nd	\$250,000	6 to 20	Portland/Gresham	SDC/Local

Project	Project	Description	Cost ¹	Timing	Responsible Jurisdiction	Funding Source
	Bridges					
B1	Bridge 1	Foster North	\$1,150,000	6 to 20	Portland/Gresham	SDC/STP
B2	Bridge 2	Giese Extension	\$1,150,000	6 to 20	Portland/Gresham	SDC/STP
B3	Bridge 3	Clatsop Ext.	\$1,150,000	6 to 20	Portland/Gresham	SDC/STP
B4	Bridge 4	Butler Ext to unknown local	\$1,700,000	6 to 20	Portland/Gresham	SDC/STP
	Planning Projects					
	Green Street Design Standards		\$50,000	1 to 5	Portland/Gresham	Local
	Foster/Richey/Giese Refinement Plan		\$100,000	1 to 5	Portland/Gresham/Metro	SDC/Local/STP
	TIF Update Study		\$100,000	1 to 5	Gresham	SDC
	Total New Road Projects		\$14,370,000			
	Total Improvements to Existing Roads		\$69,777,750			
	Total Signals		\$3,000,000			
	Total Bridges		\$5,150,000			
	Total Planning Projects		\$250,000			
	Total Transportation Projects		\$92,547,750			

¹ For roads cost includes ROW construction and pavement construction

** Some portions of roads or entire road projects fall outside the proposed Annexation Subarea extent.

Grants

A number of grant sources can be used to help fund transportation improvements. Most grants also come with a local match requirement that can range from 10% to 40%. 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 in the case of a subdivision, and other frontage improvements.

Transportation Impact Fee Assessment

Transportation Impact Fees are used to fund growth-related transportation system improvements. To determine the share of this cost between the TIF and development exactions, the following assumptions were made:

- TIF applies to any right-of-way (R/W) or roadway costs beyond the first 60 feet of R/W and/or pavement on both collectors and arterials while development exactions apply to costs up to the first 60 feet.
- Brand new arterials (Giese, 172nd to 190th; 172nd, Foster to Giese; and Cheldelin, 172nd to 190th) will be entirely funded by the TIF.
- All bridges will be funded by the TIF.
- All street segments adjacent to “undevelopable” land (i.e., slopes, environmental, etc.) will be funded by the TIF

Total Arterial and Collector Improvement Costs and Allocations

Transportation Component	Development Cost	TIF Cost	Total Cost
Roadways	\$44,840,575	\$41,055,015	\$85,895,590
Traffic Signals	\$0	\$2,450,000	\$2,450,000
Existing Deficiencies	\$0	-\$250,000	-\$250,000
Total	\$44,840,575	\$43,255,015	\$88,095,590

Institute of Transportation Engineers trip generation rates were applied to the general land use categories and development forecasts for the Pleasant Valley plan area. The area is estimated to generate a total of 13,520 peak hour trips per day at build out.

TIF Rate = Total TIF Cost/Estimated Trip Generation

Based on the analysis for street construction costs and estimated trip generation, the preliminary TIF rate would be approximately **\$3,200 per peak hour trip**. This compares to the current Gresham TIF rate of \$1,607 (\$1,977 effective July 1, 2004).

TSP Implementation Actions

The following actions are identified as desirable to implement public facility transportation provisions:

1. The City of Gresham, the City of Portland and Multnomah and Clackamas County and others as appropriate will work cooperatively to identify necessary public facility improvements in Pleasant Valley. Gresham will take lead responsibility for updating the Pleasant Valley Public Facility Plan. In this capacity, Gresham will convene an annual meeting of public works and transportation staff member from the four jurisdictions and urban service providers as defined in ORS 195 to share information about planned capital improvements and discuss policy issues affecting the provision of public facilities.
2. The four jurisdictions and other urban service providers will work cooperatively on necessary urban service agreements and intergovernmental agreements to ensure clarity regarding transfer of ownership of transportation facilities.

3. Gresham and Clackamas County will work toward developing an intergovernmental agreement, if necessary, to ensure the provision of necessary municipal infrastructure in county roads for that part of Clackamas County that is within the Pleasant Valley plan area. If agreement between Gresham and the County does not anticipate annexation of this area to Gresham, it will comply with provisions of ORS 195 for urban service providers.

Chapter 8. Public Facilities Plan

Introduction

The purpose of the Pleasant Valley 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 with the implementation of the Pleasant Valley Plan District. The PFP for transportation is included as part of a separate Transportation System Plan.

The Pleasant Valley PFP is not intended to be a “stand-alone” PFP but rather will be used by the Cities of Gresham and Portland to amend their respective Public Facilities Plans specific to Pleasant Valley. For the City of Gresham it will amend Volume 2 – Policies, Gresham Community Development Plan. After this introduction following PFP amendments are proposed:

- 10.720 Public Facilities
- 10.721 Water System
- 10.722 Wastewater System
- 10.723 Stormwater Management System
- 10.724 Parks and Recreation System

As required by Title 11 Metro Urban Growth Management Functional Plan a conceptual level services plan for the provision of wastewater, water, stormwater and parks was developed as part of the *Concept Plan* 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.

During the *Implementation Plan* project the PFP, consistent with Oregon Administrative Rules, specifically OAR 660-011-000, was drafted. Addressing relevant administrative rule requirements related to public facilities is appropriate as multiple jurisdictions and service providers share responsibility for delivering public services to Pleasant Valley and, therefore, assuring coordination of service delivery an important part of this plan. Key requirements of the Public Facility Planning Rule (OAR 660-011-010) include:

660-011-0010 The Public Facility Plan

- (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.

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 Pleasant Valley 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 Pleasant Valley to accommodate planned urban development over the next twenty years. Maps showing the locations of the capital improvement projects are also included.

A key component to the successful implementation of the Public Facilities Plan is the coordination of the multiple government agencies involved in Pleasant Valley, most notably the cities of Gresham and Portland. A March 2004 Gresham and Portland IGA provides a map showing future governance and urban services boundary for the two jurisdictions and generally provides the urban services will be provided by Gresham in areas that Gresham annexes (Area A) and by Portland in areas Portland annexes (Area B). The PFP addresses the roles of city and county jurisdictions and other districts in the delivery of urban services to Pleasant Valley.

For the remainder of Pleasant Valley, which is in Clackamas County (Area C), a final decision on who will provide services to most of this area has not yet been determined. The Cities of Portland and Gresham can serve this area, but do not have agreements in place with the county for doing so. The City of Happy Valley annexed a portion of the area south of Clatsop Street and west of 156th Street (Area D). Happy Valley will serve that area and is responsible for public facility planning in that area.

For planning purposes and to demonstrate that the area can urbanize in a manner that complies with Goal 11, the PFP assumes the cities of Portland and Gresham will serve the balance of Area C. The cities have plans in place that demonstrate its capacity to serve Area C. It can be noted that there are other potential service providers in Area C: Clackamas County Sewer District #1 (sewer), Sunrise Water Authority (water) and City of Happy Valley (parks). Servicing options for these providers, however, are not presented in this plan.

Providing services in Pleasant Valley requires 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 5-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 on 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, an analysis of capital improvement needs based on forecast growth projections, and a financing strategy. Most of the projects outlined in this public facility plan are not included in the adopted master plans and, therefore, are listed in the PFP as implementation projects. 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 and stormwater) are financed using a combination of SDC fee revenue - especially for growth related improvements - and retained earnings from utility operations (rate revenue). 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.

Property owners and private developers are required to build and dedicate the necessary public infrastructure that serves their property. When development projects are approved, conditions of approval usually include exactions, which may include on-site and off-site improvements. When a developer is required to oversize a public improvement to serve other development, local governments must reimburse the developer for the portion of benefit that accrues to surrounding properties. Sometimes this is done directly, using accumulated SDC funds or retained earnings, or through the formation of a reimbursement district. The U.S. Supreme Court has elevated the need for equity in the exaction process since the Dolan decision. Private contributions will continue to play an important role in extending public infrastructure to developing areas, but they cannot be relied on to subsidize or augment public resources beyond the level of impact associated with the particular development. Their contribution, therefore, is in enabling service extensions earlier than would otherwise be the case if the city were financing service extensions. Other than this "cash flow" and timing benefit, private contributions are not relied on as a source for funding the extension of public services.

10.720 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 the Pleasant Valley area into the Urban Growth Boundary (UGB) in December 1998. 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 Pleasant Valley 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* project. The general steps in developing the conceptual public facility plans were:

- Inventorying existing conditions
- Needs analysis
- Laying out system for each of the four alternatives including facilities needs and preliminary cost estimates
- Utilizing system information to evaluate and inform creating a preferred alternative (referred to as the "hybrid plan")
- Describing in the Implementation Strategies document each system including preliminary costs and a set of funding strategies

The *Concept Plan* also included the Steering Committee's adoption of plan goals. A specific goal was adopted for parks and is described in detail in the parks section. No specific goal was developed for water, wastewater, or stormwater public facilities. However, the Steering Committee did adopt, as a planning parameter, addressing the provisions of Title 11, which as previously noted requires a conceptual plan for public infrastructure along with preliminary costs and likely funding sources. Also, a green development goal was adopted which includes describing an intention that stormwater public facilities will be part of a green infrastructure system.

The *Concept Plan* work was the basis for the Public Facilities Plans that were drafted as part of the *Implementation Plan* project. Two steps occurred during the *Implementation Plan* process. One, for each public facility the system descriptions were updated to reflect the Pleasant Valley Plan District map and its land use assumptions for dwellings and population, employment and land areas. The Plan District is a refinement of the adopted *Concept Plan* map. And second, it identified and described 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 the public facilities:

660-011-0010 The Public Facility Plan

(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

Current residents of Pleasant Valley are largely self sufficient, and are responsible for their own water supply, wastewater treatment, and stormwater systems. Water is currently accessed via underground wells and wastewater is primarily treated in septic tanks and drain fields. Stormwater runoff is conveyed to natural drainage areas or to drainage ditches adjacent to local roads. All public roads are owned and maintained by Multnomah County and Clackamas County. There are no public parks in Pleasant Valley.

Future Public Facilities Provider Overview

In March 2004, the cities of Portland and Gresham revised a 1998 intergovernmental agreement (IGA) for the Pleasant Valley area regarding proposed jurisdictional boundaries, urban services, and preparation of land use plans for the area. A framework for urbanizing Pleasant Valley was developed and carried out through the planning process. The Pleasant Valley Public Facilities Plan further refines the roles and responsibilities outlined in the IGA. Urban development is expected to proceed only after annexation to an incorporated city. In accord with the 2004 IGA, Gresham agreed to annex the land generally east and north of Mitchell Creek (Area A) and Portland agreed to annex the land generally west of Mitchell Creek and in the Jenne Road area (Area B). A map showing the areas is in appendix B – Pleasant Valley Plan District Future Governance map.

For the remainder of Pleasant Valley, which is in Clackamas County (Area C), a final decision on who will provide services to most of this area has not yet been determined. The Cities of Portland and Gresham can serve this area, but do not have agreements in place with the county for doing so. The City of Happy Valley annexed a portion of the area south of Clatsop Street and west of 156th Street (Area D). Happy Valley will serve that area and is responsible for public facility planning in that area.

For planning purposes and to demonstrate that the area can urbanize in a manner that complies with Goal 11, the PFP assumes the cities of Portland and Gresham will serve the balance of Area C. The cities have plans in place that demonstrate its capacity to serve Area C.

The City of Gresham will be responsible for the provision of urban services for areas annexed into Gresham and the City of Portland will be responsible for the provision of urban services for areas annexed to Portland. This includes all Goal 11 mandated services (water, wastewater, and stormwater) and park services. The IGA states that Gresham and Portland will jointly determine whether wastewater sewage treatment for the mapped areas should be through Portland or Gresham. Preliminary indications suggest that it is more economical for Gresham to pump wastewater flows from Pleasant Valley to its sewage treatment plant. A final solution regarding wastewater sewer service will be made through a refinement study to the City of Gresham Sewer Master Plan.

10.721 WATER SYSTEM

SYSTEMS DESCRIPTION/CONDITION ASSESSMENT

Existing Conditions. Currently, water supplies in Pleasant Valley are from individual wells that tap the groundwater aquifer beneath the Valley. In addition, there is no domestic water distribution system in Pleasant Valley. This source is not adequate to meet the Valley's needs as it urbanizes. Alternatives have been analyzed based on agreements that are already in place for future annexation of three sub areas within Pleasant Valley.

Future Water Supply. The City of Portland supplies water to approximately 840,000 people in the Portland metropolitan area. Its five largest wholesale customers are the City of Gresham, Rockwood People's Utility District, Powell Valley Road Water District, Tualatin Valley Water District, and the City of Tualatin. These customers buy about 40% of the water Portland produces.

The current Portland water system includes two storage reservoirs in the Bull Run Watershed that can store up to 10.2 billion gallons of useable storage. A supplemental groundwater source, the Columbia South Shore Well field, is located east of the Portland Airport and can provide up to 95 million gallons per day ("mgd"). The water system also consists of three large conduits that convey water from the Bull Run Watershed to Portland, key storage reservoirs at Powell Butte, Mt. Tabor, and Washington Park and a vast distribution grid containing over 2000 miles of pipeline.

The water quality of the Portland Water Bureau (PWB) sources meets and exceeds all current U.S. Environmental Protection Agency ("EPA") water quality requirements. The City of Gresham signed a 25-year intergovernmental agreement to purchase wholesale water from PWB in 1980. The Portland system has capacity to meet the future water service demand for all of Pleasant Valley.

Future Water Service Distribution. There is no water distribution system in place in Pleasant Valley except for portions of Area B, which are described below. Fire flows are one of the main criteria in sizing waterline infrastructure and storage needs. Potential fire flow requirements for schools, attached residential and commercial sites can range from 1,000gpm to 3500gpm. Based on specific design criteria, a looped 12-inch waterline can supply flows to meet these demands during a Maximum Day Demand scenario. Locations of these types of sites within the Pleasant Valley area are the determining factor to the layout of the 12-inch waterline facilities.

System Design Assumptions:

- Domestic usage storage requirements:
 - 120 gallons per person per day
 - 2.3 ADD/MDD peaking factor

- Fire flow storage requirements:
 - Single Family Detached — 1000gpm for 2 hours (120,000gal)
 - Single Family Attached — 3000gpm for 2 hours (360,000gal)
 - Commercial / Public — 3500gpm for 3 hours (630,000gal)
 - (In service levels with mixed usage, fire flow storage is based on the highest rated requirements)

- Overall storage requirements based on the following: The sum of 25% of MDD (peaking equalization) plus fire flow storage plus 2 times ADD.

- Pumping requirement based on supplying MDD.
- Source requirement based on supplying MDD times 25% for Gresham's Intermediate and 720 service levels.

The following narrative describes the systems envisioned to serve the three sub areas within Pleasant Valley.

Area A. The City of Gresham will deliver water to future urban development in Area A. Gresham currently provides water service to approximately two-thirds of city residents, businesses, and industries. The Rockwood Water People's Utility District ("RWPUD") serves the remaining one-third. The Gresham water system is supplied from the Portland Water Bureau ("PWB") Bull Run System and Columbia River well field sources. Gresham currently has seven supply connections from PWB and one supply connection from RWPUD. Gresham has emergency connections via normally closed valves in the water system with RWPUD, Powell Valley Road Water District, Lusted Water District, and City of Troutdale.

The City of Gresham water system has seven service levels. Pressure to the system is provided directly by gravity from the PWB system or from eight water reservoirs supplied from booster pumping stations. Gresham's overall system Average Day Demand ("ADD") is approximately 7 million gallons and the Maximum Day Demand ("MDD") was approximately 14 million gallons. The water system's 8 reservoirs have approximately 28.5 million-gallons ("MG") of total storage. There are seven pump stations, approximately 250 miles of pipeline, and approximately 35 miles of water service pipeline. The system is monitored and controlled by a central supervisory control and data acquisition ("SCADA") system. The SCADA system allows water system operators to monitor and operate reservoirs, pump stations, and supply connections via a central computer control. This ability has enabled efficient operation of the water system by controlling peak demands from the PWB conduits.

Area A has elevations between 340 feet and 580 feet. Area A will be served from two separate service levels – the Intermediate Service Level and the 720 Foot Service Level. The Intermediate Service Level, which has an overflow elevation of 575 feet, can serve elevations between 340 feet and 440 feet. The 720-foot Service Level, which will have an overflow elevation of 720 feet, can serve elevations between 440 feet and 580 feet. A single population for Area A was received from Metro. Acreage as well as population was calculated for the 720-foot service level for the concept plan. These population figures were subtracted from the total population figures from Metro to then determine the expected populations within the Intermediate service level.

The following narrative describes the improvements needed to serve the area.

The *Intermediate Service Level* is served by two concrete reservoirs, which have a total storage of 10 MG, one 6MG reservoir (Regner Reservoir) and the other a 4MG reservoir (Butler Reservoir). Additional storage of approximately 3.5 to 4.0MG is needed in the Intermediate Service Level within Area A in Pleasant Valley. The existing Butler Reservoir site has adequate property to construct an addition reservoir. Additional pumping capacity of approximately 1,650 gpm to 1,950 gpm and source capacity of approximately 1,950 gpm to 2,325 gpm is needed in the Intermediate service level, which would be the level from which to pump to the 720-foot service level.

Two extensions of a 16-inch waterline are recommended: one extending from the existing Butler reservoir and the other extending from the existing system north of the Pleasant Valley study area. This redundancy is an important factor in assuring adequate service to a substantially populated area. The plan envisions 12-inch waterlines in all areas where there is a potential for high fire flows ranging from 1,500 gpm to

3500gpm. Waterline infrastructure smaller than 12 inches is anticipated to be constructed by development as it occurs.

The 720-foot Service Level will require 400,000 gallons to 1MG of storage for the Pleasant Valley study area. Property acquisition, which is not included in the estimate, will be required for a new reservoir. Location of the reservoir is also not identified at this time. The new 720-foot reservoir will be interconnected with the existing Hunters Highland Service reservoir. Additional pumping capacity of approximately 125gpm to 600gpm is needed for the 720-foot Service Level. The pump station would be located at the Butler Reservoir Site.

For Water, the preferred annexation strategy within Pleasant Valley would be east to west to take advantage of the existing water infrastructure. Our South Hills Service Level through an interim service arrangement can serve the 720-foot Service Level. If development proceeds west to east we could enter into an interim service arrangement with Portland. Pressure would be regulated at this connection to mirror Gresham's Intermediate Pressure Zone (575' elevation). Under both approaches, reserves need to be set aside using SDCs to build the additional water storage facilities for Pleasant Valley.

Area B. The City of Portland will provide water service to urban development in Area B. Area B includes two separate portions of land within the Pleasant Valley study area. The first area is at the NW corner of the Pleasant Valley study area along Jenne Rd, which has elevations between 260 feet and 380 feet. Currently, a 12-inch waterline resides in SE Jenne Road from SE McKinley Road to SE 174th Avenue. This waterline is served directly from the 50MG Powell Butte Reservoir, which has an overflow elevation of 531 feet. An analysis indicates that this 12-inch main could adequately serve this area. The second area is east of 162nd and between Kelley Creek and Mitchell Creek, as well as a small portion of land at the NW corner of 162nd and Clatsop. Elevations in this area range from 340 feet and 450 feet. Currently, a 12-inch waterline resides in SE 162nd from SE Foster Road to SE Clatsop Road as well as a 12-inch waterline in SE Clatsop from 162nd to the west. These waterlines are served from the 3MG Clatsop Reservoir, which has an overflow elevation of 814 feet. This reservoir is served from a pump station located near 162nd and Flavel and has a MDD capacity of 350gpm. A conceptual analysis indicates that this 12-inch main could adequately serve this area.

All the major water transmission and storage facilities are, therefore, already in place for Portland's part of Pleasant Valley. In both subsections of Area B, it is anticipated that property owners, as a condition of service, would construct required distribution mains. However, Portland will need to update its water master plan to show the preferred routing and pipe sizes for Area B to justify requirements for oversizing water distribution facilities. This is especially important because of the potential that a school may be build adjacent to 162nd Street north of Clatsop Street.

Area C. As noted above, there is uncertainty regarding who will deliver water to urban development in Area C. Given that the area is designated primarily for residential development, there are no significant storage or transmission facilities needed to serve the area independently from other parts of Pleasant Valley. The City of Gresham is capable of serving this area.

The Gresham Water Master Plan recommends that the city extend a 16-inch waterline along Cheldelin Road as part of a loop that provides redundancy for serving areas to the north within the Intermediate Service elevation. This line also would be capable of supplying water to all of Area C. For the present, the PFP assumes the City of Gresham will extend a 16-inch waterline along Cheldelin Road and will serve Area C.

A map in Appendix A shows the planned system improvements.

SUMMARY OF FUTURE NEEDS

- The City of Gresham has access to sufficient water supplies to serve all areas within Pleasant Valley and has identified necessary improvements to its water system to serve sub areas A and C. Additional intergovernmental work is needed to determine whether the Gresham serves Area C by annexing this area, or through a special service agreement.
- The City of Portland has storage and transmission capacity to serve Area B, but will need to update its water master plan to clearly identify the size and preferred routing of transmission facilities to establish over sizing requirements. Portland also may supply portions of Area A on an interim basis until adequate storage can be constructed in Pleasant Valley. More analysis is needed to refine this concept. The IGA may need to be amended to enable this solution.
- Additional storage will be needed in the City of Gresham's Intermediate or 720-foot water service level to serve complete development. In the interim, Gresham will be able to serve the eastern parts of Area A from the Hunters Highland and South Hills reservoirs until additional storage is constructed to serve Pleasant Valley. More analysis is needed to refine this service concept.
- The Cities of Portland and Gresham need to consider the impact of water service extensions in Pleasant Valley on their existing SDC programs. In particular, Gresham needs to evaluate which Pleasant Valley projects should be added to their list of eligible projects and determine the appropriate SDC to finance the additional public improvements that will support growth in Pleasant Valley commensurate with existing levels of service.

FINANCING PLAN

The following discussion presents the envisioned strategy for financing water service extensions in the Gresham and Portland sections of Pleasant Valley. For analysis purposes, the boundary between Portland and Gresham is presumed to be Mitchell Creek in the west. The Jenne Road area is also presumed to be part of Portland. All other areas in Multnomah County (Area A) are anticipated to be in Gresham. The final boundary will likely shift away from the creek, but at this time, the shift is not expected to significantly alter the relative cost burden depicted for Gresham and Portland. This discussion assumes Gresham will serve the Clackamas County area (Area C). The ultimate serve and governance provides for Area C have not been determined and will be the subject of future agreements.

Water. Both Gresham and Portland rely on developer contributions, SDCs, and retained earnings from the utility to finance system expansion. Each city has borrowed against future utility revenues to finance major improvements in production, storage and transmission facilities. SDCs are collected by both cities to help finance system expansion.

In the Portland service areas, it is expected that the current mix of private contributions, utility earnings, and SDC will finance necessary system improvements. The existing water system has capacity, pressure, and available storage to serve these areas. Transmission extensions can be financed incrementally with private funds and SDCs. The City will need to review its SDC methodology to determine if the transmission line in 162nd should qualify as an SDC credit eligible project. Otherwise, all improvements would be financed conventionally.

In Gresham, the annexation analysis indicates that the city may have difficulty financing water storage needs in the short term. The Water Fund currently has insufficient reserves to secure revenue bond financing to build the storage and transmission needed to serve Pleasant Valley. Over the long term,

however, Gresham's existing SDCs should generate enough revenue from within Pleasant Valley to capitalize system improvements.

To address the timing problem for meeting water storage needs, two approaches can be taken. If development proceeds into Pleasant Valley from east to west, most of that land falls within Gresham's 720-foot pressure zone. The city has a moderate amount of capacity in its South Hills Reservoir that could serve development in Pleasant Valley within the 720-foot service pressure zone on an interim basis. As reserves build from SDC payments, Gresham can issue bonds to add long-term storage in this pressure zone for Pleasant Valley. Transmission extensions from both the east and west can be financed conventionally.

If development proceeds into Pleasant Valley from west to east, most development would fall within Gresham's Intermediate Service Level. On an interim basis, Portland could serve as the main water supply for development in the western portion of the valley until Gresham can finance permanent storage reservoirs. During this interim time period, Gresham will need to set aside reserves from SDCs that can be used to secure a bond issue to build storage for areas east of Mitchell Creek that are within the City's Intermediate Service Level. The timing for a bond measure to build this storage will depend on the pace of development in Pleasant Valley. When service can be transferred over to the Gresham service area and inter-tie between Portland and Gresham can serve as an emergency connection.

Gresham needs to review their SDC methodology, especially their improvement fee, to ensure the fee is adequate to recover forecast capital improvement needs in Pleasant Valley. This will be done as part of an engineering study to refine the storage and supply solutions outlined above. The consensus of staff, however, is that there are no extraordinary physical or technical issues associated with water service delivery in Pleasant Valley. If SDCs keep pace with design and construction costs, the area will generate sufficient revenue over the long term to finance necessary water system improvements.

GOALS, POLICIES AND ACTION MEASURES

Goals and Policies.

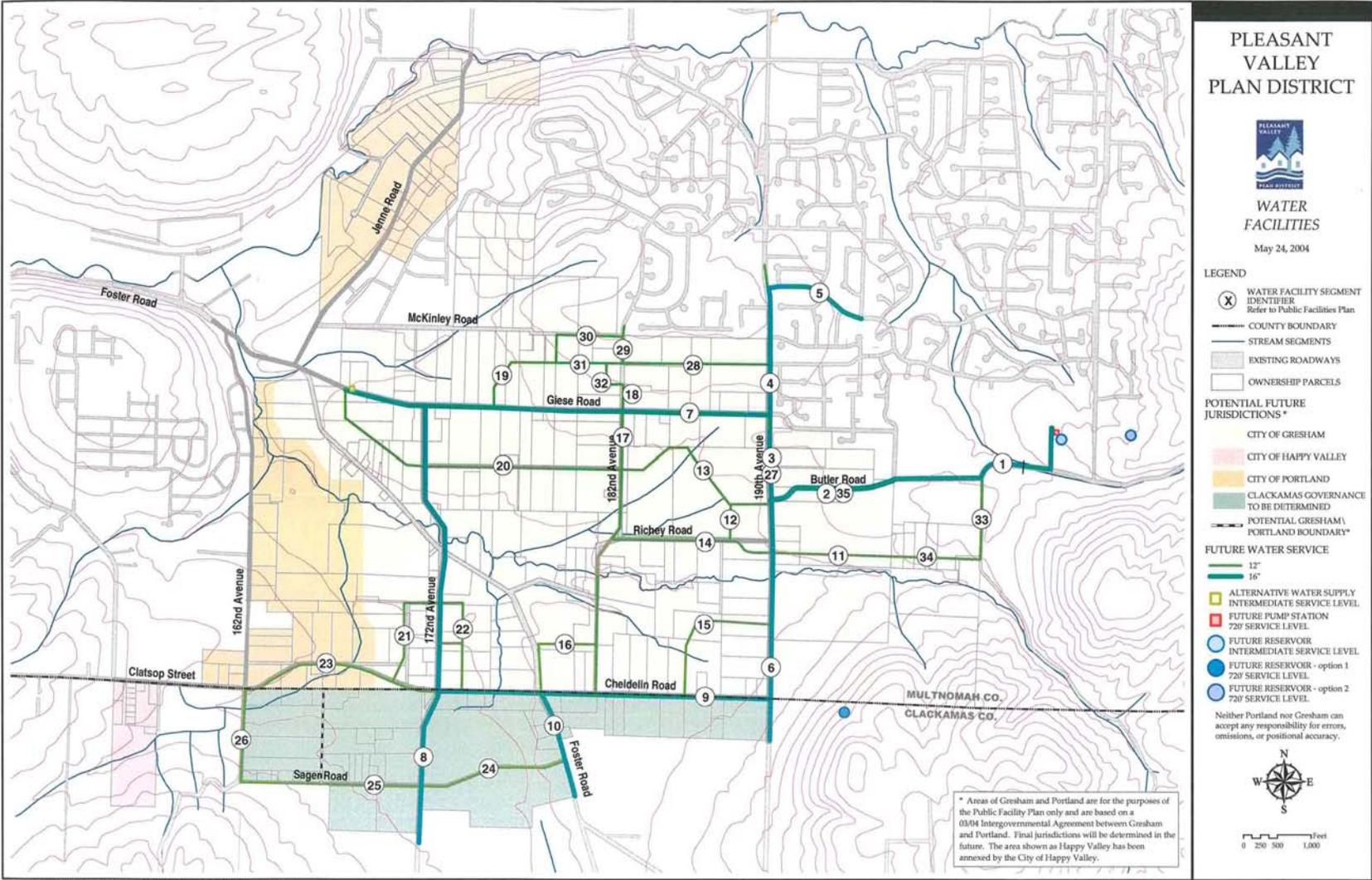
1. Applicable goals and policies that relate to the provision of public facilities in the existing comprehensive plans for the cities of Portland and Gresham also apply to the Pleasant Valley PFP. In addition to those goals and policies, the following policies are made part of this plan.
2. The Cities of Gresham and Portland and Clackamas County will work cooperatively to identify an efficient solution for extending water service to portions of Clackamas County that are within the Pleasant Valley plan area. Any agreement between Gresham and the County that does not anticipate annexation of this area to Gresham will comply with provisions of ORS 195 for urban service providers.

Action Measures

1. Update the City of Portland water master plan to establish the size and preferred routing for water system improvements serving Area B and establishing an interim service agreement with Gresham if annexation proceeds from the west to east.

2. Review and, if necessary, update the City of Gresham system development charge water improvement fees to include necessary public improvements for serving Areas A and C.
3. Update the City of Gresham 5-Year Capital Improvement Plan to include critical path water system improvements – especially storage in the Intermediate service level - in accordance with the adopted water master plan and annexation plan.
4. If Gresham and/or Portland is to annex and provide services to Area C (in Clackamas County) then Gresham and/or Portland and Clackamas County need to conclude negotiations for territorial expansion and service agreements for Area C.

APPENDIX A



APPENDIX B

Pleasant Valley Public Facility Plan

Water Capital Improvement Project List

Project	Description	Units	Cost ¹	Timing	Responsible Jurisdiction	Funding Source	Comments	Short Term	Long Term
Waterlines									
Intermediate Service Level									
	Size – 16”	Linear feet							
1	Butler Rd west to Butler extension Intermediate Service Level – 16”	3,022	\$362,599	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 362,599
2	Butler Extension to 190 th – Intermediate Service Level – 16”	1,899	\$227,858	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 227,858
3	190 th from Butler Rd extension north to Giese – Intermediate Service Level – 16”	1,219	\$146,227	6 to 20	Gresham	SDC/Local	Timing depends on private investments	\$ -	\$ 146,227
4	190 th from Giese north to Willow Parkway – Intermediate Service Level – 16”	1,854	\$222,480	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 222,480
5	Willow Parkway from 190 th east to Eastwood Ave – Intermediate Service Level – 16”	1,515	\$181,800	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 181,800
6	190 th from Butler Road extension south to PV boundary – Intermediate Service Level – 16”	3,530	\$423,544	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 423,544
7	Giese from 190 th to just east of Foster – Intermediate Service Level – 16”	6,309	\$757,075	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 757,075
8	172 nd from Giese south to PV Boundary – Intermediate Service Level – 16”	6,526	\$783,101	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 783,101
9	Cheldelin from 190 th to 172 nd – Intermediate Service level – 16”	4,916	\$589,900	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 589,900
10	Foster from Cheldelin south to PV Boundary – Intermediate Service Level – 16”	1,587	\$190,454	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 190,454

Project	Description	Units	Cost ¹	Timing	Responsible Jurisdiction	Funding Source	Comments	Short Term	Long Term
	SIZE – 12”								
11	Richey Road from 190 th east to service level break point – Intermediate Service Level – 12”	1,680	164,640	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 164,640
12	West side 190 th /South of Plaza to Richey Road – Intermediate Service Level – 12”	1,190	\$116,662	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$ -	\$ 116,662
13	From 182 nd looping through LDR to Plaza – Intermediate Service Level – 12”	2,142	\$209,914	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 209,914
14	Richey Road from 190 th to 182 nd – Intermediate Service Level – 12”	2,444	\$239,531	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 239,531
15	(west of 190 th) between Richey & Cheldelin – Intermediate Service Level – 12”	2,306	\$226,017	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 226,017
16	(east of Foster- 2 lines) between Richey & Cheldelin, Intermediate Service Level – 12”	3,921	\$384,235	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 384,235
17	182 nd from Richey to Giese – Intermediate Service Level - 12”	1,900	\$186,223	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 186,223
18	182 nd from Giese to Neighborhood Park – Intermediate Service Level – 12”	398	\$39,027	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 39,027
19	31 st looping back to Giese – Intermediate Service Level – 12”	1,404	\$137,602	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 137,602
20	(south of Giese) between Linneman & Foster – Intermediate Service Level – 12”	4,723	\$462,855	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 462,855
21	(west of 172 nd) Crystal Springs to Baxter – Intermediate Service Level – 12”	1,725	\$169,095	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 169,095
22	(east of 172 nd -2 lines) Crystal Springs to Cheldelin – Intermediate Service Level – 12”	1,965	\$192,523	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 192,523

Project	Description	Units	Cost ¹	Timing	Responsible Jurisdiction	Funding Source	Comments	Short Term	Long Term
23	Baxter/Cheldelin from 172 nd west to 162 nd – Intermediate Service Level – 12”	3,010	\$294,943	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 294,943
24	(south of Cheldelin) from Foster west to 172 nd – Intermediate Service Level – 12”	2,200	\$215,603	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 215,603
25	Sager Rd from 172 nd west to 162 nd – Intermediate Service Level – 12”	2,667	\$261,361	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 261,361
27	162 nd from Sager to Clatsop St – Intermediate Service Level – 12”	1,358	\$133,122	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 133,122
720-foot Service Level									
	SIZE – 12”								
35	Butler Road Extension – 720-foot Service Level – 12”	1,925	\$188,607	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 188,607
27	190 th from 25 th to Butler extension – 720-foot Service Level – 12”	3,432	\$336,287	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 336,287
28	31 st Street from 190 th to Linneman – 720-foot Service Level – 12”	2,165	\$212,206	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 212,206
29	SW Linneman from 30 th to 21 st Street – 720-foot Service Level – 12”	552	\$ 54,086	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 54,086
30	McKinley Road from 190 th looping back to 31 st - 720-foot Service Level – 12”	1,391	\$136,282	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 136,282
31	31 st Street from Linneman to McKinley loop – 720-foot Service Level – 12”	983	\$96,382	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 96,382
32	West side of neighborhood park from 31 st to Linneman – 720-foot Service Level – 12”	559	\$54,742	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 54,742
33	Rodlun from Butler south to UGB – 720-foot Service Level – 12”	1,164	\$114,068	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 114,068
34	Richey Road from Rodlun west to service level break point – 720-foot Service Level 12”	1,394	\$136,659	6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	\$ 136,659

Project	Description	Units	Cost ¹	Timing	Responsible Jurisdiction	Funding Source	Comments	Short Term	Long Term
Reservoir Storage		I. Gallons		6 to 20	Gresham	SDC/Local	Timing depends on private investment	\$	
Intermediate Service Level	3,472,000 Gallons at the Intermediate Service Level	3,472,000	\$5,208,000	1 to 5	Gresham	SDC/Utility		\$5,208,000	\$ 0
720' Service Level	1,182,000 Gallons at the 720' service level	1,182,000	\$1,773,000	6 to 20	Gresham	SDC/Utility			\$1,773,000
Pumping Capacity		Gallons per Minute							
Intermediate Service Level	1,696 Gallons/minute at the Intermediate Service Level	1,696	\$1,696,000	6 to 20	Gresham	SDC/Utility			\$1,696,000
720' Service Level	604 Gallons/minute at the 720' Service Level	604	\$604,000	6 to 20	Gresham	SDC/Utility			\$ 604,000
Source									
Intermediate/720' Service Level	2,875 Gallons/minute at the Intermediate/720' Service Level	2,875	\$862,500	6 to 20	Gresham	SDC/Utility			\$ 862,500
Planning									
Water Master Plan/SDC Update			\$30,000	1 to 5	Gresham	SDC/Utility	Priority Investment	\$ 30,000	\$ 0
Total Waterlines			\$8,647,711						
Total Reservoir Storage			\$6,981,000						
Total Pumping Capacity			\$2,300,000						
Total Source			\$862,500						
Total Planning			\$30,000						
Total Water System CIP Cost			\$18,821,211					\$5,238,000	\$13,583,211

Source: City of Gresham Water Bureau

¹ Costs are based on 2003 data

**Some portions of project service areas fall outside the proposed Annexation Subarea extent or are adjacent to areas outside the study boundary.

10.722 WASTEWATER SYSTEM

SYSTEM DESCRIPTION/CONDITION ASSESSMENT

Existing Conditions. Most of the Pleasant Valley Concept Plan area is within the upper Johnson Creek basin. The Johnson Creek basin is bordered generally by Clackamas County to the south, the City of Gresham to the east, on the north by NE Glisan Street and on the west by SE 45th Avenue. Current land use in the Pleasant Valley part of this basin is rural in nature and the area is served by on-site septic drainfields. This method cannot be relied on to serve planned urban level development. The City of Portland, City of Gresham, and Clackamas County all have the ability to collect and treat flows from all or portions of the Pleasant Valley Area. Alternatives have been analyzed based on service options for three sub areas within Pleasant Valley.

Sewage Collection. The sewage collection system refers to the infrastructure that serves development in Pleasant Valley. The topography within the Pleasant Valley area is such that the majority of the waste generation is within one drainage basin. A conceptual sewage collection system was developed as part of the Concept Planning process for Areas A, B, and C (Technical Appendix 11, Pleasant Valley Concept Plan, Concept D, 2001). A map in Appendix A shows the planned collection system improvements. Most of the system serving Areas A and C is gravity sewers. This design will avoid building sewers in sensitive riparian areas.

The Jenne-Powell sub-basin (former Urban Reserve area 4 and now part of Area B) can be connected directly to the Portland sanitary sewer system via the Foster Road interceptor. The remaining area (former Urban Reserve Area 5 and now the southwestern part of Area B) can be served with a gravity sewer system to a point near the confluence of Kelley Creek and Mitchell Creek. From there this sewage will need to be pumped across Kelley Creek, either to tie in with Portland's Foster Road interceptor or pumped south along Foster Road to the Pleasant Valley main pump station.

For planning purposes, the Concept Plan analysis assumes that Area C, which is within Clackamas County but drains toward Gresham, will be integrated with the sewer collection system for the rest of Pleasant Valley. It is conceivable that sewage from Area C could be collected in a separate system and pumped to Clackamas County for treatment, but this likely would be a more expensive solution and is not anticipated.

Sewage Conveyance and Treatment. The sewage conveyance and treatment system refers to the infrastructure that transports sewage from Pleasant Valley to a wastewater treatment plant for processing and discharge. There are three conveyance and treatment options for wastewater flows from Pleasant Valley. The first option would convey the sewage to the City of Gresham wastewater treatment plant. The second option would direct sewage to the City of Portland wastewater conveyance system for treatment at the Columbia Boulevard Treatment Plant. Both treatment options have advantages and disadvantages, which are described in detail below. The third option only deals with flow from Area C. A simplified description of these solutions follows.

The Gresham treatment solution involves building a 24-inch trunk line – most likely constructed along Foster Road and then up Jenne Road – to an inter-tie point with Gresham's existing sewer system. Some Gresham sewers or pump stations may need to be enlarged to convey the flow to the Gresham sewer plant where sewage would be processed and discharged to the Columbia River. In both these scenarios, the capacity of the main pumping station would be around 3,300gpm to match projected flows from the integrated parts of Areas A, B, and C.

The Portland treatment option requires transporting the Pleasant Valley wastewater to Portland's sewage conveyance system. One approach would involve building gravity sewers, but this would require extensive construction in the sensitive Kelley Creek and Johnson Creek riparian corridor and stream channel. A more likely solution would be to use a large pump station on the south side of Kelley Creek near 172nd Avenue combined with a pressure sewer line - most likely constructed along Foster Road - to an inter-tie point with Portland's sewer system. Sewage would then flow through Portland sewers, some of which would need to be enlarged to accommodate the additional flow. Sewage would be treated at the Columbia Boulevard treatment plant and discharged to the Columbia River.

An engineering analysis by the City of Gresham has led Gresham to conclude that for Area A and C, the preferred solution is to convey by gravity sewage to the Gresham Treatment Plant. More analysis is needed to determine whether or not some flow from Area B also should be treated in Gresham. A final decision on the treatment option for Area B will be made when Portland adopts amendments to its public facility plan for Area B.

As noted above, it is conceivable that the flow from Area C, in Clackamas County, could be collected and diverted south to Clackamas County Sewer Service District #1. This approach, however, would be expensive because it runs counter to the terrain. This option would only be pursued if the area becomes part of Happy Valley and if an agreement cannot be reached for treating flow from this area in Gresham or Portland.

The City of Portland Treatment Solution. Portland currently treats most of the sanitary sewage generated within the 12,750-acre Johnson Creek basin. Portland also accepts sanitary sewer flows generated in the basin from the city of Gresham at four locations: SE 162nd Avenue and SE Stark Street, SE 176th Avenue, SE Haig Street, and Foster and 162nd Avenue. Portland also accepts sewage flows from Clackamas County Sewer Service District #1 at: SE 132nd Avenue and SE Clatsop Street, SE Linwood Avenue at Johnson Creek Blvd.

The McKinley Estates, located in the Jenne-Powell sub-basin, also is served by Portland. This development is served by an 8-inch sewer line in SE Jenne Road (from SE McKinley Road to Foster Road) and an 8-inch line in Foster Road (from SE Jenne Road to 162nd Avenue), where it discharges into the city's sewer system in a 10-inch line.

Portland completed a Public Facilities Plan in July 1999. This plan included an analysis for serving the Pleasant Valley Concept Plan area. Johnson Creek was modeled using a spreadsheet analysis tool. Infiltration and inflow (I/I) contributions varied within the model, depending on whether actual monitoring data were available. Because of the proximity of the Pleasant Valley Concept Plan area, the modeling effort considered the impacts of both including and excluding this area as part of the analysis. In addition to existing pipes, the model contains hypothetical pipes that may be constructed in the future to serve undeveloped areas within Pleasant Valley. These future pipes were placed on a planning-level alignment based on topography and street location. Sub-basins were delineated so that the flows in these future pipes could be turned on and off as required for the analysis.

In the 2015 base-case (without Pleasant Valley) wet weather scenario, the 10-inch and 18-inch sewer lines following SE Knapp Street were too small to accommodate projected flows. The total deficient length is less than 1,000 feet. The main branch serving the mid-county area (from SE Raymond Street and 122nd Avenue to Division Street and 148th Avenue) ran at 50 to 65 percent capacity. The segment on SE 111th Avenue just upstream of the Johnson Creek Interceptor ran at 70 to 75 percent capacity. The Johnson Creek Interceptor itself was at about 65 percent capacity below SE 112th Avenue and SE Foster Road (one segment was 81 percent) and at 20 to 30 percent capacity in the upper section. In summary, 214

pipes were zero to 25 percent full; 114 pipes were 25 to 50 percent full; 92 pipes were 50 to 75 percent full; and 8 pipes were 75 to 100 percent full.

The modeling then considered an alternative future condition with full build-out for development in Pleasant Valley and other unserved areas. Under that scenario, some reaches of the Johnson Creek trunk exceeded design capacity. The interceptor ran 80 to 90 percent full in the lower section and 75 to 80 percent full in the upper section, with isolated segments running at 116 percent and 104 percent, respectively. About 645 feet of pipe in two locations would need to be replaced in the Johnson Creek basin.

Further modeling efforts in these areas would aid in predicting whether some of this pipe can be surcharged at an acceptable level. If so, the existing pipeline may not need to be replaced. Before a decision is made about directing flow from Pleasant Valley to Portland, a more sophisticated Stormwater Management Model (“SWMM”) should be developed for the sewer system and reliable cost estimates prepared for related improvements.

In addition to replacing undersized sewer lines, flow from Pleasant Valley would be conveyed through parts of Portland’s sewer system that are being overhauled to reduce combined sewer overflows. The overflow reduction has been accomplished by building very large deep conduit pipes that provide temporary storage for sewage during storm events. This sewage must later be pumped out of the storage conduits for treatment. It is estimated that sewage from Pleasant Valley may need to be pumped three or four times as it traverses the Portland system before being treated. This adds significantly to the cost of conveying and treating sewage through Portland. As a consequence, it is estimated that Portland sewer rates will be 30% or more higher than Gresham rates for domestic service. For areas in the City of Gresham, this rate differential represents a significant concern.

City of Gresham Treatment Solution. The City of Gresham provides sanitary sewer collection and treatment for more than 90,000 residents, businesses, and industries within the City. Through its wastewater management program, the City is able to provide high quality service to ratepayers while protecting the area’s sensitive surface water features. Gresham’s service area contains seven major sewer basins totaling approximately 14,171 acres (22 square miles). In addition to the seven sewer basins, the City also accepts wastewater flows from the City of Fairview (228 acres) and the City of Wood Village (604 acres), and a small amount of flow from the City of Portland. The service area extends from the Columbia River at an elevation of approximately 10 feet to the southern edge of Multnomah County at an approximate elevation of 1,000 feet. The service area is bordered by the City of Portland to the west and Fairview, Troutdale, and unincorporated Multnomah County to the north and east.

Gresham recently expanded its sewage treatment plant and has capacity to serve Pleasant Valley. In February 2001, Gresham updated its Wastewater System Master Plan. The plan included a service analysis for most of the Pleasant Valley Concept Plan area but it excluded Area C within Clackamas County. Like the modeling that was used for Portland, the analysis established a baseline flow condition for Gresham’s existing service area and then identified necessary improvements under build out conditions to accommodate the additional flow from Pleasant Valley. This flow would likely be introduced to Gresham’s system at the west end of the Johnson Creek Trunk.

Without contributions from Pleasant Valley, the Johnson Creek trunk is projected to carry a flow of 1,724 gallons per minute (“gpm”). With Pleasant Valley flows added, the line would need to carry an additional 3,300 gpm to 5,024 gpm, depending on the size of the area served and infiltration rates. This represents an increase of approximately 190 percent. The trunk line does not have capacity to accommodate this flow.

The closest pipeline with capacity to accept flow from Pleasant Valley is located in SW 11th Ave. just north of where Johnson Creek crosses under Jenne Road. A total of 3,116-linear feet of sewer pipe will need to be upsized to convey the additional flow to the Linneman pump station, and additional piping to convey flow within the Johnson Creek basin. Additional pumping capacity also must be provided. The size of the new force main from the Linneman pump station would need to be increased or a third parallel force main provided to maintain head loss and velocity at reasonable levels given the increased flow. Finally, because the West Trunk, Gresham Parallel Interceptor, and a planned new interceptor are forecast to be at capacity without flows from Pleasant Valley, the size of the new interceptor would need to be increased to accommodate Pleasant Valley flows.

Clackamas County Treatment Solution. Clackamas County’s Water Environment Services (“WES”) manages 3 service districts that provide sanitary sewer and surface water management service to over 150,000 customers. WES operates and maintains five wastewater treatment systems, 17 pump stations, and more than 240 miles of gravity sanitary sewer pipelines. The Kellogg Creek Wastewater Treatment Plant serves the City of Happy Valley and the unincorporated North Clackamas Urban area. This plant would likely accept any flow diverted from Pleasant Valley.

Area C is in Clackamas County. Gresham does not include any land from Clackamas County within its incorporated boundaries and has no agreements of procedures with the county for doing so. If Gresham and the County do not agree that Area C will be annexed into Gresham, it would still be possible for Gresham to serve Area C through an urban service agreement with Clackamas County. If that approach proves infeasible, Area C could be served by Clackamas County Sewer Service District #1. To do so, the District will need to update its sewer master plan and analyze how best to collect and pump sewage from Area C out of the Johnson Creek basin into the Clackamas basin and identify where to connect to the district’s conveyance system. This would not be an efficient service delivery option for sewers.

SUMMARY OF FUTURE NEEDS

- The City of Gresham and Portland have sufficient treatment capacity to serve all areas within Pleasant Valley. Preliminary analysis by Gresham suggests that at least for Areas A and C, Gresham conveyance and treatment would be the preferred option, but both Portland and Gresham would benefit from an engineering analysis that compares the long-term capital improvement and operating costs associated for each alternative. In addition, a more refined engineering analysis is needed to establish a location for the major pump station serving Pleasant Valley and the related force mains. The study needs to be conducted consistent with the 1998 IGA between Portland and Gresham re: future planning for sanitary sewer services in Pleasant Valley. The analysis also should consider the marginal impact on SDC improvement fees of constructing these conveyance facilities. This study is a critical path element because urban development cannot proceed in Pleasant Valley without a solution to the sewage treatment question.
- Building the main pump station and force main is also a critical path public improvement because relatively little urban development can occur in Pleasant Valley without this facility. It may be possible to serve some interim development in the northeastern part of Pleasant Valley using temporary pump stations if there is conveyance capacity in Gresham’s existing sewers north of the valley. This interim solution would need to be funded privately and these temporary pump stations decommissioned when the main pump station becomes operational and sewer connections are constructed to the main pump station.
- While both Portland and Gresham have conducted a preliminary analysis of off-site conveyance routes and treatment capacity to serve Pleasant Valley, neither jurisdiction has amended their public facility plans or master plans to include specific sewer improvement projects within Pleasant Valley.

This step provides certainty to property developers regarding fair-share allocation of improvement costs as well as providing a foundation for updating SDC improvement fees. Master plans should be amended to include the collection system improvements within Pleasant Valley and the off-site system improvements once a conveyance and treatment solution is established.

- Both Portland and Gresham may need to modify their SDC improvement fees for sanitary sewers depending on the marginal cost associated with serving Pleasant Valley. Each jurisdiction also will need to modify their SDC improvement fee project list to make Pleasant Valley system improvements eligible to be financed with SDC revenue.
- Additional intergovernmental work may be needed between Gresham and Portland if any portion of Area B obtains sewage treatment service from Gresham. Gresham and Portland already have intergovernmental agreements for contract treatment service to use in developing such an agreement.
- Additional intergovernmental work is needed to determine whether or not Gresham will serve Area C either by annexing this area, or through a special service agreement. If Gresham serves the area on a contract basis, Clackamas County and Gresham need to make sure this agreement conforms with provisions of ORS 195 related to urban service provider agreements. If need be, Clackamas County Sewer Service District #1 can serve Area C, but no planning is in place to proceed with this solution.

FINANCING PLAN

The following discussion presents the envisioned strategy for financing wastewater service extensions in the Gresham and Portland sections of Pleasant Valley. For analysis purposes, the boundary between Portland and Gresham is presumed to be Mitchell Creek in the west. The Jenne Road area is also presumed to be part of Portland. All other areas in Multnomah County are anticipated to be in Gresham. The final boundary will likely shift away from the creek, but at this time, the shift is not expected to significantly alter the relative cost burden depicted for Gresham and Portland. This discussion assumes Gresham will serve the Clackamas County area (Area C). The ultimate service and governance providers for Area C have not been determined and will be the subject of future agreements.

Sanitary Sewer. Both Gresham and Portland have traditionally relied on developer contributions, SDCs, and retained earnings from the utility to finance system expansion. Each city has borrowed against future utility revenues to make significant improvements to their sewage treatment and conveyance systems. Both cities collect sanitary sewer SDCs to help pay for conveyance and treatment costs related to growth.

The areas of Pleasant Valley that may be annexed to Portland should generate sufficient revenue from private contributions, utility earnings, and SDCs to finance service extensions. There is a capacity limitation in the Portland conveyance system down-gradient from Pleasant Valley, but the flow from the Jenne Road and west Mitchell Creek areas may not significantly alter the scale of that problem or planned solutions to it. Sewer extensions in Portland service areas, therefore, can be financed incrementally with private contributions and SDCs.

In Gresham service areas, the analysis indicates that existing SDCs will not be adequate to finance treatment and collection system improvements. Another solution that may be considered is to use a sewer utility surcharge to offset the added capital and operating costs associated with serving Pleasant Valley. A refinement study to the Gresham Sewer Master Plan will be initiated in FY 2003-04 to analyze this issue and determine which approach should be used.

As with water, there are short-term service issues that also need to be resolved. If development in Pleasant Valley proceeds from west to east, the city will provide capacity by constructing the 24-inch sewer line from Linneman to Jenne Road at Foster Road. As sewer lines are extended east and south, this would provide an orderly sequence for extending sewer service.

If development precedes from east to west, a solution for funding the construction of the new sewer system through undeveloped property to the Kelley Creek pump station site is through the use of reimbursement districts. The City will likely receive proposals for constructing interim pump stations that would convey sewage from eastern development tracts to existing sewer lines in Gresham. These existing sewer lines were not designed to carry the additional flow that would result from allowing interim pump stations. From a sewer service perspective, this is an undesirable approach because it involves duplicative system investment and additional regulatory and operating costs in high-maintenance pump facilities. It is a policy decision for Gresham to decide if it wishes to allow interim pumping, but this may be a viable short-term service solution.

GOALS, POLICIES AND ACTION MEASURES

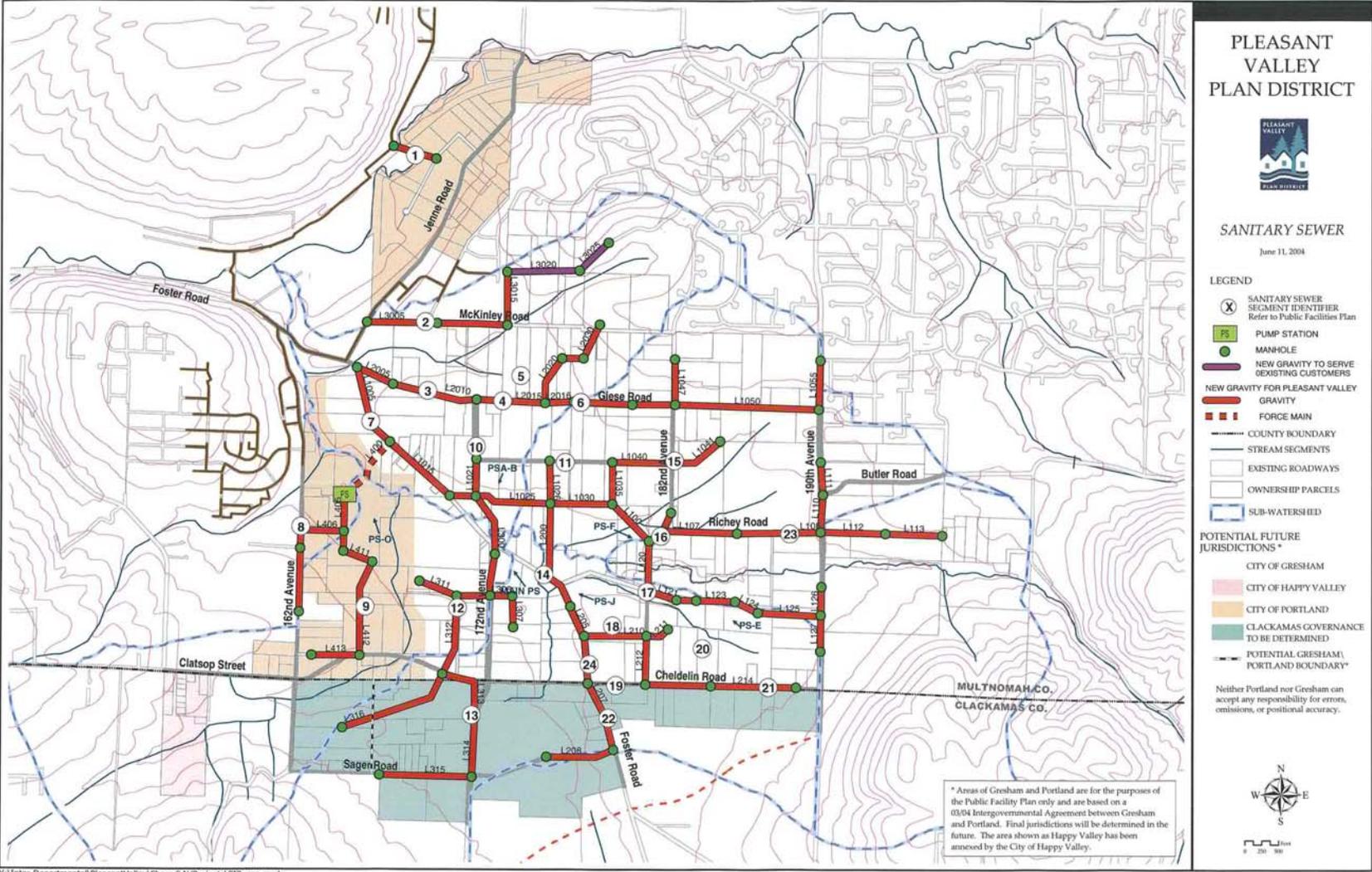
Goals and Policies. Applicable goals and policies that relate to the provision of public facilities in the existing comprehensive plans for the cities of Portland and Gresham also apply to the Pleasant Valley PFP. In addition to those goals and policies, the following policies are made part of this plan.

1. The City of Gresham and Clackamas County will work cooperatively to identify a cost effective solution for serving that part of Clackamas County that is within the Pleasant Valley Concept Plan area. If agreement between Gresham and the County does not anticipate annexation of this area to Gresham, it will comply with provisions of ORS 195 for urban service providers.

Action Measures

1. Update the City of Portland public facility plan to establish the size and preferred routing for sewer system improvements serving Area B.
2. Update the City of Gresham sewer master plan to establish the size and preferred routing for sewer system improvements serving Area A and C.
3. Review and, if necessary, update the City of Gresham and Portland system development charges for sewers. Update the SDC improvement project list to include the relevant Yr 1-5 sewer projects listed in the CIP section of this plan.
4. Update the Portland and Gresham 5-Year Capital Improvement Plan to include critical path sewer system improvements consistent with the annexation strategy that emerges for Pleasant Valley and the conveyance and treatment option that is selected.
5. Gresham and Clackamas County need to conclude negotiations for territorial expansion and/or service agreements for Area C. Regardless of the solution, the agreement needs to comply with provisions of ORS 195 that relate to urban service providers.

APPENDIX A



APPENDIX B

Pleasant Valley Public Facility Plan

Sanitary Sewer Capital Improvement Project List

Annexation Area	Pipe Name/ Run	Pipe Size (in)	Pipe Length (ft)	2004 Cost	Construction Contingency	Construction Cost	Engineering	Admin.	Project Total	Timing	Responsible Jurisdiction	Funding Source
Area 1A	L4005	8	660	\$79,400	\$3,820	\$103,220	\$18,580	\$ 3,097	\$ 124,896	6-20	Portland	SDC/Local
Area 1A Subtotal				\$79,400	\$23,820	\$103,220	\$ 18,580	\$ 3,097	\$ 124,896	6-20	Portland	SDC/Local
Area 2A	L3005- L3015	8	2,870	\$178,732	\$53,620	\$232,352	\$ 41,823	\$ 6,971	\$ 281,145	6-20	Gresham	SDC/Local
	L2005- L2015	12	2,865	\$405,000	\$121,00	\$526,500	\$ 94,770	\$ 15,795	\$ 637,065	6-20	Gresham	SDC/Local
	L2020- L2025	8	1,055	\$126,000	\$37,800	\$163,800	\$ 29,484	\$ 4,914	\$ 198,198	6-20	Gresham	SDC/Local
Area 2A Subtotal				\$709,732	\$12,920	\$922,652	\$ 166,077	\$ 27,680	\$ 1,116,408	6-20	Gresham	SDC/Local
Area 3A	L1047	8	675	\$ 81,100	\$24,330	\$105,430	\$ 18,977	\$ 3,163	\$ 127,570	6-20	Gresham	SDC/Local
	L2030	8	555	\$67,800	\$20,340	\$ 88,140	\$ 15,865	\$ 2,644	\$ 106,649	6-20	Gresham	SDC/Local
	L2016- L2055	8	4,780	\$561,000	\$68,300	\$729,300	\$ 131,274	\$ 21,879	\$ 882,453	6-20	Gresham	SDC/Local
Area 3A Subtotal				\$ 709,900	\$212,970	\$922,870	\$ 166,117	\$ 27,686	\$ 1,116,673	6-20	Gresham	SDC/Local
Area 2B	L1005	24	715	\$ 151,000	\$45,300	\$196,300	\$ 35,334	\$ 5,889	\$ 237,523	6-20	Gresham	SDC/Local
	L1015	24	790	\$ 224,000	\$67,200	\$291,200	\$ 52,416	\$ 8,736	\$ 352,352	6-20	Gresham	SDC/Local
	L1020	24	365	\$ 76,900	\$23,070	\$99,970	\$ 17,995	\$ 2,999	\$ 120,964	6-20	Gresham	SDC/Local
	Microtunnel- L1015- L1005	24	975	\$1,070,000	\$ 321,000	\$1,391,000	\$ 250,380	\$ 41,730	\$ 1,683,110	6-20	Gresham	SDC/Local
Area 2B Subtotal				\$1,521,900	\$ 456,570	\$1,978,470	\$ 356,125	\$ 59,354	\$ 2,393,949	6-20	Gresham	SDC/Local
Area 2D	L1021	12	550	\$88,500	\$26,550	\$115,050	\$ 20,709	\$ 3,452	\$ 139,211	6-20	Gresham	SDC/Local
	L1025	24	1,130	\$268,000	80,400	\$348,400	\$ 62,712	\$ 10,452	\$ 421,564	6-20	Gresham	SDC/Local

Annexation Area	Pipe Name/Run	Pipe Size (in)	Pipe Length (ft)	2004 Cost	Construction Contingency	Construction Cost	Engineering	Admin.	Project Total	Timing	Responsible Jurisdiction	Funding Source
Area 2D Subtotal				\$356,500	\$106,950	\$463,450	\$ 83,421	\$ 13,904	\$560,775	6-20	Gresham	SDC/Local
Area 2C	L1026	18	635	\$130,000	\$39,000	\$169,000	\$ 30,420	\$ 5,070	\$ 204,490	6-20	Gresham	SDC/Local
	L1030	18	915	\$185,000	\$55,500	\$240,500	\$ 43,290	\$ 7,215	\$ 291,005	6-20	Gresham	SDC/Local
	L1035	12	620	\$128,000	\$38,400	\$166,400	\$ 29,952	\$ 4,992	\$ 201,344	6-20	Gresham	SDC/Local
	L1040	8	900	\$118,000	\$35,400	\$153,400	\$ 27,612	\$ 4,602	\$ 185,614	6-20	Gresham	SDC/Local
	Pedestrian Bridge	N/A	N/A	\$8,960	\$2,688	\$11,648	\$ 2,097	\$ 349	\$ 14,094	6-20	Gresham	SDC/Local
Area 2C Subtotal				\$569,960	\$170,988	\$740,948	\$ 133,371	\$ 22,228	\$ 896,547	6-20	Gresham	SDC/Local
Area 3B	L1041	8	810	\$96,000	\$28,800	\$ 124,800	\$ 22,464	\$ 3,744	\$ 151,008	6-20	Gresham	SDC/Local
	L100	18	775	\$100,000	\$30,000	\$ 130,000	\$ 23,400	\$ 3,900	\$ 157,300	6-20	Gresham	SDC/Local
	L105	18	255	\$56,900	\$17,070	\$ 73,970	\$ 13,315	\$ 2,219	\$ 89,504	6-20	Gresham	SDC/Local
	L106	12	300	\$55,100	\$16,530	\$ 71,630	\$ 12,893	\$ 2,149	\$ 86,672	6-20	Gresham	SDC/Local
	L107	8	1,100	\$131,000	\$39,300	\$ 170,300	\$ 30,654	\$ 5,109	\$ 206,063	6-20	Gresham	SDC/Local
	L108	8	1,255	\$148,000	\$44,400	\$ 192,400	\$ 34,632	\$ 5,772	\$ 232,804	6-20	Gresham	SDC/Local
Area 3B Subtotal				\$587,000	\$176,100	\$ 763,100	\$ 137,358	\$ 22,893	\$ 923,351	6-20	Gresham	SDC/Local
Area 3C	L110-L111	8	1,040	\$125,000	\$37,500	\$ 162,500	\$ 29,250	\$ 4,875	\$ 196,625	6-20	Gresham	SDC/Local
	L112-L113	8	1,800	\$212,000	\$63,600	\$ 275,600	\$ 49,608	\$ 8,268	\$ 333,476	6-20	Gresham	SDC/Local
Area 3C Subtotal				\$337,000	\$101,100	\$ 438,100	\$ 78,858	\$ 13,143	\$ 530,101	6-20	Gresham	SDC/Local
Area 1B	L406-L408	8	1,840	\$ 216,000	\$ 64,800	\$ 280,800	\$ 50,544	\$ 8,424	\$ 339,768	6-20	Portland	SDC/Local
	L412-L413	8	2,135	\$ 252,000	\$ 75,600	\$ 327,600	\$ 58,968	\$ 9,828	\$ 396,396	6-20	Portland	SDC/Local
	L411	8	460	\$ 69,800	\$ 20,940	\$ 90,740	\$ 16,333	\$ 2,722	\$ 109,795	6-20	Portland	SDC/Local
	L410	8	295	\$ 35,800	\$ 10,740	\$ 46,540	\$ 8,377	\$ 1,396	\$ 56,313	6-20	Portland	SDC/Local
	L405	8	550	\$ 76,200	\$ 22,860	\$ 99,060	\$ 17,831	\$ 2,972	\$ 119,863	6-20	Portland	SDC/Local
	Force Main Pump Station	8	1,060	\$ 215,000	\$ 64,500	\$ 279,500	\$ 50,310	\$ 8,385	\$ 338,195	6-20	Portland	SDC/Local
Area 1B Subtotal				\$ 1,226,448	\$ 367,934	\$ 1,594,382	\$ 286,989	\$ 47,831	\$ 1,929,203	6-20	Portland	SDC/Local

Annexation Area	Pipe Name/ Run	Pipe Size (in)	Pipe Length (ft)	2004 Cost	Construction Contingency	Construction Cost	Engineering	Admin.	Project Total	Timing	Responsible Jurisdiction	Funding Source
Area 1D	L300	18	950	\$ 122,000	\$ 36,600	\$ 158,600	\$ 28,548	\$ 4,758	\$ 191,906	6-20	Gresham	SDC/Local
	L305	18	625	\$ 111,000	\$ 33,300	\$ 144,300	\$ 25,974	\$ 4,329	\$ 174,603	6-20	Gresham	SDC/Local
	L310	12	495	\$ 75,300	\$ 22,590	\$ 97,890	\$ 17,620	\$ 2,937	\$ 118,447	6-20	Gresham	SDC/Local
	L311	8	595	\$ 78,000	\$ 23,400	\$ 101,400	\$ 18,252	\$ 3,042	\$ 122,694	6-20	Gresham	SDC/Local
	L312	12	1,205	\$ 172,000	\$ 51,600	\$ 223,600	\$ 40,248	\$ 6,708	\$ 270,556	6-20	Gresham	SDC/Local
Area 1D Subtotal				\$ 558,300	\$ 167,490	\$ 725,790	\$ 130,642	\$ 21,774	\$ 878,206	6-20	Gresham	SDC/Local
Area 4A	L200	18	1,645	\$ 212,000	\$ 63,600	\$ 275,600	\$ 49,608	\$ 8,268	\$ 333,476	6-20	Gresham	SDC/Local
	L205	12	485	\$ 73,800	\$ 22,140	\$ 95,940	\$ 17,269	\$ 2,878	\$ 116,087	6-20	Gresham	SDC/Local
	L206	8	705	\$ 117,000	\$ 35,100	\$ 152,100	\$ 27,378	\$ 4,563	\$ 184,041	6-20	Gresham	SDC/Local
	L210	8	920	\$ 150,000	\$ 45,000	\$ 195,000	\$ 35,100	\$ 5,850	\$ 235,950	6-20	Gresham	SDC/Local
	L306	12	330	\$ 51,300	\$ 15,390	\$ 66,690	\$ 12,004	\$ 2,001	\$ 80,695	6-20	Gresham	SDC/Local
	L307	8	465	\$ 54,600	\$ 16,380	\$ 70,980	\$ 12,776	\$ 2,129	\$ 85,886	6-20	Gresham	SDC/Local
Area 4A Subtotal				\$ 658,700	\$ 197,610	\$ 856,310	\$ 154,136	\$ 25,689	\$ 1,036,135	6-20	Gresham	SDC/Local
Area 4C	L120	18	735	\$ 150,000	\$ 45,000	\$ 195,000	\$ 35,100	\$ 5,850	\$ 235,950	6-20	Gresham	SDC/Local
	L121-L125	8	2,620	\$ 309,000	\$ 92,700	\$ 401,700	\$ 72,306	\$ 12,051	\$ 486,057	6-20	Gresham	SDC/Local
	L126-L127	8	960	\$ 145,000	\$ 43,500	\$ 188,500	\$ 33,930	\$ 5,655	\$ 228,085	6-20	Gresham	SDC/Local
	L211	8	360	\$ 48,900	\$ 14,670	\$ 63,570	\$ 11,443	\$ 1,907	\$ 76,920	6-20	Gresham	SDC/Local
Area 4C Subtotal				\$ 652,900	\$ 195,870	\$ 848,770	\$ 152,779	\$ 25,463	\$1,027,012	6-20	Gresham	SDC/Local
Area 5A	L313	12	1,025	\$ 188,000	\$ 56,400	\$ 244,400	\$ 43,992	\$ 7,332	\$ 295,724	6-20	Gresham	SDC/Local
	L314-L315	8	2,240	\$ 264,000	\$ 79,200	\$ 343,200	\$ 61,776	\$ 10,296	\$ 415,272	6-20	Gresham	SDC/Local
	L316	12	1,770	\$ 319,000	\$ 95,700	\$ 414,700	\$ 74,646	\$ 12,441	\$ 501,787	6-20	Gresham	SDC/Local
Area 5A Subtotal				\$ 771,000	\$ 231,300	\$ 1,002,300	\$ 180,414	\$ 30,069	\$1,212,783	6-20	Gresham	SDC/Local
Area 4B	L207	8	1,060	\$ 141,000	\$ 42,300	\$ 183,300	\$ 32,994	\$ 5,499	\$ 221,793	6-20	Gresham	SDC/Local
	L208	8	1,005	\$ 168,000	\$ 50,400	\$ 218,400	\$ 39,312	\$ 6,552	\$ 264,264	6-20	Gresham	SDC/Local
Area 4B Subtotal				\$ 309,000	\$ 92,700	\$ 401,700	\$ 72,306	\$ 12,051	\$ 486,057	6-20	Gresham	SDC/Local

Annexation Area	Pipe Name/ Run	Pipe Size (in)	Pipe Length (ft)	2004 Cost	Construction Contingency	Construction Cost	Engineering	Admin.	Project Total	Timing	Responsible Jurisdiction	Funding Source
Area 4D	L212	8	720	\$ 97,700	\$ 29,310	\$ 127,010	\$ 22,862	\$ 3,810	\$ 153,682	6-20	Gresham	SDC/Local
	L213-L214	8	2,230	\$ 263,000	\$ 78,900	\$ 341,900	\$ 61,542	\$ 10,257	\$ 413,699	6-20	Gresham	SDC/Local
Area 4D Subtotal				\$ 360,700	\$ 108,210	\$ 468,910	\$ 84,404	\$ 14,067	\$567,381	6-20	Gresham	SDC/Local
TOTAL PLEASANT VALLEY SERVICE AREA		\$ 9,408,4 40	\$ 2,822,5 32	\$ 12,230,972	\$ 2,201,575	\$ 366,929	\$14,799,476					
OFFSITE COSTS (PLEASANT VALLEY SHARE)¹						\$5,369,000						
TOTAL PROJECT COST								\$20,168,476				

1. Offsite costs include Jenne/Foster Interceptor, increased capacity at Linneman Pump Station, and Pleasant Valley share of new interceptor capacity.

10.723 STORMWATER MANAGEMENT SYSTEM

SYSTEM DESCRIPTION/CONDITION ASSESSMENT

Existing Conditions. Pleasant Valley is a rural area where stormwater is currently conveyed overland in ditches to natural drainageways. Drainage ditches next to public roadways convey runoff from road surfaces, and in some cases from adjacent private properties, to natural stream channels. Some stream channels are in good condition, although many are degraded. Most of the valley, which has shallow soils underlain by hardpan clays, was tilled to drain the native wetland prairies for farming. Many of the area's small tributary streams were either eliminated or excavated for drainage ditches. Most riparian habitat was removed, except in places where steep banks made farming impractical. The result is a significantly altered watershed that now sustains only a fraction of the once abundant fish and wildlife species native to the valley (see the *Evaluation of Aquatic and Upland Habitat for the Kelley Creek Watershed* for more details).

Planned Improvements. Urban development has historically had a dramatic adverse impact on watershed health, especially in riparian areas. The recommended stormwater system for Pleasant Valley is intended to minimize this impact and maintain or restore watershed functionality using the goals and recommendations of the Natural Resources/Watersheds Implementation and Green Practices Reports. While urbanization is not anticipated to restore the health of the watershed to pre-development conditions, it may actually improve on current conditions and restore parts of the watershed.

In Pleasant Valley, the envisioned stormwater drainage system will serve an important role as the framework for the community's design. Rather than a conventional approach, which uses storm sewer pipes beneath the street to quickly convey storm runoff to stream channels that are also managed for stormwater conveyance, a more natural system is recommended. In the public right-of-way, adjacent to the area roads, vegetated swales are proposed to convey stormwater. The swales will convey runoff more slowly than a pipe system and provide water quality treatment. These systems cost less to build than an underground pipe system, but are more expensive to maintain.

The swale system will discharge to regional stormwater management facilities that serve two functions. First, they will slow down the stormwater flow and let vegetation in the facility improve water quality by "polishing" the runoff to removing excessive sediment and pollutants. Second, in combination with stormwater management facilities, they will regulate the rate and volume of stormwater discharge to the natural stream channels in the Environmentally Sensitive Restoration Areas ("ESRA") to a level that is no greater than the discharge rate and duration of pre-development conditions to the maximum extent practicable.

Acquiring sites for stormwater management facilities is a high priority in the early years as development takes hold in Pleasant Valley. A map showing the approximate location of the proposed stormwater system improvements is included in Appendix A. The final location of facilities is subject to the outcome of the stormwater master plan.

Finally, within the ESRAs, restoration efforts would be encouraged to improve riparian character and function. This would provide multiple benefits, such as improvements in water quality and fish and wildlife habitat, as well as providing greenway belts throughout the urban landscape. The expected Total Maximum Daily Load limitations for temperature in the Johnson Creek basin may enable the use of "water quality credits" in the upper part of the watershed to offset development impacts elsewhere in the watershed, which could provide private financing for environmental restoration in the ESRAs.

Development Regulation. Development guidelines generally allow, and in some cases require, that runoff from impervious surfaces in residential areas be discharged to the public drainage system. While protective of properties, this practice can result in a significant increase in storm discharge to natural drainages that contribute to bank erosion, scouring and wildly fluctuating stream conditions. Some codes require “on-site” detention to manage the rate of discharge to pre-development conditions for a design storm. The success of these regulations, especially in residential areas, has been mixed. Part of the problem is that “on-site” usually means somewhere in the subdivision, a local detention facility is constructed. Unless these facilities are well maintained, however, they do not function as designed and end up bypassing most of the runoff they were suppose to detain. In addition, detention facilities often manage the rate of flow but not the duration. As a result stormwater can discharge into creeks for longer periods than under natural conditions and cause significant erosion.

In Pleasant Valley, the Concept Plan calls for development codes that will require the on-site management of rain for individual property by offering a menu of stormwater management facilities and landscaping systems designed to allow everyday storm runoff to be infiltrated into the ground or evapotranspired. An overflow system would be designed so that when a larger storm occurs, the runoff would be conveyed through a series of swales in the street right-of-way to the public stormwater facilities. The public system would be oversized to handle larger storm events. It is recommended that the stormwater system serving arterial and collector streets be sized for the 100-year storm. The stormwater systems in other streets could be designed for the nuisance storm that also may be combined with regional stormwater management facilities.

Implementation. The stormwater management approach in Pleasant Valley has been designed around a watershed approach. All areas within the watershed need to adhere to the same stormwater management approach for the system to work properly. The stormwater management policies and design guidelines will be incorporated into the SWM plan for the Kelley Creek Watershed. These design guidelines will need to be carefully integrated with street design guidelines. For example, the swale system will have a significant impact on street access from adjoining properties. The whole system will need to be designed differently for pedestrians, cars and trucks, and transit vehicles. To ensure the concept functions seamlessly, both Gresham and Portland will adopt this SWM plan as part of their development code. Both jurisdictions will then enforce the same stormwater design guidelines and regulations.

The stormwater conveyance system will parallel the road system. In addition, the location of regional public stormwater management facilities is only generally known at this time. Their size and how they will work in conjunction with the conveyance system has not been refined to the point where system improvements could be approved for construction. An area stormwater master plan is needed to refine the design concepts for the system to the point where facility design and construction can begin. That planning effort is a critical path element for plan implementation.

SUMMARY OF FUTURE NEEDS

- Stormwater facilities planning needs to be refined for Pleasant Valley in a master plan that more precisely identifies the system design, facility locations, and cost and schedule. The master plan needs to be carefully coordinated with the “green street” transportation system improvements. In addition to facility needs and design goals, the plan also should establish a financing framework for stormwater management in Pleasant Valley. The City of Portland will participate in this planning process because it will be implementing parts of the plan. This planning work is a critical path element for PFP implementation.
- Coordination is needed between Gresham, Portland, Multnomah County and Clackamas County regarding stormwater system planning and design guidelines for public roads and stormwater

conveyance in Areas A, B, and C. A consistent approach regarding stormwater conveyance standards, development setbacks, allowed uses in the ESRAs, and other issues related to stormwater management should be spelled out in an intergovernmental agreement.

- Gresham and Portland need to develop and adopt uniform stormwater management guidelines for residential, commercial, and industrial development in Pleasant Valley as part of the plan district for the area. Portland and Gresham may both wish to extend the district boundaries to encompass areas that are within the Kelley/Mitchell Creek watershed but outside the Pleasant Valley study area boundary.
- If a city-wide SDC is preferred (rather than Pleasant Valley-specific SDC), Portland and Gresham will need to modify their SDC improvement fees for stormwater facilities depending on the marginal cost associated with serving Pleasant Valley. Each jurisdiction also will need to modify their SDC improvement fee project list to make near-term priority improvements eligible for financing with SDC revenue.
- If a city-wide stormwater utility is preferred (rather than Pleasant Valley-specific rates), Gresham and Portland will need to modify their stormwater utility system to address the added maintenance cost associated with system improvements in Pleasant Valley. An analysis is needed of impacts on existing utility rates, how to phase in rate increases, and how to fairly assess rate adjustments. Both jurisdictions may wish to consider combining stormwater management fees with a street maintenance fee, if available.
- Purchase property for regional stormwater management facilities as soon as possible (after completing the Stormwater Master Plan)

FINANCING PLAN

The following discussion presents the envisioned strategy for financing stormwater service extensions in the Gresham and Portland sections of Pleasant Valley. For analysis purposes, the boundary between Portland and Gresham is presumed to be Mitchell Creek in the west. The Jenne Road area is also presumed to be part of Portland. All other areas are anticipated to be in Gresham. The final boundary will likely shift away from the creek, but at this time, the shift is not expected to significantly alter the relative cost burden depicted for Gresham and Portland. This discussion assumes Gresham will serve the Clackamas County area (Area C). The ultimate service and governance providers for Area C have not been determined and will be the subject of future agreements.

Stormwater. Financing the Pleasant Valley stormwater system requires an innovative approach. Gresham and Portland have traditionally relied on developer contributions, SDCs, and street improvements to pay for stormwater improvements. In Pleasant Valley, however, the envisioned “green street” design is significantly different than the system elsewhere in either city. The swale system costs less to build than an underground pipe system connected to storm drains, but has significantly higher operating costs. The swale system has only been conceptually planned and a more detailed stormwater master plan is scheduled to be developed in FY 2003-04. The study also will evaluate existing SDC, utility fees, and other resources to determine how to finance service delivery.

The annexation analysis for Pleasant Valley indicates that even though swale systems are less expensive to build than pipe systems, existing SDCs in Gresham and Portland will not finance the envisioned swale system improvements. The main reason for this is because the cost of storm drains and storm sewers, which constitute most of the drainage conveyance system, is usually embedded in the cost to build roads.

In the Pleasant Valley plan, the swale system has been broken out separately. In addition to swales, there are 16 regional stormwater management facilities included in the program costs. The combined shortfall for swales and SWM facilities is around \$6 million.

It is likely, therefore, that stormwater system development fees will need to be increased in Pleasant Valley, either by adopting a Pleasant Valley SDC overlay or by treating Pleasant Valley basins as a completely separate drainage system from other parts of Portland and Gresham and developing a separate financing plan for this system that may include SDCs, utility charges, and/or local assessments. The analysis may have consequences for the SDC methodology used in Portland and Gresham.

An even larger shortfall occurs on the operation side, where the difference in operating costs between a pipe system and a swale system is estimated at \$1 million per year. At build-out, the operating cost for the storm drainage system is forecast to be between 70% and 80% of the forecast O&M cost for the water system, which could result in a residential service rate as high as \$25 per month. One way to offset the difference between existing drainage rates and projected operating costs is to assess Pleasant Valley customers an operating surcharge over and above Gresham's monthly drainage utility fee. Another approach would be to treat Pleasant Valley as a separate drainage district within Gresham (and potentially Portland as well), and establish a basin-wide fee structure for this system. A connection fee also should be considered to finance the initial purchases of specialized equipment for maintaining the swale system.

Finally, financing the stormwater management system will be different than the financing for other infrastructure. As noted above, capital costs for the swale system will likely be significantly less than for a traditional pipe system. Maintenance costs, however, will likely be higher and will affect not only the swale system but also the "green street" system. A financing strategy that examines the feasibility of considering both the capital development as well as the maintenance costs needs to be adopted.

This plan envisions that Pleasant Valley stormwater SDCs will be unique to the area and will pay for constructing both the swale system and the stormwater management facilities. Pleasant Valley residents may also pay a different stormwater utility fee than other areas of Gresham and Portland to recover the higher maintenance costs associated with the swale system. If Gresham establishes street maintenance fees, it may be possible to combine the SWM fee with a street maintenance fee given the integrated nature of the green street and swale system. At this time, it is anticipated that Stormwater utility will be used to provide maintenance for the green street swale system. The swale system has only been conceptually planned and a more detailed stormwater master plan is being developed in FY 2003-04. The study also will evaluate existing SDC, utility fees, and other resources to determine how to finance service delivery. Preparation of the financing strategy is a critical path element and should be integrated with the SWM master planning process.

Appendix A includes a map showing proposed stormwater system improvements.

GOALS, POLICIES AND ACTION MEASURES

Goals and Policies.

GOAL: The Cities shall manage stormwater to minimize impacts on localized and downstream flooding and to protect water quality and aquatic habitat.

The following policies are made part of this plan:

1. Manage stormwater through the use of facilities that rely on infiltration, bio-retention, and evapotranspiration or other processes that mimic the natural hydrologic regime. All local, state and

federal permit requirements related to implementation of stormwater management facilities must be met by the owner/operator prior to facility use.

2. Stormwater management shall avoid a net negative impact on nearby streams, wetlands, groundwater, and other water bodies to maximum extent practicable.
3. The quantity of stormwater after development shall be equal to or less than the quantity of stormwater before development, wherever practicable.
 - a. Development shall mitigate all project impervious surfaces through retention and on-site infiltration to the maximum extent practicable for up to the nuisance storm event (the nuisance storm is based on a real rainfall event. That closely resembles the 10-year simulated design event). Stormwater discharges from on-site facilities shall be conveyed via an approved drainage facility.
 - b. Where lots are too small for on-site stormwater facilities adjacent private developments may manage stormwater in a shared facility that is appropriately sized and meets water quality and flow control design standards.
 - c. Public stormwater facilities shall be designed such that the rate and duration of flow discharging from facilities for up to a nuisance storm does not lengthen the period of time the stream channel sustains erosion causing flows.
 - d. Conveyance swales and public stormwater facilities shall be designed to provide conveyance for the 100-year storm event.
 - e. Public stormwater facilities shall be designed to provide storage for the nuisance storm event. Facility design is based on the following:

Type of Facility	Design Storm Frequency
Arterial or collector	100 year
All others	10 year

4. The quality of stormwater after development shall be equal to or better than the quality of stormwater before development, as much as is practicable, based on the following criteria:
 - a. Stormwater facilities shall be designed to achieve a jointly adopted SWM Master Plan for the Cities of Portland and Gresham. Presently, Portland requires facilities to be designed to treat at least 70% removal of the Total Suspended Solids (“TSS”) from the flow entering the facility for the design storm specified in the City of Portland Stormwater Management Manual. Gresham’s requirements use presumptive approach rather than performance approach.
 - b. Land use activities of particular concern as pollution sources shall be required to implement additional pollution controls, including, but not limited to, those management practices specified in a jointly adopted SWM Master Plan for Pleasant Valley.
 - c. Stormwater facilities shall meet the requirements for established Total Maximum Daily Load limitations, as provided under the Federal Clean Water Act, Oregon Law, Administrative Rules and other legal mechanisms.
5. Stormwater facilities shall be designed to safely convey the less frequent, higher flows through or around facilities without damage to both upstream and downstream properties, including creek channels.
6. Public stormwater facilities shall be designed using approaches that integrate stormwater and vegetation such as swales, trees, vegetated planters and constructed wetlands. Jurisdictional wetlands cannot be used as stormwater treatment facilities.

7. Conveyance of stormwater from on-site facilities to approved public stormwater facilities shall generally take place within the public right-of-way through vegetated swales or other stormwater management and conveyance facilities as specified in Metro’s Green Streets Manual or the City of Portland Water Quality Friendly Street Designs or a jointly adopted Pleasant Valley District Plan.

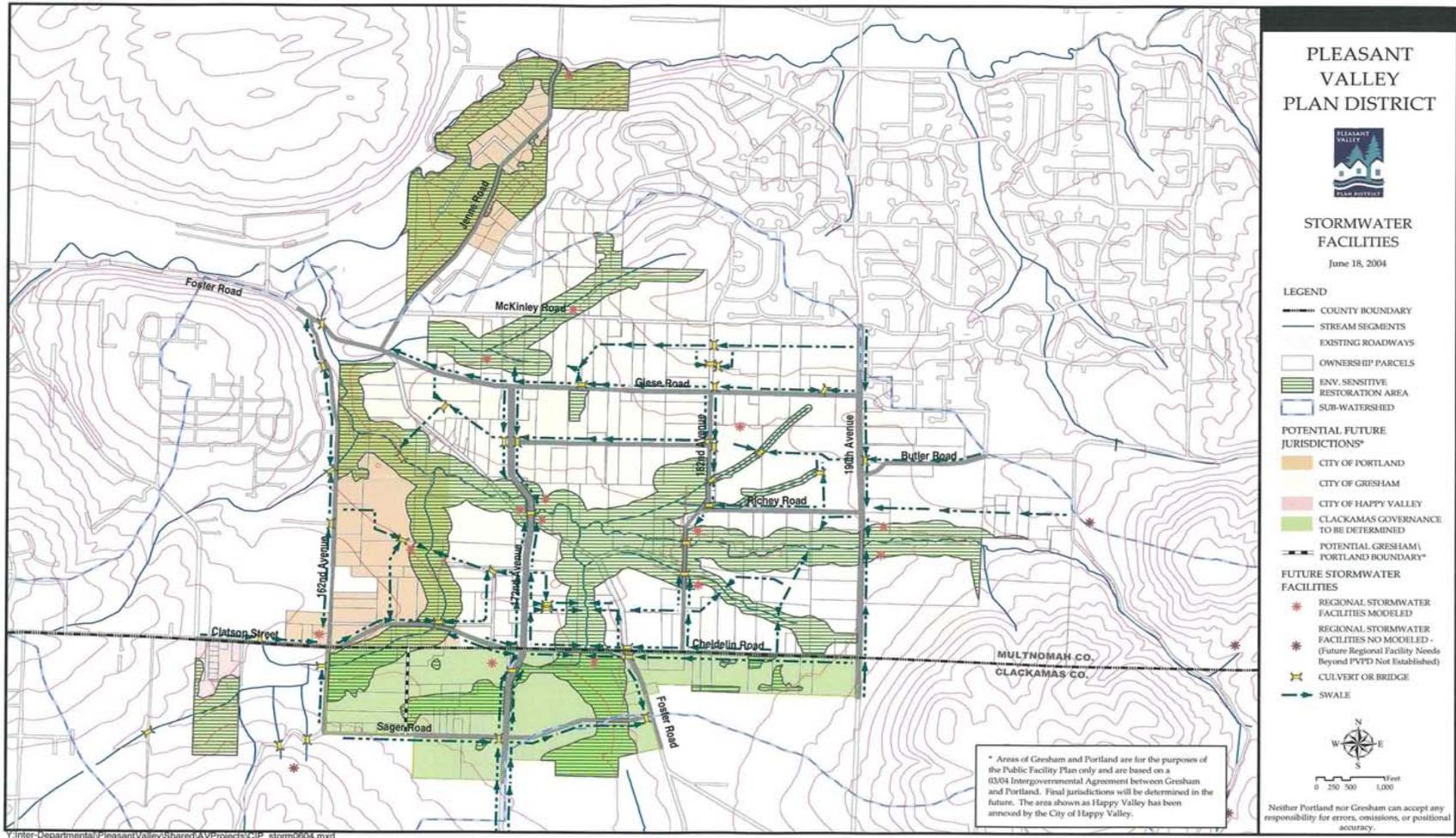
The encroachment of structures and other permanent improvements over public and private stormwater facilities and within public stormwater easements, drainage ways, creeks, streams, seasonal waterways, seeps and springs is prohibited.

8. Equitable funding mechanisms shall be developed:
 - a. For stormwater management facilities maintenance.
 - b. To resolve the deficiencies of the existing system and provide adequate stormwater management services to developing areas.
 - c. To implement a capital improvement program (“CIP”) for the stormwater management system.
9. If agreement between Gresham and the County does not anticipate annexation of Area C to Gresham, it will comply with provisions of ORS 195 for urban service providers.

Action Measures.

1. Update the City of Portland public facility plan to establish stormwater management system improvements serving Area B.
2. Update the City of Gresham stormwater master plan to establish stormwater management system improvements serving Area A and C.
3. Review and, if necessary, update the City of Gresham and Portland system development charges for stormwater. Update the SDC improvement project list to include the relevant Year 1-5 stormwater projects listed in the CIP section of this plan.
4. Update the Portland and Gresham 5-Year Capital Improvement Plan to include critical path stormwater system improvements consistent with the annexation strategy that emerges for Pleasant Valley.
5. Gresham and Clackamas County need to conclude negotiations for territorial expansion and/or service agreements for Area C. Regardless of the solution, the agreement needs to comply with provisions of ORS 195 that relate to urban service providers.

APPENDIX A



APPENDIX B –

Pleasant Valley Public Facility Plan

Stormwater Capital Improvements Project List*

Project #	Project	Description	Linear Feet of Swales	Cost	Timing	Responsible Jurisdiction	Funding Source	Comments
Swales								
Segments								
R1	Foster North	New extension – 1,395 LF	0	\$0	6 to 20	Gresham	SDC/Local	Timing with road imp.
R2	Giese Ext.	New extension – 2,018 LF	1,711	\$148,857	6 to 20	Gresham	SDC/Local	Timing with road imp.
R3	Butler Ext.	New extension – 2,835 LF	1,860	\$161,820	6 to 20	Gresham	SDC/Local	Timing with road imp.
R4	Clatsop Ext.	New extension - 2,938 LF	2,905	\$252,735	6 to 20	Gresham	SDC/Local	Timing with road imp.
R5	Foster South	New extension – 2,581 LF	1,237	\$107,619	6 to 20	Gresham	SDC/Local	Timing with road imp.
Road Extensions								
	On 190th				6 to 20	Gresham	SDC/Local	Timing with road imp.
1	Segment 1	Boundary to Butler – improvement to existing – 122,137.5 LF	1,858	\$161,646	6 to 20	Gresham	SDC/Local	Timing with road imp.
2	Segment 2	Butler to Richey – improvement to existing – 787.5 LF	654	\$56,898	6 to 20	Gresham	SDC/Local	Timing with road imp.
3	Segment 3	Richey to Cheldelin – improvement to existing – 1,912.5 LF	1,904	\$165,648	6 to 20	Gresham	SDC/Local	Timing with road imp.
4	Segment 4	Cheldelin to So Boundary – improvement to existing – 600 LF	557	\$48,459	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On Butler							
5	Segment 5	190 th to Ea. Boundary – improvement to existing – 1,800 LF	1,596	\$138,852	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On Richey							
6	Segment 6	182 nd to 190 th – improvement to existing – 2,325 LF	2,163	\$188,181	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On 182nd							
7	Segment 7	Giese to Richey – improvement to existing – 2,025 LF	2,033	\$176,871	6 to 20	Gresham	SDC/Local	Timing with road imp.
8	Segment 8	Richey to Cheldelin – improvement to existing – 2,362.5 LF	1,626	\$141,462	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On 172nd							

*NOTE: As noted in the text of the PFP, this document is followed by a system master plan. The users are directed to review the Stormwater Master Plan for an up-to-date project list.

Project #	Project	Description	Linear Feet of Swales	Cost	Timing	Responsible Jurisdiction	Funding Source	Comments
9	Segment 9	Giese to Butler Ext. – improvement to existing – 900 LF	1,379	\$119,973	6 to 20	Gresham	SDC/Local	Timing with road imp.
10	Segment 10	Butler ext. to unknown – improvement to existing – 1,537.5 LF	2,935	\$255,345	6 to 20	Gresham	SDC/Local	Timing with road imp.
11	Segment 11	unknown to Cheldelin – improvement to existing – 1,275 LF	1,945	\$169,215	6 to 20	Gresham	SDC/Local	Timing with road imp.
15	Segment 15	Cheldelin to Boundary – improvement to existing – 1,800 LF	2,555	\$222,285	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On Cheldelin				6 to 20	Gresham	SDC/Local	Timing with road imp.
12	Segment 12	172 nd to 182 nd – improvement to existing – 2,325 LF	3,703	\$322,161	6 to 20	Gresham	SDC/Local	Timing with road imp.
13	Segment 13	182 nd to 190 th – improvement to existing 2,550 LF	3,700	\$321,900	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On Clatsop							
14	Segment 14	162 nd to Boundary – improvement to existing – 1,912.5 LF	1,557	\$135,459	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On 162nd							
16	Segment 16	Foster to unknown – improvement to existing 3,000 LF	2,843	\$247,341	6 to 20	Gresham	SDC/Local	Timing with road imp.
17	Segment 17	unknown to Clatsop – improvement to existing – 2,175 LF	1,413	\$122,931	6 to 20	Gresham	SDC/Local	Timing with road imp.
18	Segment 18	Clatsop to Boundary – improvement to existing – 1,350 LF	875	\$76,125	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On Sager Road							
19	Segment 19	182 nd to 172 nd – improvement to existing – 2,662.5 LF	2,176	\$189,312	6 to 20	Gresham	SDC/Local	Timing with road imp.
20	Segment 20	172 nd to Foster – improvement to existing 2,137.5 LF	2,143	\$186,441	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On Giese							
21	Segment 21	172 nd to 182 nd - improvement to existing – 2,925 LF	2,584	\$224,808	6 to 20	Gresham	SDC/Local	Timing with road imp.
22	Segment 22	182 nd to 190 th – improvement to existing – 2,175 LF	1,788	\$155,556	6 to 20	Gresham	SDC/Local	Timing with road imp.
	On Jenne Rd							
23	Segment 23	All – improvement to existing – 4,500 LF	0	\$0	6 to 20	Portland	SDC/Local	Timing with road imp.

*NOTE: As noted in the text of the PFP, this document is followed by a system master plan. The users are directed to review the Stormwater Master Plan for an up-to-date project list.

Project #	Project	Description	Linear Feet of Swales	Cost	Timing	Responsible Jurisdiction	Funding Source	Comments
	Unnamed local connecting streets	Swales associated with unnamed road segments, within subarea extent	33,523	\$2,916,501	6 to 20	Portland/Gresham	SDC/Local	Timing with road imp.
	Outside/Adjacent to PV Plan Area	Swales may or may not be associated with named road, outside subarea context	9,723	\$845,901	6 to 20	Portland/Gresham	SDC/Local	Timing with road imp.
Culverts²								
	23	Various culvert locations @ 100' each		\$462,300	6 to 20	Portland	SDC/Local	Timing with road imp.
	44	Various culvert locations @ 100' each		\$884,400	6 to 20	Gresham	SDC/Local	Timing with road imp.
Regional Detention Facilities³					6 to 20		SDC/Local	Timing with road imp.
In Gresham	13	Various Locations		\$14,984,000	6 to 20	Gresham	SDC/Utility/Grants	Timing with road imp
In Portland	3	Various Location		\$3,746,000	6 to 20	Portland	SDC/Utility/Grants	Timing with road imp
Planning Studies								
Pleasant Valley Stormwater Master Plan		Combined planning effort		\$250,000	1 to 5	Portland/Gresham	SDC/Utility	Priority project
SDC and Utility rate analysis for SWM		Separate utility feasibility/rate analysis		\$50,000	1 to 5	Portland/Gresham	SDC/Utility	Priority project
				\$8,260,302				
				\$1,346,700				
Total culvert cost				\$18,730,000				
Total Regional Detention Facilities				\$300,000				
Total Planning Studies				\$28,637,002				
Total Cost								

¹Includes construction, engineering, inspection and contract administration

²Culvert location will be included in the master plan

³ Sites for regional detention facilities have not yet been determined

***NOTE: As noted in the text of the PFP, this document is followed by a system master plan. The users are directed to review the Stormwater Master Plan for an up-to-date project list.**

10.724 PARKS AND RECREATION SYSTEM

SYSTEM DESCRIPTION/CONDITION ASSESSMENT

Existing and Planned Facilities. According to the Parks and Open Spaces Implementation Strategies Report, the goal of the Pleasant Valley Parks and Recreation System is to locate and develop neighborhood and community parks, open spaces and trails throughout the Pleasant Valley community. By identifying critical elements for evaluating parks and making effective use of valuable space, parks and recreational areas can be accessible to everyone.

There are no parks located in the Pleasant Valley plan area. One City of Gresham neighborhood park has been developed in the vicinity of the Pleasant Valley Concept Plan area, Butler Creek Park. Butler Creek Park is 3.6 acres in size, and has a basketball court, play equipment, and a picnic area. It is located south of SW 27th Drive and about ½-mile from the project area. The Butler Creek hiking/walking trail passes through the park. The trail extends north of the Park to the Springwater Trail Corridor and south to just south of SW Willow Parkway. A non-funded CIP project exists to extend the trail south to SW Butler Road. This undeveloped section of the trail passes through Centennial School District property. A portion of the site has been recently developed for a new elementary school.

There is an additional, non-funded CIP project for a second City of Gresham neighborhood park, Jenne Butte Park. This park would be located on the north border of the Pleasant Valley Concept Plan area just west of SW Nancy Drive. Jenne Butte Park would be 6.8 acres in size, with amenities such as a basketball court, a picnic area and possibly a softball and/or soccer field. It would connect to the Jenne Butte trail system to the north, which ultimately connects to the Springwater Trail.

The Springwater Trail Corridor is a paved multi-purpose trail that runs alongside or near Johnson Creek. It runs through the portion of the Pleasant Valley project area intersecting at Jenne Road/174th Avenue. The trail is a ‘rails-to-trail’ project extending approximately 16.8 miles from McLoughlin Boulevard in Portland, east to the City of Boring. Jenne Road/174th Avenue intersects the trail within the Pleasant Valley Concept Plan area.

Just north of Pleasant Valley is the City of Portland’s Powell Butte Nature Park, a 569-acre natural area that was once a dairy farm. Powell Butte is a massive volcanic mound with heavily forested slopes and large expanses of open meadows on top of the lava dome. The park includes over 9 miles of trails that are suitable for mountain biking, horseback riding, and hiking. It includes a .6 mile handicapped accessible paved trail. Powell Butte includes a 50,000,000-gallon underground water reservoir that is part of the Bull Run water system. Master plans call for construction of additional reservoirs and a regional water treatment plant within the park.

Background. The Metro Council brought the Pleasant Valley area into the Urban Growth Boundary (UGB) in December 1998. When land is brought into the UGB Title 11 of the Metro Urban Growth Management Functional Plan requires a conceptual public facilities and services plan that provides, among others, for parks and it requires mapping to show the general locations for public open space, plazas, neighborhood centers and parks. Title 11 requires that the City must adopt the parks plan and map as a comprehensive plan amendment before annexation/urbanization.

In 1998, a partnership of jurisdictions sponsored a series of citizen and affected parties meetings concerning Pleasant Valley. A set of preliminary planning goals was developed as part of this process. Elements concerning parks were included in these preliminary goals:

- The natural resources of the area, including the streams, should be coordinated and included in the parks master planning for this area.
- To ensure that each neighborhood develops into a community with an identity, they shall include provision for local shopping and parks.
- Some open space/plaza will be included in the town center area. The town center area should be developed to protect watercourses and sensitive environmental areas.

In December 1998, Gresham and Portland jointly adopted an Intergovernmental Agreement (IGA) regarding Pleasant Valley. The IGA concerns provisions for creating a plan, future annexations and future provisions for urban services. The IGA provides the Gresham and Portland coordination in creating an urban plan. The goals mentioned above were attached to the IGA and are to be considered when creating the urban plan. The IGA also provides that no urban zoning be applied until the urban plan was adopted by Gresham and Portland and approved by Metro.

The Pleasant Valley Concept Plan Steering Committee endorsed the series of goals at their May 2, 2001 meeting. These goals reflected the vision and values underlying the Concept Plan. They were used in evaluating the four plan alternatives. The goal for parks was: ***Locate and develop parks and open spaces throughout the community.*** *Neighborhood parks, small greenspaces, and open spaces will be within a short walk of all homes. A network of bicycle and pedestrian routes, equestrian trails and multi-use paths will connect the parks and open spaces. The park and trail system will be connected to the Springwater Trail, Powell Butte, and other regional trails and greenspaces.*

Other goals also addressed parks. The “Town Center” goal noted “a central green or plaza will be included as a community gathering space.” The “Create a Community” goal included “recreational” and “open space” in the wide range of opportunities that will foster a unique sense of community. The “Create a Community” goal noted that community includes Pleasant Valley’s “unique areas” and “unique regional landscape.”

The alternatives evaluation generally focused on three components of the park and open space system:

- ***Neighborhood parks.*** These are smaller parks (1 to 13 acres), located within biking and walking distance of users. They provide for basic recreational opportunities. This can include pocket (plaza) parks (usually smaller than 1 acre) that can be located in denser areas.
- ***Community parks.*** These are larger than neighborhood parks (13 to 90 acres). They provide active and passive recreational opportunities and accommodations for larger groups. They are intended to serve several neighborhoods.
- ***Open space.*** These are areas of natural quality for protection of natural resources, nature-oriented outdoor recreation and trail-oriented activities.

Comparative evaluation measures focused on park and open space acreage per person, proximity and ease of access for neighborhood parks and general locations relative to housing, schools and the town center.

Following an extensive evaluation and refinement process, the Steering Committee, at their final meeting on May 14, 2002, endorsed the Pleasant Valley Concept Plan Map and Implementing Strategies. In summary, the central theme of the plan is to create an urban community through the integration of land use, transportation and natural resource elements.

Selected features of the parks concept plan are:

- **Nine neighborhood parks** – These are 1- to 3-acre facilities that provide access to basic recreation opportunities for nearby residents of all ages and contribute to neighborhood identity. They are generally located near the centers of neighborhoods, although a few occupy edge locations to serve adjacent attached housing. A general descriptor for each park is included in Appendix C.
- **Community Park** – The 29-acre community park is located between the power line and natural gas line easements east of the town center. The purpose of this community park is to provide active and passive recreational opportunities for community residents and accommodate activities for large groups. Facilities could include a children’s play area, competitive sports facilities, off-street parking (must include), permanent restrooms, public art/fountains, group picnic areas, paths, botanical gardens, community centers, amphitheaters, festival space, swimming pools and interpretive facilities.
- **Plazas** – Three plazas are proposed – in the town center and in each of the two neighborhood centers. These will serve as focal points for each of the centers and are expected to be relatively small (1/4-acre for the town center and 1/8-acre or smaller for the neighborhood centers). They may be developed as a multi-use paved area, community green or hybrid.
- **Trails** -- 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 a natural setting 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. About 6.6 miles of regional trails are proposed. These trails connect to the Springwater Corridor, Powell Butte and other regional trails and green spaces. They also connect to major destinations – such as the Community Park, town center, employment districts and elementary/middle school complex.
 - The East Buttes Powerline Corridor Trail follows the BPA powerline easement and provides an important north/south connection from the Springwater Corridor Trail and the proposed Gresham/Fairview Trail to the Clackamas River Greenway near Damascus.
 - The East Buttes Loop Trail goes through the heart of Pleasant Valley and parallels Kelley Creek on its north and south sides. The East Buttes Loop Trail connects historic and natural landmarks with the town center and neighborhoods.
- **Open Space.** The purpose of open space is to set aside natural undeveloped areas for the protection of natural resources, nature-oriented outdoor recreation, and trail-corridors. They provide opportunities for rest and relaxation, protect valuable natural resources, provide wildlife habitat, and contribute to the environmental health of the community. Benchmarks for Pleasant Valley open space areas are:
 - Ten acres of open space per 1,000 residents are protected. [Note: Metro Open Space 1997 benchmark standards are calculated at 20.9 acres of parks and open space per 1,000 population.]
 - Habitat areas are enhanced or restored.
 - It includes streams, creeks, or tributaries that are enhanced or restored.
 - Habitat parks can accentuate open space. Habitat parks are partly habitat and partly Community Park.
 - Open space can also include trails, trailheads and interpretive facilities.

Some characteristics of open spaces include:

- A size large enough to protect the identified resource.
- Spaces may include trails, trailhead amenities (bike racks, picnic areas, portable restrooms, trash enclosures), benches, interpretive signs, and native plants.

A map of proposed park and open space system improvements is included in Appendix A.

SUMMARY OF MAJOR ISSUES

The following are some of the major issues that were considered in a park plan for Pleasant Valley:

The Pleasant Valley Concept Plan has an opportunity to plan comprehensively for parks and open spaces and, more importantly, to implement the plan. An appropriate park system for Pleasant Valley could be developed around three main components:

- Natural areas lands constitute the framework of the open space system. Because of the amount of area involved, the parks system should be organized to complement it and, wherever possible, the land should be used to create opportunities for people to pursue low intensity and low impact recreational activities. However, acquiring and protecting these lands should not be accomplished in lieu of creating other types of recreation spaces.
- A network of neighborhood and community parks equitably distributed and sized to meet demands. The network would provide the majority of recreation opportunities for local residents.
- A series of other parks, such as plazas, boulevards, public gardens and recreation pockets are created to give identify and form to the town center and to define its different precincts. This latter concept can be a powerful tool for creating a memorable and livable new urban community (a potential not often fulfilled).

Schools and Parks. Schools and parks can share facilities such as informal soccer/football, etc., fields and basketball hoops. Sharing facilities can reduce maintenance costs and the amount of acreage needed if the fields were not shared.

Environmentally Sensitive Areas. Caution should be used in locating improved park space or schools next to natural resource areas. Landscaping requirements (fertilizers, etc.) may conflict with natural resources. Field turf and hardscape areas can result in impervious surfaces that may conflict with natural resources. Spreading out parks in neighborhoods away from natural resources can relieve pressures (such as walking the dog) that otherwise might impact natural resources. Because neighborhood parks generally serve different recreational needs than natural areas, the primary consideration for location should be access to the residents it is intended to serve. Often this coincides with the location of schools. Natural areas next to schools can provide important education benefits. Location should ensure that there is a buffer between areas of high activity and natural areas.

Open space. The environmentally sensitive areas do not necessarily provide recreation functions. In some cases, human access should be very limited or prohibited in order to protect natural resource values. Environmentally Sensitive/Restoration Areas (ESRA) should be evaluated for their capacity to support passive recreation use in order to determine whether or not additional open space land is needed to meet projected demands. Given the importance of ESRA's and the fact that it will be a visible identifying feature of the new urban center, it makes sense to locate any additional space adjacent to it. It will be important to identify connected and integrated open space systems within the Kelley Creek/Mitchell Creek system.

Proximity to Higher Density Areas. Locating parks adjacent to higher density areas is important. Note that park spaces for high-density areas should either be larger or more frequent than in low-density areas because the service area contains more people. Traditionally these areas have been underserved with parks.

Trails and Parks. Opportunities for easy connection of a park to the proposed regional trails should be sought.

Town Center and Parks. The town center should include a handsome well-proportioned park or plaza to serve as a focal point for collective civic action. It should be a space that defines a role for the buildings that surround it, rather than being a remnant space left after the buildings have been designed. A public space will help create a community oriented town center and will support retail. A large central park in the heart of the town center may not be appropriate and could dilute its functionality. A better alternative could be a small hardscape plaza or series of plazas immediately adjacent to retail uses. The size and location can vary depending on design objectives, but might be between 1 and 3 acres in size. However, smaller may be better in the core of the town center and could be as little as 1/8 to 1/4 of an acre – depending on design.

Other Centers and Transit Areas. Consider opportunities for small (less than one acre) urban plazas or recreation pockets at commercial centers and in transit areas. The parks may include multi-purpose paved areas; children's play areas; public art/fountain; seating and basketball hoops.

The total acreage of neighborhood parks should be closer to the benchmark of 1.3 acres per 1,000 residents. A caution utilizing this standard is to consider not only project area but also that adjoining urban neighborhoods might also use the parks.

The number of neighborhood parks should include an easily accessible neighborhood park in every neighborhood. The size and number of parks in any neighborhood should consider the surrounding density.

Design and size of neighborhood parks and community parks should take into account potentially needed recreation facilities. Each park is unique. When designed, parks may include these types of features or other similar features such as: playgrounds, group picnic areas, volleyball courts, basketball courts, soccer fields, football fields, tennis courts, skate park, community garden and/or a community center.

Consider opportunities for small urban plaza/recreation pocket parks at commercial areas and transit areas.

Identify an open space system that will create and connect and integrate an open space network in the Kelley Creek/Mitchell Creek system. The open space should support future Goal 5 (State) natural resources work.

Summary of Future CIP Needs

The Plan Map identifies nine Neighborhood Parks (27.62 acres), one Community Park (29.60 acres) and 441.3 acres of ESRA, or Environmentally Sensitive Restoration Areas. Of the nine Neighborhood Parks, six are proposed to be located in Gresham, one will be situated in Portland and the remaining two will be in Clackamas County. The 29.6-acre Community Park will be sited completely in Gresham. Acreages of the Neighborhood Parks and ESRA parcels cross all areas of governance and have been broken down into the following designations:

Governance Jurisdiction	Neighborhood Park Acreages	Open Space	ESRA Acreages (Natural Resource Areas)
Clackamas County	6.96	00.0	69.60
Gresham	19.55	135.29	97.61
Happy Valley	00.0	00.0	17.30
Portland North	00.0	00.0	90.30
Portland West	1.11	00.0	65.50
TOTALS	27.62	135.29	323.01

City of Gresham Parks and Open Space Standards

- Neighborhood Parks 1.3 acres per 1000 population
- Community Parks 2.0 acres per 1000 population
- Open Space 10.0 acres per 1000 population
- Trails & Connectors ½ mile radius system connects facilities

Using the above criteria and applying to the anticipated population trends, the following park needs are illustrated:

Population	Neighborhood Parks	Community Parks	Open Space
13,529	17.59 acres	27.06 acres	135.29 acres

Note: Metro’s Open Space standards are 20.9 acres per 1,000 population.

Additional Note: The Pleasant Valley Plan District map shows conceptual and varying sizes for the nine neighborhood parks. For purposes of the CIP list the Neighborhood Park benchmark unit shall be 2.5 acres. Smaller sites tend to lean more towards Urban Plazas. Larger sites may prove to be too costly for acquisition, development and maintenance. Benchmarks will yield minor results than those of standards.

Neighborhood Parks

The Plan District Map illustrates future park properties from A to I and O. Neighborhood parks are intended to serve each residential neighborhood. It is recognized that all acreage, site locations and shapes are considered “floaters” as specific parcels may not be for sale, or purchase costs may prohibit acquisition. Sites have been identified as follows:

Park Site A (2.93 acres) North of Sager Road and west of 172nd Avenue - This park site is the most urban of the neighborhood park system, serving both adjacent residential and commercial components. It should also serve as a visual terminus to the north end of the new pedestrian trail connector over Kelly Creek.

Park Site B (2.87 acres) Nursery Neighborhood between Geise and Richey Roads – Park should be located in the central area of this neighborhood. It is hoped that park edges will connect with two fingers of adjoining ESRA properties.

Park Site C (3.76 acres) An east/west orientation of the park is desired so that it provides a view corridor from the neighborhood. Location as shown also serves as a visual terminus to 182nd Avenue (looking north). This site also provides opportunities for spectacular views “down valley”.

Park Site D (3.19 acres) East of 190th near Butler Road – This location is the eastern-most park site. It serves as a pedestrian connector from Butler Road to the East Buttes Loop Trail. The park may be split into two smaller parks, serving north and south neighborhoods.

Park Site E (3.27 acres) South of Cheldelin and East of Foster Road – This site will serve higher residential density neighborhoods. It also is intended as a visual terminus to the south end of 182nd Avenue. This is one of two sites located in Clackamas County.

Park Site F (3.41 acres) West of 190th and north of Cheldelin Road – This park is located between two significant ESRAs in SE Pleasant Valley.

Park Site G (3.39 acres) East of 172nd Avenue and north of Clatsop Street/Cheldelin Road. This park aligns between the ESRA to the east and the Power line Corridor Trail to the west.

Park Site H (1.11 acres) West of Mitchell Creek and adjacent to the planned schools. Located in Portland, this is the smallest park in the inventory. This key site will cross Mitchell Creek and connect with the East Butte Loop Trail.

Park Site I (3.69 acres) North of Sager Road and West of 172nd Avenue – This is the second of two sites located in Clackamas County. Its intent is to connect the two ESRA areas in this SW neighborhood.

Community Park

Park Site O (29.60 acres) The Community Park is centrally located and will provide a wide variety of recreational opportunities to all residents of Pleasant Valley. The park is sited east of the Town Center, framed on either side by overhead transmission lines and underground natural gas distribution lines. The proposed north/south Power Line Trail lies within its boundaries. The northernmost boundary is north of Geise Road, stretching southerly until it meets up with ESRA lands on the northern bank of Kelly Creek.

Environmental Sensitive Restoration Areas (ESRAs)

Pleasant Valley contains 475.6 acres of wetlands, streams and stream corridors. Using City of Gresham standards for calculating Open Space, 135.29 acres from the total amount has been so designated. The balance of the ESRAs is labeled Natural Resource Areas. The costs for all land acquisition, conservation easements, restoration and maintenance will be substantial. There is no one method that can or should be used for everything. Discussion is ongoing as to which City Departments would have jurisdiction, or would take the lead on this significant issue.

Trails

The Plan Map identifies 8.19 miles of trails, including 9 pedestrian bridges over Mitchell, Kelly and two additional un-named tributaries. The vast majority of proposed trails fall within the ESRAs, although some crossings are within existing utility corridors while others alignments are on private property. Whenever possible, it is desirable to connect the trails with the parks and open space system. The preparation of a formal park, trails and open space Master Plan for Pleasant Valley will address many of these concerns.

FINANCING PLAN

The following discussion presents the envisioned strategy for financing service extensions in the Gresham and Portland sections of Pleasant Valley. For analysis purposes, the boundary between Portland and Gresham is presumed to be Mitchell Creek in the west. The Jenne Road area is also presumed to be part of Portland. All other Multnomah County areas are anticipated to be in Gresham. The final boundary will likely shift away from the creek, but at this time, the shift is not expected to significantly alter the relative cost burden depicted for Gresham and Portland. This discussion assumes Gresham will serve the Clackamas County area (Area C). The ultimate service and governance providers for Area C have not been determined and will be the subject of future agreements.

Gresham and Portland finance park system operations with general fund revenue. SDCs, grants, land dedication, and special G.O. bond measures have traditionally been relied on to finance park system improvements. Both cities have been successful working with local property owners, developers, civic organizations, and state and federal agencies to create partnerships that have helped develop park and recreation facilities. Metro has been an important partner in this process, especially for the acquisition and development of regional parks and open space facilities.

The analysis indicates that forecast SDC receipts would not be sufficient to finance the planned park and trail improvements and open space acquisition in Pleasant Valley. Nor does the analysis include potential restoration costs for ESRAs. There are, however, fairly significant public benefits that come from the restoration of ESRAs. Some public participation in their restoration seems appropriate.

Financing the park and open space improvements may be more difficult than other public facility system improvements. Several factors contribute to this. On the capital improvement side, SDCs can only finance park system improvements to the existing level of service that is provided in the community. The planned improvements in the Pleasant Valley Community Plan are based on desired service levels, not prevailing service levels. Since prevailing service levels are below the benchmark used in the concept plan, SDC revenues from within Pleasant Valley are understandably below the cost of planned improvements. Some parks in Pleasant Valley will likely provide regional benefits, so investment of SDC resources generated outside Pleasant Valley may be justified. In addition, portions of the trail system in Pleasant Valley connect regionally significant trail systems. This improves the chance that that some contribution from Metro and other outside sources could augment local resources.

On the operation side, the problems and potential solutions are more complex. Gresham is having difficulty maintaining its existing park system. Like many cities in Oregon, Gresham has experienced a reduction in general fund revenue relative to service demands since the passage of Measure 50. Managers and elected officials are beginning to ask if it is appropriate to build park facilities if the revenue is not available to maintain these assets. Solving the operations and maintenance problem is, in many ways, a more complex issue that solving the capital funding problem. Without operating revenues, acquired park sites will remain undeveloped and function only as open space with limited, if any, recreation value. Over time, this results in a lower level of service, which in turn lowers the allowable SDC fee the next

time the park SDC methodology is updated. Without a more comprehensive solution to the operating revenue problem, parks will continue to compete with police and fire and other general fund services for limited resources.

GOAL

Parks, open space and trails shall be located and developed throughout the Pleasant Valley community.

POLICIES

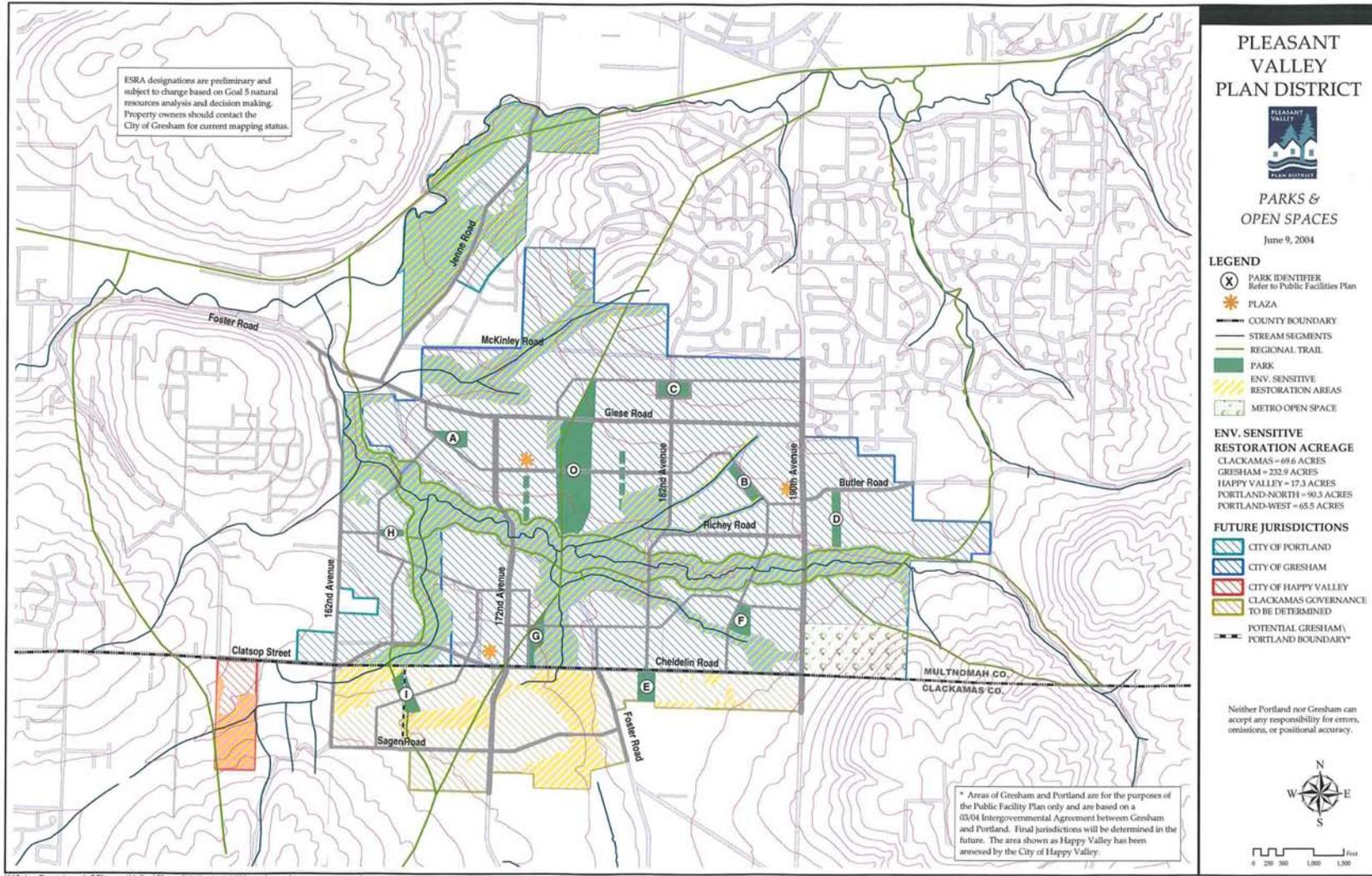
1. Neighborhood parks, small green spaces and open spaces shall be within a short walk of all homes.
2. A network of bicycle and pedestrian routes, equestrian trails, walking/hiking trails and multi-use paths will connect the parks and open spaces.
3. The park and trail system will be connected to the Springwater Trail, Powell Butte and other regional trails and greenspaces.
4. The natural area lands will constitute the framework of the open space system. The parks system will be organized to complement the open space system, and, wherever possible, the land should be used to create opportunities for people to pursue low intensity and low impact recreational activities. However, acquiring and protecting these lands should not be accomplished in lieu of creating other types of recreation spaces.
5. There shall be a network of neighborhood parks and a community park equitably distributed and sized to meet demands. The network will provide the majority of recreation opportunities for local residents. A neighborhood park shall be located in every neighborhood. Neighborhood parks and a community park shall be located generally consistent with the preferred concept plan map.
6. A series of other parks, such as plazas, park blocks (boulevards), public gardens and recreation pockets shall be created to give identity and form to the town center. The smaller mixed-use neighborhood centers shall also feature a small park or plaza.
7. There shall be parks located adjacent or near higher density areas.
8. Wherever practical schools and parks shall share facilities such as soccer/football fields and basketball courts. Sharing facilities can reduce maintenance costs and the amount of acreage needed if the fields were not shared.

ACTION MEASURES

1. Amend parks, recreation, open space and trails master plan(s) for Pleasant Valley consistent with the Pleasant Valley Plan District. This includes funding mechanisms and strategies for acquisition, development and operation.
2. Evaluate the natural areas (ESRA) for their capacity to support passive recreation use in order to determine whether or not additional open space land is needed to meet projected demands. The ESRA lands will not necessarily provide recreation. In some cases, human access should be very limited or prohibited in order to protect natural resource values.
3. Conduct a park and recreation needs assessment to more precisely define parks, open space and trails requirements consistent with the Pleasant Valley Plan District plan.

- a. The design and size of parks should take into account potentially needed facilities. These facilities can include features such as, but not limited to, basketball courts, sports fields, picnic facilities, community gardens and community center buildings.
 - b. The design and size of open space should take into account the size sufficient to protect resources. A continuous open space network is anticipated for Kelley and Mitchell Creeks. The current city per capita standards for open space acreage is less than areas identified as state Goal 5 natural resources in Pleasant Valley. Open spaces, in addition to natural resources, can include, but are not limited to, trails, trailhead amenities, benches, interpretative signs and native vegetation.
 - c. The design and size of trails should take into account the size sufficient to protect resources and accommodate activities. In addition to the actual trails, features can include, but are not limited to, walk-in trailheads, benches, interpretive signs and native vegetation.
4. Develop a strategy to establish the identity, design and funding of the community park. Consideration shall be given to future public involvement strategies including a design charrette.
 5. Support designation of the Pleasant Valley regional trails system in the Metro Greenspaces Master Plan. Identify funds that can be used to study the feasibility of the trails, right-of-way acquisition, design and construction. The following have been nominated for inclusion on the Metro Trails and Greenway map:
 - a. East Buttes Powerline Corridor Trail. This trail runs north / south partially via the BPA/Northwest Natural Gas line easement. It connects to the Springwater Corridor Trail and the proposed Gresham/Fairview Trail and to the Clackamas River Greenway near Damascus.
 - b. East Buttes Loop Trail. The trail runs east / west along both sides of the main stem of Kelley Creek. It runs through the heart of Pleasant Valley and provides connections to the Springwater Corridor Trail; the Gresham Butler Creek Trail and a Metro open space area.

APPENDIX A



APPENDIX B

Pleasant Valley Public Facility Plan

Parks Capital Improvement Project List

Project	Description	Acres/ Length	Cost ¹	Timing	Responsible Jurisdiction	Funding Source
Parks						
A	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham	SDC/Local
B	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham	SDC/Local
C	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham	SDC/Local
D	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham	SDC/Local
E	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham/Clackamas	SDC/Local
F	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham	SDC/Local
G	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham	SDC/Local
H	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Portland	SDC/Local
I	Neighborhood park	2.5	\$ 1,175,000	6 to 20	Gresham/Clackamas	SDC/Local
O	Community park	29.6	\$20,524,000	6 to 20	Gresham	SDC/Local
Open Space						
		135.29	\$ 6,764,500	6 to 20	Gresham	SDC/Local
Natural Resource Areas²						
		69.6	\$ 3,480,000	6 to 20	Gresham/Clackamas	SDC/Local/grants
		97.61	\$ 4,880,500	6 to 20	Gresham	SDC/Local/grants
		155.8	\$ 7,790,000	6 to 20	Portland	SDC/Local/grants
Trails						
		Miles				
	BPA Powerline (9005 LF)	1.71	\$ 1,282,500	6 to 20	Portland/Gresham	SDC/STP/Metro
	Kelley Creek trails west of BPA (14,658 LF)	2.78	\$ 2,085,000	6 to 20	Portland/Gresham	SDC/STP/Metro
	Kelley Creek trails E of BPA (6,887 LF)	1.30	\$ 975,000	6 to 20	Portland/Gresham	SDC/STP/Metro
	Western N/S trail (7,858 LF)	1.49	\$ 1,110,000	6 to 20	Portland/Gresham	SDC/STP/Metro
	SE corner trail (1,692 LF)	0.32	\$ 240,000	6 to 20	Portland/Gresham	SDC/STP/Metro
	N trail; Springwater corridor	0.59	\$ 442,500	6 to 20	Portland/Gresham	SDC/STP/Metro
	Pedestrian Bridges	9 total	\$ 2,250,000	6 to 20	Portland/Gresham	SDC/STP/Metro
Grand Totals						
				Gresham	Clackamas	Portland
Neighborhood Parks			\$10,575,000.00	\$ 7,050,000.00	\$ 2,350,000.00	\$1,175,000.00
Community Park			\$20,524,000.00	\$20,520,000.00		
Open Space			\$ 6,764,500.00	\$ 6,764,500.00		
Trails & Ped. Bridges			\$ 8,385,000.00	\$ 5,087,500.00	\$ 940,000.00	\$ 2,357,000.00
Natural Resource Areas			\$16,150,500.00	\$ 4,880,500.00	\$ 3,480,000.00	\$ 7,790,000.00
Grand Totals			\$62,395,000.00	\$44,302,500.00	\$ 6,770,000.00	\$11,322,500.00

¹Cost includes cost for land acquisition and development:

Assumptions

Neighborhood Park – Acquisition \$200,000/acre; Development \$270,000/acre

Community Park – Acquisition \$200,000/acre; Development \$560,000/acre

Open Space – Acquisition \$40,000/acre; Habitat Restoration \$10,000/acre

Trails – Acquisition \$300,000/mile; Development \$450,000/mile; Pedestrian Bridge \$250,000 each

Natural Resource Areas – Acquisition \$40,000/acre; Habitat Restoration \$10,000/acre

²Areas in excess of Open Space benchmark standard.

Chapter 9. UGMFP Title 11

Introduction

This chapter describes how the Pleasant Valley Plan District complies with Title 11 of the Metro Urban Growth Management Functional Plan (UGMFP).

In December 1998, the Metro Council brought the Pleasant Valley 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)

Addressing the planning requirements of Title 11 was recognized as important early in the efforts to create a Pleasant Valley plan. The Pleasant Valley Concept Plan Steering Committee adopted a series of Goals that reflected the vision and values underlying the Concept Plan. The Steering Committee also adopted, with the plan Goals, planning parameters that included: “*Section 3.07.1120 of Metro Title 11 will be considered during the preparation and evaluation of the Concept Plan. This section is excerpted below.*” It then listed the code sections.

Additionally, Metro staff has had a key partnership role throughout the project. They were on the Concept Plan Steering Committee and the Implementation Plan Advisory Group. They were one of four Concept Plan project managers with Gresham, Portland, and Otak (lead consultant firm). They had key roles in the Land Use and Transportation plan elements. They also were members on the Parks, Natural Resources and Public Involvement work teams. They provided significant support services from the Data Resource Center (GIS mapping and Transportation modeling) and Creative Services (newsletters and forum reports). During the Implementation Plan phase Metro staff (land use and transportation and Powell/Foster project) were on the Technical Advisory Committee and participated in the land use and transportation work teams.

In May 2002 the Steering Committee adopted a Concept Plan that is presented in the Pleasant Valley Concept Plan *Summary and Recommendations* and *Implementation Strategies* documents. Findings that “these recommendations are intended to fulfill Metro Title 11 requirements” are made in the *Summary and Recommendations* document for Section 3.07.1120. In summer 2002, the Metro Council along with Gresham and Portland Councils, and Multnomah and Clackamas County Commissions passed a resolution to 1) accept the Steering Committee Concept Plan recommendations; 2) use the Concept Plan as the basis for Implementation; and 3) continue the partnership.

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 of Gresham submitted the Planning Commission Draft to Metro on August 13, 2004, and constitutes a copy of the proposed comprehensive plan amendments and applicable plan provisions and implementing ordinance to be amended. This report constitutes the compliance evaluation report. The City of Gresham has scheduled, at the earliest, a December 7, 2004, enactment meeting, so that the 60 days prior provision is met. The City of Gresham, on April 5, 2004, submitted to Metro an earlier draft of the proposed Comprehensive Plan Amendments.

The City of Portland submitted the Staff Proposal to Planning Commission to Metro on April 14, 2004, and constitutes a copy of the proposed comprehensive plan amendments and applicable plan provisions. This report constitutes the compliance evaluation report. The City of Portland anticipates City Council adoption of the Planning Commission recommendation no earlier than September 16, 2004 so that the 60 days prior provision is met. The City of Portland, on July 16, 2004, submitted to Metro a draft of this evaluation report.

Section 3.07.1130.B provides a method of extending timelines for adoption of comprehensive plan amendments required by Title 11. This does not apply, as there was no timeline established for Pleasant Valley by the Metro order.

Organization

The rest of this report is organized to first show the text of a Title 11 or other applicable provision and to second provide brief findings that describe how the proposed Pleasant Valley Plan District comprehensive plan amendments comply with the specific provision and a conclusion.

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 Pleasant Valley Plan District area is currently under the jurisdiction of Multnomah County (1,300 acres) and Clackamas County (approximately 230 acres). Both the City of Gresham and the City of Portland have agreements with Multnomah County that provides the authority for the cities to do urban planning and to provide urban services when land is annexed.

The Pleasant Valley Future Governance Map is included in the proposed Pleasant Valley Plan District (Appendix B). This map is included in an Intergovernmental Agreement (IGA) between Gresham and Portland entered into in March 2004. In this IGA the cities agree to future annexation, implementation of the Pleasant Valley Plan District and responsibility for delivery of all urban services to those areas as indicated in the map. The March 2004 IGA is a revision of a December 1998 IGA that had provided future annexation and urban service based on a generalized future boundary between the two. The revision was based on the recommendations of the Steering Committee and additional staff discussions.

The IGA covers these required urban services: general city services; stormwater management; water, sanitary sewer; transportation; fire and emergency services; law enforcement; and parks, open space and recreation. Other urban services such as schools and libraries can continue to be provided by their current service provider.

An Annexation Analysis and Strategy was undertaken as part of the *Pleasant Valley Implementation Plan*. The report provides an analysis of the net fiscal position (i.e., surplus or shortfall) of annexation sub-areas of Pleasant Valley, potential revenue sources to close projected funding gaps for capital projects and operations and maintenance, and preliminary conclusions regarding strategies for annexation.

Annexation Goals, Policies and Action Measures are included as part of the proposed Pleasant Valley Plan District. It is included with the City of Portland current submitted materials. It will be included with a separate set of Comprehensive Plan Amendments (CPA 04-1481) for annexations by the City of Gresham. Hearings for CPA 04-1481 are currently scheduled for Planning Commission on September 27, 2004, and for Council on December 7, 2004.

The March 2004 IGA applies only to the Multnomah County portion of the project, although the map does show a recommended boundary between Gresham and Portland if they were to provide governance and urban services in the contiguous Clackamas County portion. There is no current agreement with Clackamas County as to future annexations and urban services in the contiguous Clackamas County portion of the Pleasant Valley Plan District. Clackamas County, the City of Happy Valley and the Sunrise Water Authority participated in the Pleasant Valley planning efforts. The Steering Committee recommended that resolution of this area be included in the Damascus Firehouse Study Group. The Study Group has completed a Memorandum of Understanding (MOU), to which Gresham and Portland are signatory, which addresses this area (identified as Area 'C' in the MOU). It provides for Portland, Gresham, Happy Valley, Damascus (if incorporated) and Clackamas County jointly identifying the municipal governing entity or entities at a meeting in January 2005 with IGAs to be established by June 2006. The participating parties agree in the MOU to use the Pleasant Valley Plan District to guide urbanization of the area.

There is a small, unconnected area in the Pleasant Valley Plan District located south of Clatsop Street and west of 156th Street that includes a mobile home park and which apparently has been annexed or partially annexed by the City of Happy Valley.

Conclusion. Provisions have been made through the Gresham/Portland IGA and the Damascus Firehouse Study Group MOU for future annexations and urban services. The proposed Pleasant Valley Plan District is consistent with this Title 11 section.

B – Provision for average residential densities of at least 10 dwelling units per net developable residential acre.

Findings. The Pleasant Valley Plan District has an overall average density of 10.06 dwelling units per net residential acre, based on 5,066 total dwellings at buildout and 484 net acres of residential land.

The *Concept Plan* provided an overall density of 10 dwelling units per net acre with two broad residential districts: attached and detached residential. Detached housing choices included small lots (3,000-5,000 square feet), standard lots (5,000-7,000 square feet) and large lots (7,500 square feet or larger). The *Plan District* refines residential into three sub-districts: Low, Medium and High Density Residential.

Table 1 summarizes the residential density assumptions for the Pleasant Valley Plan District:

Table 1: Residential Density Assumptions

<i>Low Density Residential</i> (Overall at 6.2 du/acre)	Range	Assumed Average	Acres	New Dwellings
Large Lot	7,500- 10,000SF	8,750SF	128	639
Standard Lot	5,000-7,500	6,250SF	218	1,523
Total	--	--	346.8	2,161
<i>Medium Density Residential</i> (Overall at 18.5 du/acre)	Range	Assumed Average	Acres	New Dwellings
Small Lot	3,000-5,000 SF	8 du/ac	34	274
Rowhouses/Plexes	15-20 du/ac	18 du/ac	29	514
Condos	20-30 du/ac	22 du/ac	16	352
Apartments	20-30 du/ac	24 du/ac	27	657
Senior	20-60 du/ac	40 du/ac	8	320
Total	--	--	114.1	2,116
<i>High Density Residential</i> (Overall at 25.4 du/acre)	Range	Assumed Average	Acres	New Dwellings
Rowhouses/Plexes	15-20 du/ac	18 du/ac	1	21
Condos	20-30 du/ac	22 du/ac	8	179
Apartments	20-30 du/ac	24 du/ac	10	251
Senior	20-60 du/ac	40 du/ac	3	140
Total	--	--	23.3	591
Total New Dwellings (Overall at 10.06 du/acre)			484	4,869

The three proposed sub-districts are intended to provide the 10 dwellings per net residential acre provision through the application of minimum to maximum density ranges and through master planning. The LDR-PV proposes a density range of 5.3 – 7.4 with a mix of standard (70%) and large (30%) lots. There is also provision for accessory dwellings and for duplexes. The MDR-PV proposes a density range of 12 – 20 with a mix of small lots (15%), attached housing at 15-20 (24%) and 20-30 (48%) and elderly housing 20-62 (15%). The HDR-PV proposes two different densities based on if the HDR is next to the Town Center or not. If not next to the Town Center the density range is 20-30 for attached housing and 20-62 for elderly housing. If next to the Town Center it is 30-40 for attached housing and 30-62 for elderly housing.

These provisions for average residential do not include housing planned in the mixed-use sub-districts.

Conclusion. The proposed Pleasant Valley Plan District has provisions for sufficient residential land area with density provisions for at least 10 dwelling units per net acre of developable residential land. The proposed comprehensive plan amendments are consistent with this Title 11 section.

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. Pleasant Valley’s approach to providing a diversity of housing was integrated with the preparation of the overall plan and evaluation of the mix and density of housing. Key issues related to housing choice addressed by the Pleasant Valley Plan District include, creating nodes of medium and high density housing without having too much of one particular type of housing at each node; providing a diversity of housing that would support employment goals for the area; creating neighborhoods as the organizing structure for the location of various types of housing; and locating higher density attached and detached housing to support the future transit system.

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, its 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.

As part of the Concept Plan project a Residential Focus Group meeting was held. Participants included representatives from Oregon Housing and Community Service; a Realtor; a mixed-use and multi-family developer; a single-family home developer; DLCD; Clackamas County; City of Portland (Planning and PDC); Metro; City of Gresham; and Otak. They discussed what kind of community Pleasant Valley should be; what range of housing types should be provided and what are reasonable ranges for percentages of each type of housing. The result of this focus group was to recommend the housing types and percentages shown in Table 2.

Table 2 – Residential Focus Group Recommendations

Housing Type	Percentage
Large Single Family (7,500+ sq. ft. lots)	10%
Standard Single Family (5,000 sq. ft. lots)	25%
Small Single Family (3,000 – 5,000 sq. ft. Lots)	5%
Rowhouses/Plexes (18-20 dwelling units/acre)	20%
Condos/Cohousing	5%
Apartments (30-35 dwelling units/acre)	25%
Senior Housing	10%

All of the housing types listed in ORS 197.303, except for manufactured home parks, were included in this original recommendation. As can be seen in Table 1 that, although refined, the general direction of housing types and percentages has been carried through to the proposed Pleasant Valley Plan District. In subsequent evaluations, discussions and public events no need was shown for manufactured parks with the plan area.

Demonstrable measures that provide a diversity of housing include:

- 1) Permitting these housing types in the three proposed residential sub-districts. The proposed LDR-PV will allow single family and manufactured homes on individual lots with a mix of lot sizes. It will also allow duplexes and accessory dwellings. The MDR-PV will allow single family and manufactured homes on small lots; it will allow attached single-family dwellings and attached dwellings. Attached dwellings are not restricted as to tenure and so apartments, condos and co-housing are allowed. The HDR-PV will

allow attached single-family dwellings and attached dwellings. Attached dwellings are not restricted as to tenure and so apartments, condos and co-housing are allowed.

2) Housing is allowed in the three mixed-use sub-districts (TC-PV, MUE-PV and NC-PV). Housing opportunities are focused on mixed-use buildings. The density assumptions for housing in the mixed-use sub-districts are shown in Table 3.

Table 3 – Housing Density Assumptions Mixed-Use Subdistricts

Mixed-use Sub-district	Units
Town Center-PV	39
Mixed-Use Employment-PV	122
Mixed-Use Neighborhood Center-PV	10

3) The MDR-PV, HDR-PV, TC-PV, MUE-PV and NC-PV are all transit/pedestrian districts. The sub-districts are all located on planned transit streets. Because they are transit/pedestrian districts the proposed parking requirements are the same parking requirements used by Gresham in comparable (transit corridor and town center) districts. These parking standards were reviewed as part of Gresham’s compliance report for Title 7. Parking standards are less in these districts due to transit and mixed-use development opportunities so that it addresses the parking needs of residents of all types of housing while reducing parking costs.

Conclusion. The Pleasant Valley Plan District has demonstrable measures to provide diversity of needed housing. Those include land use sub-districts that allow identified needed housing with sufficient areas and densities to allow identified percentages of different housing types; provisions for housing in mixed-use districts; and utilizing transit/pedestrian sub-districts and parking standards. The proposed comprehensive plan amendments are consistent with this Title 11 section.

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 that 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 housing proposed for Pleasant Valley includes homeownership and rental housing opportunities for households at or below median household income. For households at or below \$43,442, the median household income for Gresham according to the 2000 Census, the proposed medium and high-density housing is 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 \$941 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.fmcalcs.com/tools-tcc/fanniemaec/calculator>) was utilized to determine a range of affordable home prices. Homes selling for between \$91,115 and \$156,285 are considered affordable for those at or below median household income. Table 4 below specifies the affordable home selling prices.

¹ Statistics for analyzing affordable housing are based on current Gresham homeownership markets since Pleasant Valley is more likely to resemble Gresham than Portland.

² From the Witch Hazel Village Community Plan, June 30, 2003.

Table 4. 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%	\$941	0%	\$ -	\$1,303	\$156,285
26%	\$941	9%	\$326	\$977	\$117,185
26%	\$941	n/a	N/A	\$941	\$112,865
26%	\$941	15%	\$543	\$760	\$91,155

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, townhome and condominium housing³. Each of these housing types is within, or below, the high end (\$156,285) price for affordable housing. The MDR-PV and HDR-PV housing designations for Pleasant Valley reflect these housing types and comprise 50 percent of Pleasant Valley’s projected housing.

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 \$34,753 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 \$870.⁴ A review of rental listings for Gresham indicates that apartment units, at rents ranging from \$650 to \$900, would provide affordable renting housing for Pleasant Valley⁵. The MDR-PV and HDR-PV housing designations provided by the Pleasant Valley Plan District would allow apartment dwelling units.

Although not specifically quantifiable provisions for mixed-use, work-live, small lot and other housing all on transit corridors provide opportunities to replace transit and/or living near or at where you work for a car payment which then could be applied to mortgage or rent payments thus promoting affordable housing.

Conclusion. The Pleasant Valley Plan District provides affordable rental and homeownership opportunities. It is important to note, however, that the estimates of affordable housing as outlined above are based on a snapshot in time, and generic housing affordability variables. If any of those variables change, like interest rates increasing, the opportunity for affordable housing will also change. The proposed comprehensive plan amendments are consistent with this Title 11 section.

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 Pleasant Valley Plan District includes four sub-districts to accommodate commercial and/or industrial development: Town Center, Neighborhood Center, Mixed Use Employment and Employment Center.

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.

The Town Center Sub-District is intended to primarily serve the needs of the local community and to include a mix of retail (anchored by a grocery store), office, and civic and mixed-use housing opportunities. It could be as large as 20 acres. Extensive discussion, analysis and evaluation were done to determine the size, composition and location of the Town Center. Two Town Center Focus Group meetings supported the recommended Pleasant Valley Town Center. A town center was designated for Pleasant Valley as part UGB expansion decision.

The Mixed-Use Employment Sub-District is intended to provide support services for the town center as well as local service and is primarily office and retail uses. The MUE-PV is about 30 net acres and located adjacent to the town center. It is intended to be an extension of the town center and seen as needed to support the town center and to provide additional employment opportunity. The MUE-PV sub-district is part of the designated Pleasant Valley town center.

The Neighborhood Center Sub-District is intended to provide for a mix of local retail, service, office and live-work uses for adjacent neighborhoods. Two 3-5 acre neighborhood centers are planned. They are located on transit streets. Provision for these two neighborhood centers was a response to an evaluation that the opportunity for very local retail/service trips was needed and that additional employment opportunity was needed in the Plan District. The NC-PV sites are located along transit streets. Commercial opportunities were expected along the transit corridors designated for Pleasant Valley as part of UGB expansion decision.

The Employment Center Sub-District is primarily intended to provide office or flex/tech industrial and medical and other employment opportunities. Emphasis is placed on business suited to high environmental quality settings. Two employment centers with a total of about 40 net acres are planned. An employment focus group provided advice on the feasibility and type of employment opportunities in Pleasant Valley. Employment Centers respond to the evaluation that additional employment opportunities were needed in the Plan District, that a medical clinic would be desirable, and that it could provide a business opportunity to live and work in the same community. Although there was no employment areas designated for Pleasant Valley as part of the UGB expansion decision these are appropriate 2040 design types for Pleasant Valley and they are shown on the November 2002 2040 Growth Concept Plan map.

Table 5 summarizes the new job capacity proposed by the Pleasant Valley Plan District. Overall it provides about one job opportunity for each dwelling planned for the Plan District. In general these new commercial and employment areas are intended to serve the needs of Pleasant Valley.

Table 5. Pleasant Valley Summary of Job Capacity

New Job Capacity	
Retail/Other	487
Office	3,237
Light Industrial	500
Civic	58
Schools	130
Work At Home Jobs	507
<u>Subtotal</u>	<u>4,919</u>
Plus Existing Jobs	50
Total Jobs	4,969

Conclusion. The four commercial and employment sub-districts and land areas provided in the Plan District provides sufficient commercial and employment development for the Pleasant Valley Plan District area. The proposed comprehensive plan amendments are consistent with this Title 11 section.

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 Pleasant Valley Plan District proposes a Pleasant Valley 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:

- Functional Classifications for Arterial, Collector, Neighborhood Connector and Local Streets
- Street Design
- Street Connectivity including an Illustrative Plan
- Transit System
- Bike and Trail Plan

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 Pleasant Valley Plan District will require amendment to the RTP as it proposes new regional arterials, transit service, and multi-use trails. The Forecasts and Alternatives section of the Pleasant Valley TSP summarizes the modeling analysis that was used and that resulted in the proposed conceptual transportation plan. It is more completely documented in the Pleasant Valley Concept Plan Technical Appendix. Metro staff, assisted by DKS Associates, conducted the transportation system analysis for Pleasant Valley. The Metro regional travel demand model was used. 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.

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, 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 that 530 feet when feasible.

The proposed transportation system plan is intended to meet these standards. The connectivity plan shows the general location and number of local streets that intersect with the arterial network laid on top

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 the elements in Title 6 have been moved to Title 6 of the Regional Transportation Plan and specifically 6.4.4 through 6.4.7 (as stated in section 6.3 -- Demonstration of Compliance with Regional Requirements). Also referenced in Section 6.3 is section 6.6. Section 6.6 deals with amendments to the RTP, which is not an applicable provision for this Title 11 compliance report.

of the basic arterial, collector and local connector street system. Connectivity standards are proposed that meet or exceed the 530-foot standard. The Bike and Pedestrian plan shows “foot bridges” to provide the extra connectivity when greater street spacing is required due to water crossings. Pleasant Valley 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 community. Two drawings, the illustrative plan for three neighborhoods and the Illustrated Plan District Plan, are shown in the TSP as a guideline for Future Street and pedestrian connections.

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 Pleasant Valley 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 (town center, mixed-use employment, employment center, neighborhood centers and moderate and high density residential). The bike and pedestrian plan will result in a walkable valley that connects neighborhoods, commercial and civic destinations, multi-use trails and transit stops.

As the Pleasant Valley TSP will amend each City’s existing TSP, existing strategies found in those TSPs will also apply the Pleasant Valley.

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 Pleasant Valley 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 Pleasant Valley 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 during the *Concept Plan* project. These preliminary costs estimates and funding strategies were refined during the *Implementation Plan* project by completing a Public Facility Plan consistent with OAR Chapter 660, Division 11. The proposed Pleasant Valley 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 Pleasant Valley 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 Title 11 section.

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 Pleasant Valley Plan District includes a natural resource protection plan. The Natural Resources chapter documents the Goal 5 process for Pleasant Valley, and consists of 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 ESRA funding strategy and an ESRA draft resource protection standards development code.

To achieve the goal of creating an urban community integrated with the natural environment, Environmentally Sensitive Restoration Areas (ESRAs) were designated for Pleasant Valley’s green space system. The ESRAs serve as the framework for the protection, restoration and enhancement of the area’s streams, floodplains, wetlands, riparian areas and major tree groves. The Pleasant Valley Plan District established an ESRA sub-district to implement Pleasant Valley’s natural resource goals and to resolve conflicts between development and conservation of natural resources. The natural resources planning efforts included mapping each of the nine identified resource functions and creating an ESRA map. The ESRA development standards apply to those lands identified on the ESRA map.

“Neighborhood transition design areas” were designated adjacent to the ESRAs so that neighborhood development is compatible with adjacent green corridors. The Pleasant Valley Plan District includes a Neighborhood Transition Design Area overlay sub-district with the purpose of establishing design guidelines and encouraging certain uses in the 100-foot wide area adjacent to the ESRAs.

Green development practices, which regulate stormwater management techniques, are included in the Plan District development code. Green development practices are a toolbox of techniques 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 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 Pleasant Valley Plan District 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; and developed development code standards to protect and restore the ESRA areas while providing for urban development in the rest of the Pleasant Valley Plan District area. The proposed comprehensive plan amendments are consistent with this Title 11 section.

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 Pleasant Valley Plan District includes a Public Facilities Plan (PFP) for sanitary sewer (wastewater), water, storm drainage (stormwater management) and parks. This PFP was based on the conceptual planning done during the *Concept Plan* project and then updated during *Implementation Plan* project. It specifically addresses the requirements of OAR Chapter 660, Division 11. The PFP also evaluated the transportation system to be consistent with the State OAR and that work was incorporated into the proposed Transportation System Plan. The Pleasant Valley Public Facilities Plan amends the current citywide Public Facilities Plans.

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 Pleasant Valley Concept Plan. The PFP 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 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 proposed comprehensive plan amendments are consistent with the Title 11 section.

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. The Pleasant Valley Plan District is within the Centennial School District. Using criteria provided by the district a conceptual plan for two new schools (an elementary and middle school) in addition to the existing elementary school was developed. The school plan is detailed in the proposed School Goal, Policies and Action Measures comprehensive plan amendments. Development of the school plan was done in coordination with the District. The District staff provided criteria and reviewed materials as the plan was developed. The District Board appointed a representative on the Steering Committee. Additionally, a member of the Pleasant Valley Elementary School PTA was on the Steering Committee. The land established for new (and existing) schools was not included for purposes of housing and employment estimates.

Conclusion. A conceptual school plan has been developed in coordination with the Centennial School district and is included in the Pleasant Valley Plan District proposal. The proposed comprehensive plan amendments are consistent with the Title 11 section.

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 Pleasant Valley Plan District Plan Map (Plan Map) serves as the urban growth diagram and includes all of the applicable elements listed above. The Plan Map does not show water, wastewater or stormwater facilities – those are shown on individual maps in the Public Facilities Plan. It does show arterials, collectors and connecting local streets; environmental lands (slopes and natural resources); mixed-use and employment areas; single and multi-family area, plazas, parks and trails and schools.

Conclusion. The applicable items listed in the section have been mapped and are included in the proposed Pleasant Valley Plan District. The proposed comprehensive plan amendments are consistent with the Title 11 section.

K – The plan amendments shall be coordinated among the city, county, school district and other service districts.

Findings. Development of the Pleasant Valley Plan District during the *Concept Plan* and *Implementation Plan* projects were done as multi-jurisdictional projects. Metro, the City of Gresham and the City of Portland, Multnomah County and Clackamas County passed resolutions accepting the Concept Plan and resolving to use it as the basis for the Plan District. These jurisdictions participated in work teams and advisory groups. Other jurisdictions/districts that participated included City of Happy Valley, Sunrise Water Authority, Centennial School District and Clackamas County Water and Environmental Services (WES).

Conclusion. The plan amendments have been coordinated among the appropriate agencies. The proposed comprehensive plan amendments are consistent with the Title 11 section.

Metro Conditions of Approval

In addition to requiring compliance with the Urban Growth Management Functional Plan, the Metro Council added conditions of approval to Ordinance No 98-781D when the plan area was added to the Urban Growth Boundary in 1998. The following conditions were placed on the site.

A. The land added to the Urban Growth Boundary by this ordinance shall be planned and zoned for housing uses to the extent and in a manner consistent with the acknowledged 2040 Growth Concept text and the regional design types shown on Exhibit A. This includes provision for the town center indicated on the acknowledged 2040 Growth Concept map with some land planned and zoned for employment, including commercial services for the town center.

Findings. The Regional Design types shown on Exhibit A of the ordinance that brought Pleasant Valley into the Urban Growth Boundary were town center, corridor and inner neighborhood.

Town Center. Title 1 of the UGMFP describes a town center as “local retail and services will be provided in town centers with compact development and transit service”. The Pleasant Valley Plan District provides for a town center (PV-TC) at the intersection of two arterial streets. It will be served by regional transit and community transit. The PV-TC provides for retail, commercial services and civic with some residential uses. Adjacent to the PV-TC is the Mixed-Use Employment (MUE-PV). The MUE-PV provide for office and commercial services and housing in mixed-use buildings. Adjacent (to the south) is HDR-PV, which allows for higher density housing due to its proximity to the Town Center.

Corridor. Title 1 of the UGMFP describes a corridor as “along good quality transit lines, corridors feature a high-quality pedestrian environment, convenient access to transit, and somewhat higher than

current densities.” The Foster/172nd Avenue arterial is planned for regional transit service. The other arterials are planned for community transit service. Two mixed-use neighborhood centers (NC-PV) are located on a corridor and provide very local retail and commercial service uses. The HDR-PV and MDR-PV are primarily multi-family districts (the MDR-PV also allows small lots) that are located along the corridors. The HDR-PV is generally located next to the Town Center or Neighborhood Centers or at the intersection of two arterials. The MDR-PV is generally located between the HDR-PV or the commercial areas and the lower density residential sub-district.

Inner Neighborhood. Title 1 of the UGMFP describes inner neighborhoods as “residential areas accessible to jobs and neighborhood businesses with smaller lots are inner neighborhoods.” The LDR-PV constitutes the inner neighborhood and provides for a mix of single-family lots of 5,000-7,500 and 7,500-10,000 square foot lots with an assumed average 7,000 square foot lot. The inner neighborhoods are designed to be walkable and have good connections to transit lines and neighborhood businesses.

Employment. Title 1 of the UGMFP describes employment as “various types of employment and some residential development are encouraged in employment areas with limited commercial uses.” The *Concept Plan* project identified the need for additional employment opportunities in Pleasant Valley. Two employment centers (EC-PV) are planned for Pleasant Valley. The EC-PV is intended to generally provide for Office Manufacturing/Flex-Tech and medical clinic opportunities.

Conclusion. The Pleasant Valley Plan District has planned, mapped and provided zoning standards for the town center, corridor, inner neighborhood and employment design types. This condition of approval is met.

- B. Prior to conversion of the new urbanizable land in this ordinance to urban land for development, an urban reserve plan shall be completed for the lands added to the Urban Growth Boundary by this ordinance consistent with Metro Code 3.01.012, as amended by Ordinance No. 98-772B, including Title 11 of the Urban Growth Management Functional Plan.***

Findings. This is a reference to complete a complete a concept plan as provided for in Title 11. The Pleasant Valley Plan District is the implementing comprehensive plan amendments for the Pleasant Valley Concept Plan and is intended to be the “urban reserve plan” stated in the condition of approval.

Conclusion. The proposed Pleasant Valley Plan District constitutes an urban reserve plan and as detailed by this Title 11 compliance report is consistent with Title 11. This condition of approval is met.

- C. Prior to conversion of the new urbanizable land available for development, a stormwater management plan shall address means of assuring that the speed, temperature, sedimentation and chemical composition of stormwater runoff meets state and federal water quality standards as development occurs. This plan shall address on-site stormwater detention plan requirements.***

Findings. The initial approach to this issue in the *Concept Plan* project was a subwatershed approach. Pleasant Valley is at the headwaters of the Johnson Creek watershed. The tributaries to Johnson and Kelley Creeks that flow through Pleasant Valley comprise eight individual “sub” watersheds that were used in the planning process. The subwatersheds were the basis for extensive information gathering and subsequent modeling of runoff under both “green” practices and traditional piped stormwater management.

The stormwater management public facility plan (PFP) is based on a green development practices approach that instead of a traditional piped collection and conveyance system uses a system of landscaping features that treat and infiltrate water on the site. This includes green streets that incorporate stormwater treatment within its right-of-way. The benefit of green development practices is that it minimizes the production of stormwater runoff and manages it close to the source. This addresses the water quality and quantity issues of the conditions of approval. The stormwater PFP also details generalized regional stormwater facilities locations and sizes. A stated goal of the stormwater management PFP is "The Cities shall manage stormwater to minimize impacts on localized and downstream flooding and to protect water quality and aquatic habitat."

In March 2004, the cities of Gresham and Portland entered into a revised Pleasant Valley Intergovernmental Agreement (IGA) that establishes Gresham and Portland's intention to implement the Pleasant Valley Concept Plan and Pleasant Valley Implementation Plan. Contained in the revised IGA is the statement that "Gresham and Portland agree to jointly develop a stormwater master plan for Pleasant Valley." As already noted, the *Pleasant Valley Concept Plan* and *Pleasant Valley Implementation Plan* planning processes have included extensive work on stormwater management, goals, policies, designation of environmentally sensitive areas, modeling, facility planning and code work on green practices.

Subsequent to the March IGA the cities have started jointly developing a Stormwater Master Plan. This work will provide more precise engineering with tasks related to channel forming flows and facility release rates, quantity modeling, quality modeling and stormwater capital improvement projects. This project is scheduled for completion by September 2004.

Conclusion. The Pleasant Valley Plan District provides a stormwater management public facility plan that addresses the water quality and quantity issues in the condition of approval. Additionally, the cities have initiated a recommendation of the PFP to jointly establish a Stormwater Master Plan that will provide more precise engineering regarding location, sizing and construction along with a CIP list of needed stormwater facilities. This condition of approval is met.

- D. Prior to conversion of the new urbanizable land in this ordinance to urban land available for development, the city shall consider adoption of a requirement that the quantity of stormwater runoff after urban development of each development site is no greater than the stormwater runoff before development.***

Findings. As noted in Condition of Approval 'C' above, the proposed PFP addresses stormwater management and the cities have entered into an IGA to jointly establish a Stormwater Master Plan. A proposed stormwater PFP policy is that "The quantity of stormwater after development shall be equal to or less than the quantity of stormwater before development, wherever practicable."

Conclusion. The consideration stated in the Condition of Approval is proposed as a policy of the Pleasant Valley Plan District and, thus, will be considered as part of the Stormwater Master Plan provisions. The condition of approval is met.

- E. Prior to conversion of the new urbanizable land in this ordinance to urban land available for development, the city shall adopt Urban Growth Management Functional Plan requirements for revegetation and Title 3 building setbacks from streams and wetlands and address federal requirements adopted pursuant to the Endangered Species Act.***

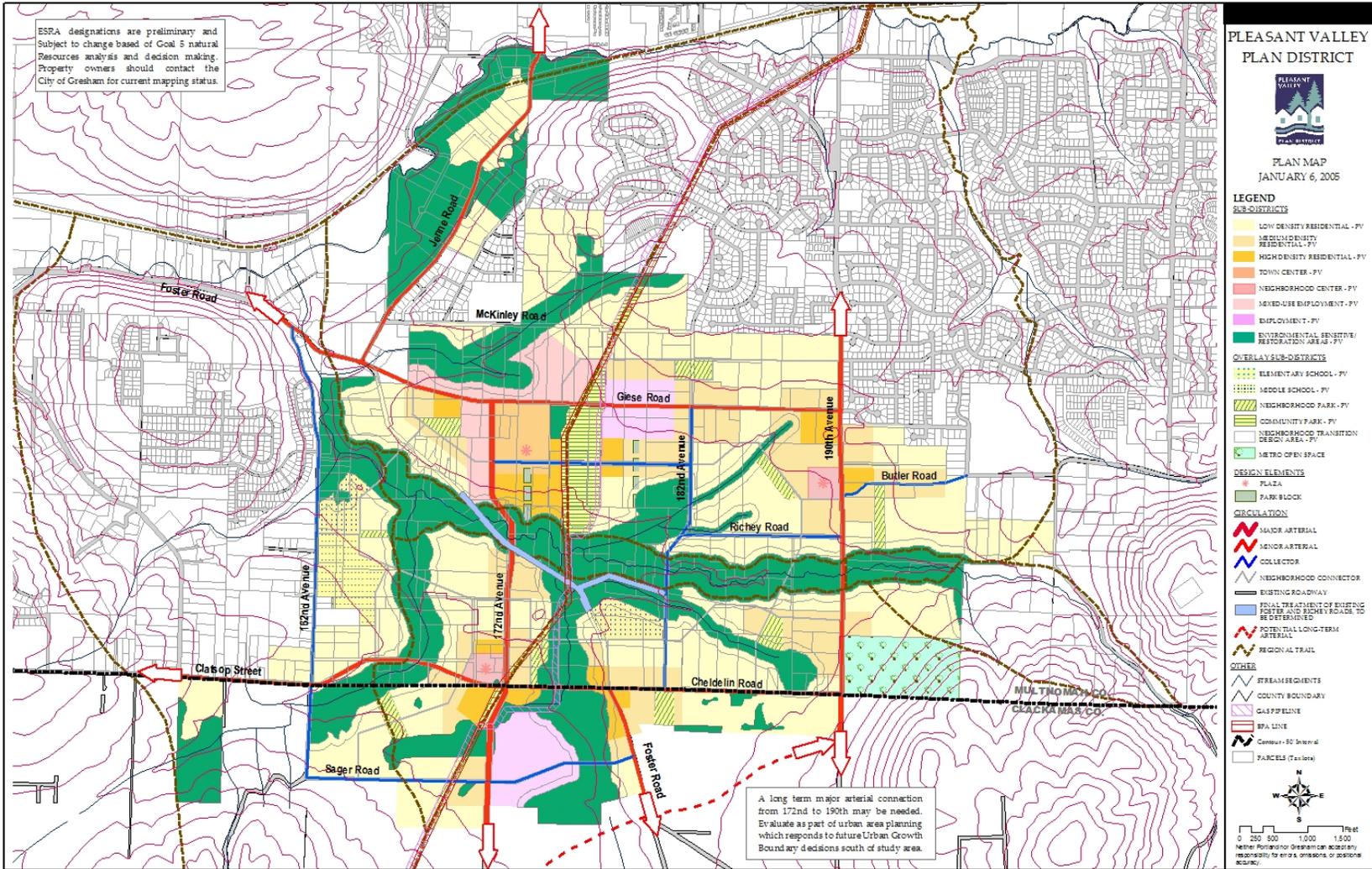
Findings. Title 3 lands were mapped as one of the first inventory efforts in the Concept Plan process. The inventory (which had input from property owners, stakeholders, project teams, Metro staff and

state and federal resource agencies) served as the basis for mapping and code work to establish the Environmentally Sensitive Restoration Area (ESRA) sub-district. All Title 3 lands are included in the ESRA sub-district. The ESRA sub-district proposed code is intended to address provisions both for water quality resource areas and for natural resource areas. Additionally, both cities have adopted Title 3 so that provisions applicable in the existing city (such as flooding) will also be applied to Pleasant Valley as it urbanizes.

At the time Pleasant Valley was brought into the UGB the Federal Government was establishing the 4d rule concerning the “taking” of listed species. At this time it unclear as to the federal requirements pursuant to the Endangered Species Act. The development of the ESRA through the *Concept Plan* project and through the State Goal 5 process during the *Implementation Plan* project was shared with Metro, State and Federal natural resources agencies. The proposed development code is anticipated to closely correspond to the outcome of Metro’s current Goal 5 process and it is presumed that the ESRA code and strategies will help address the federal listing.

Conclusion. The Pleasant Valley Plan District has addressed the requirements of Title 3 by including the Title 3 lands in the proposed ESRA and by applying Title 3 compliance regulations. Doing the Goal 5 process and by developing implementing regulations should help address requirements of the Endangered Species Act listing once those of clarified. This condition of approval is met.

Appendix A – Plan District



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Appendix B – Future Governance

