

**Non-Project Draft
Environmental Impact Statement**

COMMUNITY PLAN UPDATES

**Frederickson, Mid-County,
Parkland-Spanaway-Midland and
South Hill Community Plans**

Prepared by Pierce County



April 2019

NON-PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT

for the

COMMUNITY PLAN UPDATES

Frederickson, Mid-County, Parkland- Spanaway-Midland and South Hill Community Plans

Pierce County

The Non-Project Draft Environmental Impact Statement (DEIS) for the *Community Plan Updates* has been prepared in compliance with the State Environmental Policy Act of 1971 (Chapter 43.21C, Revised Code of Washington) and the SEPA Rules, effective April 4, 1984, as amended (Chapter 197-11, Washington Administrative Code). Preparation of this DEIS is the responsibility of Pierce County. Pierce County has determined that this document has been prepared in a responsible manner using appropriate methods and has directed the areas of research and analysis that were undertaken in preparation of this DEIS. This document is not an authorization for an action, nor does it constitute a decision or a recommendation for an action; in its final form, it will accompany the *Proposed Actions* and will be considered in making the final decisions on the proposal.

Date of DEIS Issuance.....April 5, 2019

Date of Draft Plan and DEIS Open HouseApril 13, 2019

Date Comments are due on the DEIS May 20, 2019

TO: Recipients of the Draft Environmental Impact Statement

SUBJECT: Draft Environmental Impact Statement - Community Plan Updates for South Hill, Mid-County, Frederickson and Parkland-Spanaway-Midland Community Plans

Date: April 5, 2019

This Draft Environmental Impact Statement (DEIS) has been prepared by the Pierce County Planning and Public Works Department to evaluate the impacts of the proposed updates to the South Hill, Frederickson, Mid-County and the Parkland-Spanaway-Midland community plans. The DEIS considers potential impacts and mitigation measures for three land use alternatives which include policy changes and land use designation/zoning changes in the communities. A No-Action Alternative is also analyzed.

Elements of the environment addressed in the DEIS include land use, plans and policies, traffic and transportation, air quality, surface water, groundwater, flood areas, wetlands and shorelines, public services and utilities, and human health and community well-being.

The DEIS includes the analysis of impacts of proposed zone changes which will increase density within the Community Plan areas.

Pierce County is the lead agency for purposes of the State Environmental Policy Act (SEPA). The County has provided a 45-day comment period rather than 30 days to allow agencies and interested persons ample opportunity to provide meaningful input. **Comments must be received in writing, email or through the County Community Plan Updates Environmental Impact Study webpage no later than 4:30 pm on May 20, 2019.** No extensions beyond the 45-day comment period will be granted. The County will hold an open house on the Community Plan Updates and the DEIS on April 13, 2019 at the Pierce County Skills Center from 10:30am -3:00pm. County staff will be available to provide information, answer questions, and receive comments.

Fact Sheet

Name of Proposal

Pierce County Community Plan Updates Non-Project Draft Environmental Impact Statement (DEIS)

Location

The area addressed by this DEIS is made up of the geographic area of the Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plan areas, which comprise the central unincorporated urban area of Pierce County.

Proponent

The proponent is Pierce County.

Proposed Action

The proposed action consists of several related actions, including:

1. Amendments to Pierce County Comprehensive Plan policies and land use designations/zoning in support of Community Plan Updates including Centers and Corridors.
2. Adoption of the updated Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plans, including updates to:
 - a. Community plan policies.
 - b. Community plan zoning, pursuant to proposals by the Land Use Advisory Commissions of the four communities and property owners, including:
 - i. Policies and zoning changes for the Portland Avenue Corridor in the Parkland-Spanaway-Midland Communities Plan.
 - ii. Policies and zoning changes for changes from Residential Resource/Single Family zones to Moderate Density Single Family affecting all four communities.
3. Adoption of development regulations to implement the Community Plan Updates, including:
 - a. Amendments to the Zoning Atlas to reflect the zoning changes.
 - b. Density, setback, height, use tables, sign and design standards.
4. Adoption of a draft and final EIS for this non-project proposal.

EIS Alternatives

The DEIS considers four alternatives, as briefly summarized below:

Alternative 1 – Proposed Action: Community Plan Updates. The Proposed Action includes all the actions noted in the Proposed Action outlined above; however, is distinguished by the inclusion of a Neighborhood Corridor zone in areas along Pacific Avenue, Meridian Avenue East and 176th Street East to provide a transition from Urban Corridors or to designate areas for moderate density residential.

Alternative 2: Community Plan Updates with More Intensive Centers and Corridors. Alternative 2 includes all the updates of Alternative 1 – Proposed Action; however, this alternative proposes the Urban Corridor zone along Pacific Avenue and Meridian Avenue East without the Neighborhood Corridor transition zone. The Urban Corridor zone allows for higher density than the Neighborhood Corridor.

Alternative 3: Community Plan Updates without Centers and Corridors. Alternative 3 includes all the updates of Alternative 1 – Proposed Action except Centers and Corridors.

Alternative 4: No Action Alternative. Alternative 4 would maintain the existing policies and zoning in the Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plans.

Lead Agency

Pierce County
Planning & Public Works Department

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Final Actions

Adoption of updates to the Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plans, including policy and zoning changes, development regulations and additional policy language in the Comprehensive Plan for Centers and Corridors. Final action will be by the Pierce County Council by Ordinance adopting the four Community Plans, development regulations, and the Comprehensive Plan amendments.

Licenses and Permits

Future development based on the policy and zoning changes proposed will require additional permits, including:

Pierce County Planning & Public Works Department

- Draft and Final EIS approvals
- Preliminary Plat approval
- Final Plat approval
- Site Development permits including grading, stormwater, erosion control, and road improvements
- Building permits
- Right of Way permits
- Road Improvement permits
- Sewer Connection permits
- Sewer Extension permits
- Mechanical permits
- Plumbing permits

Tacoma-Pierce County Health Department

- Mechanical permits
- Plumbing permits
- Well permits
- Onsite Sanitary System permits

Puget Sound Clean Air Agency

- Notice of Construction
- Notice of Completion

State of Washington

- General Permit to Discharge Stormwater (NPDES Permit)
- Hydraulic Project Approvals

Principal EIS Authors and Principal Contributors

This Pierce County Community Plan Updates has been prepared by Pierce County Planning & Public Works Department staff with input from local public services and utility providers.

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Date of DEIS Issuance

April 5, 2019

Date of Draft Plan and DEIS Open Houses

April 13, 2019

Date DEIS Comments are Due

May 20, 2019

Written comments are to be submitted to:

Pierce County Planning & Public Works

Attn: Jeffrey D. Mann

2401 South 35th Street

Tacoma, WA 98409

or via e-mail: jeff.mann@piercecounitywa.gov

Comments may also be submitted online through the Community Plan Updates webpage found here:

<https://www.co.pierce.wa.us/FormCenter/Planning--Land-Services-13/Community-Plan-UpdateGeneral-Comments-451>

Date of Final Action

County Council consideration of the Community Plan Updates, development regulations, and Comprehensive Plan amendments is anticipated no sooner than September 2019.

Availability of DEIS

The DEIS may be found online on the Planning & Public Works Community Plan Updates webpage under the Environmental Impact Statement tab found at:

<https://www.co.pierce.wa.us/5736/Environmental-Impact-Statement-EIS>

Hard copies of the DEIS may be ordered for a fee at the following location:

Pierce County Planning & Public Works

Attn: Jeffrey D. Mann
2401 South 35th Street
Tacoma, WA 98409
or via e-mail: jeff.mann@piercecountywa.gov

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1 Summary

1.1 Introduction

This chapter briefly describes the alternatives considered and provides a summary of the impact and proposed mitigation measures that may occur under the alternatives. A more detailed discussion of the alternatives is provided in Chapter 3 of this DEIS.

1.2 Background

During the Comprehensive Plan periodic update in 2015, several communities expressed interest in updating their community plans. The community plans were adopted in the early to mid-2000s and enough changes have occurred in the communities that updates were needed. The Pierce County Council authorized the update to the four Community Plans through the budget allocation for Planning and Public Works in 2016 and subsequent years. Work with the Land Use Advisory Commissions (LUAC) for each of the communities has led to recommended policy and zoning changes. Property owners have also been able to suggest zoning changes. Other updates include the introduction of the Centers and Corridors designations (described in Chapter 2.2), which build upon the land use pattern of more intensive commercial, industrial, and residential development along the County's major corridors (including 112th Street East, Meridian Avenue East/SR-161, 176th Street East, Canyon Road East, and Pacific Avenue/SR-7). Early and continuous public outreach and involvement have included multiple property owner notifications, open houses, and LUAC study sessions over the last three years.

1.3 Proposal

The proposal under review in this DEIS are updates to the Frederickson, Mid-County, South Hill, and Parkland-Spanaway-Midland community plans, with associated changes to policies, zoning, development regulations, and the Comprehensive Plan.

1.4 Proposal Objectives

The objectives of the Community Plan Updates are to

- update policy direction for each community; and
- adjust zoning to reflect property owner requests and changes in development patterns and community goals.

The objectives of the Centers and Corridors policy and land use changes are to

- maximize the use of the UGA and existing infrastructure;
- use infrastructure investment to guide growth;
- focus and incentivize growth along Centers and Corridors;
- promote densities to support greater accessibility to transit;

-
- implement Comprehensive Plan policies related to Centers and Corridors;
 - encourage redevelopment to increase economic viability;
 - increase the use of lands designated for single-family development; and
 - modify County development regulations to implement the Community Plan Updates.

1.5 Purpose

The purpose of the proposed action is the adoption of the updated Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill community plans, including updates to:

- Comprehensive Plan policies;
- Community Plan policies;
- Zoning, including rezones related to:
 - Portland Avenue Corridor in the Parkland-Spanaway-Midland Communities Plan; and
 - Centers and Corridors (all four Community Plans)
 - Some single-family areas zoned Residential Resource and Single Family to Moderate Density Single Family
 - LUAC proposals and other requests by property owners (all communities)

1.6 Need

During the 2015 Comprehensive Plan update citizens and members of the LUACs requested the opportunity to update community plans because it had been 10-15 years since the original plans were created and the Comprehensive Plan calls for frequent updates.

The 2015 Pierce County Comprehensive Plan adopted policies to designate Centers/Central Places and Transit-Oriented Corridors through updates to the community plans.

1.7 Alternatives Description

The DEIS considers four alternatives, as briefly summarized below:

Alternative 1 – Proposed Action: Community Plan Updates. The Proposed Action includes the actions noted here:

- Amendments to Pierce County Comprehensive Plan policies and land use designations/zoning in support of Community Plan Updates, including Centers and Corridors.
- Adoption of the updated Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plans, including updates to:
 - Community Plan policies.
 - Community Plan zoning, pursuant to proposals by the LUACs of the four communities and property owners including:

- Policies and zoning changes for the Portland Avenue Corridor in the Parkland-Spanaway-Midland Communities Plan.
 - Policies and zoning changes for changes from Residential Resource/Single Family zones to Moderate Density Single Family affecting all four communities.
1. Adoption of development regulations to implement the Community Plan Updates, including:
 - a. Amendments to the Zoning Atlas to reflect the zoning changes.
 - b. Density, setback, height, use tables, sign and design standards.
 2. Adoption of a draft and final EIS for this non-project proposal.

Alternative 2: Community Plan Updates with More Intensive Centers and Corridors. Alternative 2 includes all the updates of Alternative 1 – Proposed Action; however, this alternative proposes the Urban Corridor zone along Pacific Avenue and Meridian Avenue East without the Neighborhood Corridor transition zone. The Urban Corridor zone allows for higher density than the Neighborhood Corridor.

Alternative 3: Community Plan Updates without Centers and Corridors. Alternative 3 includes all the updates of Alternative 1 – Proposed Action except the policies and zoning related to Centers and Corridors.

Alternative 4: No Action Alternative. Alternative 4 maintains the existing policies and zoning in the Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plans.

1.8 Summary of Impacts and Mitigation Strategies

Table 1-1 Summary of Impacts and Mitigation Strategies

Topic	Impacts	Mitigation Measures
3.1 Land Use and Built Environment	<p><u>Common to all Alternatives</u></p> <ul style="list-style-type: none"> • Increased employment and housing growth, though geographic distribution differs among alternatives with Alternatives 1 and 2 concentrating growth along major transportation corridors • High-density development and a wide mix of land uses concentrated along transportation corridors under Alternatives 1 and 2 	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> • New, higher-density and intensity of development (like commercial) permitted under plan to accommodate any displaced uses • Permitted uses are intended to be generally compatible (e.g. restaurants, grocery stores, and apartments) • Development Regulations related to design, character, landscaping, and height reduce potential for incompatible development and land use incompatibility

Topic	Impacts	Mitigation Measures
	<ul style="list-style-type: none"> • Higher-density and a mix of residential and commercial uses adjacent to single-family homes • Demolition of existing structures, conversion of existing uses to higher-intensity uses • Growth and development under all the alternatives in the Parkland-Spanaway-Midland Community Plan area would occur within areas impacted by Joint Base Lewis-McChord operations. • Growth and development along a portion of Meridian Avenue East in the South Hill area is located within the Area of Influence (AOI) of Thun Field. <p><u>Alternative 1</u></p> <ul style="list-style-type: none"> • Abrupt transitions in scale, use, and bulk between existing buildings and new buildings • Greater mix of commercial uses with residential uses <p><u>Alternative 2</u></p> <ul style="list-style-type: none"> • Abrupt transitions in scale, use, and bulk between existing buildings and new developments • Greater mix of commercial uses with residential uses and light-industrial uses • Allows high-density development immediately adjacent to single-family zones <p><u>Alternative 3</u></p> <ul style="list-style-type: none"> • No further impact <p><u>Alternative 4</u></p> <ul style="list-style-type: none"> • Continues sprawling pattern of commercial and low- to medium-density residential development • Increased development pressure on single-family zones and neighborhoods across community plan areas 	<ul style="list-style-type: none"> • The County is working to provide Homebuyers within the JBLM operations noise impact area a real estate disclosure notice to advise them of noise impacts. • The restrictions on height and occupancy density will limit development within the Thun Field AOI. <p><u>Common to Alternatives 1 and 2</u></p> <p>The Centers and Corridors proposal will mitigate potential impacts of development pressure on existing single-family zoned areas and rural lands.</p>

Topic	Impacts	Mitigation Measures
<p>3.2 Plans and Policies</p>	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> All alternatives continue to promote growth within the UGA and preserve the rural areas of the Mid-County Community Plan and adjacent rural areas outside the Plan consistent with the Growth Management Act, Multi-County Planning Policies, Countywide Planning Policies and the Pierce County Comprehensive Plan All alternatives will increase housing and population and utilize urban land. Continued development will eventually require the expansion of the UGA and affect rural areas Policy changes within the Frederickson and South Hill Communities support the designation of these communities as Potential Incorporation Areas (PIAs) <p><u>Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> Designate Centers consistent with Multicounty Planning Policies, Countywide Planning Policies, and the Pierce County Comprehensive Plan policies for Centers/Central Places and Transit-Oriented Corridors 	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> Alternatives 1 and 2 would be consistent with regional, countywide and Comprehensive Plan policies to direct growth to centers, particularly the County’s Comprehensive Plan policy to designate Centers/Central Places and Transit-Oriented Corridors. The proposal by the Frederickson and South Hill Communities to be designated as PIAs would be consistent with Multi-County Planning policies. <p><u>Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> Alternatives 1 and 2 will increase densities and allow for more efficient use of urban land and the infrastructure to serve it. More efficient use of urban land will reduce or delay the need to expand the UGA <p><u>Alternative 3</u></p> <ul style="list-style-type: none"> Alternative 3 will increase density in isolated areas but will not provide a framework for effective allocation of infrastructure funds to accommodate increased density and transit. <p><u>Alternatives 3 and 4</u></p> <ul style="list-style-type: none"> Alternatives 3 and 4 would be inconsistent with the Pierce County Comprehensive Plan to locate future density and prioritize infrastructure expenditure in Centers and Transit Oriented Corridors.

Topic	Impacts	Mitigation Measures
3.3 Transportation	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> • Increased traffic on congested roadways and highways • Additional demand for parking <p><u>Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> • More pedestrian and bicycle trips 	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> • Expand roadway capacity through Pierce County Concurrency Management System and Traffic Impact Fees • Plan policies encourage public infrastructure investment along major transportation corridors • Alternatives 1 and 2 increase potential for high-density and mixed residential and commercial development that reduce driving and parking demand through walking, biking, and transit use • Alternatives 1 and 2 require provision of new pedestrian and bicycle infrastructure as part of new developments • Proposes list of capital improvements to transportation infrastructure • Existing Commute Trip Reduction program reduces vehicle miles traveled • Minimum parking requirements accommodate parking in new development • Permitted development patterns that support future expansion of transit service and service areas • Proposed development regulations support future provision of bicycle and pedestrian facilities

Topic	Impacts	Mitigation Measures
<p>3.4 Public Services and Utilities - Fire Services</p>	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> • Increased Service Calls • Increased allowable heights • Increases in required equipment • Increased response times due to increased traffic 	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> • Under all alternatives, ongoing district capital facilities improvement, budgeting, and operational planning efforts are anticipated to address incremental increases and other changes in demand for fire services, including the need for facility improvements and additional apparatus. • Under all alternatives, new development would be constructed in compliance with the County’s current fire and building code. • Under all alternatives, tax revenue from new development would increase funds available to the districts. • Fire districts can prepare capital facilities plans to address the need for fire impact fees to cover initial impacts from new development <p><u>Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> • Under Alternatives 1 and 2, building heights could be reduced to mitigate the need for specialized equipment for taller buildings. • Under Alternatives 1 and 2, the concentration of residential and commercial development along the major corridors will allow fire districts to locate stations in these areas to maximize the service to more people within smaller areas.

Topic	Impacts	Mitigation Measures
3.4 Public Services and Utilities - Parks and Recreation	<p><u>Impacts common to all alternatives</u></p> <ul style="list-style-type: none"> • Growth is expected in the affected area under all four alternatives. Increased housing and commercial space could contribute to higher use of parks, recreation facilities, and open space. The Parks and Recreation Department will need to respond to change based on their own adopted level of service standards and planning priorities. • Development and re-development in the area could result in a corresponding increase in funding available from impact fees. The fees are intended to help offset the effects of growth. 	<p><u>Impacts common to all alternatives</u></p> <ul style="list-style-type: none"> • Updates to the Parks, Recreation, and Open Space plan will continue based on community needs • Regular updates to the Capital Improvement Program • Impact fees, real estate excise tax, and other funding sources
3.4 Public Services and Utilities - Police Services	<p><u>Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> • The Community Plan Updates area is served by the Pierce County Sheriff's Department. The impacts to Sheriff's services would include increased calls for service in areas with higher population densities. • This plan would have a high likelihood of increasing the fiscal burden of the Sheriff's Department. The need for overlapping patrol hours, officers, and equipment concurrency would increase in line with the population increase. Also, the need for housing of criminals would be impacted by the proposed actions. • Potential impacts to response time from additional traffic. 	<p><u>Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> • Sheriff services are funded from the general fund of Pierce County. Increases in development would increase funds raised through property taxes and allocated to the Sheriff's Department through the Pierce County budget. Allocation of budget funds for additional deputies and equipment would mitigate for additional demands on services. • By increasing density in localized Centers and along Corridors, the Sheriff's Department can more efficiently deploy services in overlapping patrols and focus their patrols in specific areas. Reducing sprawl in Pierce County and focusing development within a largely urban area would result in lower costs for similar services.

Topic	Impacts	Mitigation Measures
		<ul style="list-style-type: none"> The focus on growth within the main corridors would also provide an opportunity for Sheriff and fire services to look at creating public safety facilities which would provide both fire and Sheriff services for the area.
3.4 Public Services and Utilities - Public Water	<p><u>Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> All alternatives would result in additional residential, commercial, and industrial demand for water. 	<p><u>Alternatives 1 and 2</u></p> <p>Water purveyors have indicated that through their water supply planning, they will be able to accommodate water demand for the alternatives with existing or future water rights, existing or future interties with other water purveyors, and designing for fire flow.</p>
3.4 Public Services and Utilities - Sanitary Sewer	<p><u>Alternatives 1 and 2 – Sewer Treatment Plant</u></p> <ul style="list-style-type: none"> The County has planned through the Sewer Improvement Program for 2% annual growth in the service area. The proposed land use changes within the Community Plan Updates may increase that to approximately 3.5% annual growth over 20 years. This could result in flows that would arrive 75% faster to the Chambers Creek Facility than were originally projected. Expansion projects would need to be fast-tracked to accommodate increased development. More restrictive regulations by the Department of Ecology could also affect and change these timeline estimates. This and other possibilities will be evaluated as part of the upcoming USP update. 	<p><u>Alternatives 1 and 2 – Sewer Treatment Plant</u></p> <ul style="list-style-type: none"> The proposed land use changes of the Community Plan Updates may not change the needed expansions outlined in the Existing Conditions section but would rather accelerate them several years depending on the speed of the buildout in these areas and the rest of the UGA. <p><u>Alternatives 1 and 2 – Major Trunk Lines</u></p> <ul style="list-style-type: none"> The major trunk line projects and their timing will all be reevaluated as part of the USP update. Increased discharge regulations may make it more feasible to decentralize treatment by possibly constructing a satellite treatment facility in some areas which could

Topic	Impacts	Mitigation Measures
	<p><u>Alternatives 1 and 2 – Major Trunk Lines</u></p> <ul style="list-style-type: none"> There are several major trunk lines that serve the Centers and Corridors areas that are planned to be upsized in the next 20 years. Similar to the WWTP, the proposed land use changes of the Community Plan Updates may require the timing of proposed trunk line projects to be accelerated accordingly. These projects and their timing for inclusion into the Capital Facilities Plan will be reevaluated as part of the USP update. <p><u>Alternatives 1 and 2 – Local Sewer Lines</u></p> <ul style="list-style-type: none"> Local sewer lines (8” diameter - 18” diameter) may need to be upsized depending on the specific location of increased densities over the next 20 years. In general, the smaller in diameter that a local line is, the more sensitive it is to density increases. <p><u>Alternatives 1 and 2 – Sewer Connection and Service Charges</u></p> <ul style="list-style-type: none"> The acceleration of the SIP projects could require increases to the connection charges and/or monthly sewer rates over and above the standard 2.5% and 3.3% per year, respectively 	<p>eliminate the need for some major trunk line projects.</p> <p><u>Alternatives 1 and 2 – Local Sewer Lines</u></p> <ul style="list-style-type: none"> Local sewer lines could be upsized as part of development projects or proactive sewer line improvements as capital facilities planning and funding is aligned with the land use changes proposed by the Community Plan Updates. <p><u>Alternatives 1 and 2 – Sewer Connection and Service Charges</u></p> <ul style="list-style-type: none"> Increases in connection charges will be paid by new residential, commercial, and industrial connections and do not impact the general sewer monthly rate. Annual sewer rate may increase over time and are reviewed and approved by Pierce County Council based upon the needs of the Division to pay for new projects, expansions, maintenance and operations of the WWTP and collection system and to meet the requirements of the WWTP’s NPDES permit.
3.4 Public Services and Utilities - Schools	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> Growth is expected to occur under all four alternatives. School districts will need to plan to accommodate increased student populations. <p><u>Common to Alternatives 1 and 2</u></p>	<p><u>Common to All Alternatives</u></p> <ul style="list-style-type: none"> Impact fees from both single-family and multifamily housing development. Regular updates to school district capital facilities plans will continue to determine the level

Topic	Impacts	Mitigation Measures
	<ul style="list-style-type: none"> Alternative 1 and Alternative 2 allow for more multi-family housing units in the affected area <p><u>Common to Alternatives 1, 2, 3</u></p> <ul style="list-style-type: none"> Includes a rezone of RR and SF to MSF, which has the potential increase the density of single-family homes in portions of each of the community plan areas. Development may lead to a greater impact on schools since this form of housing has generated more students to date than other types of housing. 	<p>of service and future facility needs.</p> <ul style="list-style-type: none"> The boundaries for schools within a district may be adjusted if needed. Districts plan for future expansion through property acquisition and new facility construction providing a way to plan for future school sites or expand existing sites to consider long-term growth.
<p>3.4 Public Services and Utilities - Solid Waste</p>	<p><u>Impacts Common to All Alternatives</u></p> <ul style="list-style-type: none"> All four alternatives will increase housing and population, causing an increase in demand for solid waste services. Alternatives 1, 2, and 3 will increase the demand more than Alternative 4 – No Action, with Alternative 2 causing the highest increase. Solid waste providers will need to augment equipment and personnel to accommodate increased demand. <p><u>Impacts Common to Alternatives 1, 2, and 3</u></p> <ul style="list-style-type: none"> Alternatives 1, 2, and 3 will increase disposal at the County landfill and shorten the projected life of the landfill. Pierce County would need to plan for future landfill needs sooner. Alternatives 1, 2, and 3 will increase the demand more than Alternative 4 – No Action, with Alternative 2 causing the highest increase. Solid waste providers will need to augment equipment and personnel to accommodate increased demand. 	<p><u>Mitigation Measures Common to All Alternatives</u></p> <ul style="list-style-type: none"> Solid waste providers will need to adjust equipment, personnel, and rate structures to service additional customers. With the increase in multifamily units within the Centers and Corridors under Alternatives 1 and 2, providers will be able to service many more customers at single stops and reduce travel times and equipment replacement. With the adoption of the Community Plan Updates including Centers and Corridors and other zoning changes, Pierce County may be able to project future solid waste demands and plan for additional future landfill needs. Under all alternatives, Pierce County will continue to educate residents on the benefits of recycling and yard waste collection programs to reduce

Topic	Impacts	Mitigation Measures
		the waste stream and prolong the life of the landfill.
3.5 Air Quality	<p><u>Common to all Alternatives</u></p> <ul style="list-style-type: none"> The population is expected to increase in all four Community Plan areas. With changes to land use activity and increased population and traffic, the associated emissions may increase as well. In all four alternatives, PSCAA and Department of Ecology would continue to oversee emissions levels in the planning area. <p><u>Alternative 2</u></p> <ul style="list-style-type: none"> Alternative 2 has the potential for the most significant impacts to air quality due to higher intensity of land use and increased traffic 	<ul style="list-style-type: none"> Puget Sound Clean Air Agency and the Department of Ecology are responsible for air quality in the affected area. As the regional authority, PSCAA will continue to implement its own policies and monitoring efforts
3.6 Surface Water, Groundwater, Flood Areas Wetlands, and Shorelines	<p>Surface Water</p> <ul style="list-style-type: none"> Potential increase in vegetation removal and impervious area <p>Groundwater</p> <p>Decrease in infiltration of water into the subsurface due to increases in impervious areas.</p> <ul style="list-style-type: none"> Increase in water withdrawal due to increase demand for potable water <p>Wetlands</p> <ul style="list-style-type: none"> Impacts to wetlands due to increases or decreases in surface water runoff <p>Shorelines</p> <ul style="list-style-type: none"> Potential impacts to shoreline ecological functions <p>Flood Hazard</p> <ul style="list-style-type: none"> Potential impacts to land uses if built within flood hazard areas. 	<p>The following regulations mitigate potential impacts on surface water and ground water:</p> <ul style="list-style-type: none"> Pierce County Stormwater Management and Site Development Manual Chapter 18E.50 – Aquifer Recharge and Wellhead Protection Areas Title 18J – Development Regulations – Design Standards Tacoma-Pierce County Health Department – Onsite Sewage Regulations – Environmental Health Code, Chapter 3 Title 18A – Development Regulations – Zoning Tacoma-Pierce County Health Department, Environmental Health Code, Chapter 3 - Wells

Topic	Impacts	Mitigation Measures
		<ul style="list-style-type: none"> State Department of Ecology regulates water rights Water withdrawal is regulated by water rights. Water districts withdraw water according to their allocated water rights. <p>The following regulation mitigate potential impacts to wetlands:</p> <ul style="list-style-type: none"> Title 18E Development Regulations – Critical Areas <p>The following regulation mitigate potential impacts to shorelines</p> <ul style="list-style-type: none"> Title 18S Development Regulations – Shorelines <p>The following regulation mitigate potential impacts to flood hazard areas:</p> <ul style="list-style-type: none"> Chapter 18E.70 – Flood Hazard Areas Pierce County Stormwater Management and Site Development Manual
3.7 Environmental Health	<p>Human Health and Community Well-Being</p> <p><u>Impacts Common to Alternatives 1 and 2</u></p> <ul style="list-style-type: none"> Alternatives 1 and 2 would support increased human health and physical activity through urban planning and urban designs that would encourage activity and allow for reduced reliance on the automobile. <p><u>Impacts Common to Alternatives 3 and 4</u></p> <p>Alternatives 3 and 4 would not overtly support or promote human health and physical activity.</p>	<p>Human Health and Community Well-Being</p> <p><u>Mitigation Common to Alternatives 1 and 2</u></p> <p>The proposed changes in policy and land use designations proposed in Alternatives 1 and 2 will facilitate a land use design that will encourage physical activity through walkable communities and access to transit.</p> <p>Noise</p> <p><u>Mitigation Common to All Alternatives</u></p> <ul style="list-style-type: none"> Vehicular noise is regulated by local, State, and Federal regulations. Pierce County Code Chapter 8.72, Motor Vehicle, Public Disturbance, and Public

	<p>Noise</p> <ul style="list-style-type: none"> • Increased vehicular and transportation noise • Temporary noise impacts from construction activities • General increase in noise due to human and mechanical activity in developed areas • Areas of the Parkland-Spanaway-Midland Community Plan are impacted by noise from JBLM operations. <p>Risk of Explosion</p> <ul style="list-style-type: none"> • Construction activities could impact pipelines if easements and setbacks are not observed. • In the case of an earthquake, there could be many breaks along one or more of the pipelines during the same event. • Potential impacts from pipeline accidents on adjacent developed areas. <p>Toxic or Hazardous Materials</p> <ul style="list-style-type: none"> • Increase development and redevelopment will increase the risk of encountering old hazardous sites. • Increased potential for workers to be exposed to hazardous materials. 	<p>Nuisance Noise. Chapter 8.72 place limits on vehicle operation noise.</p> <ul style="list-style-type: none"> • Pierce County Code Chapter 8.73 Noise Pollution Control regulates operating noise levels for land uses. The Code limits levels of noise between more intensive and less intensive land uses. • Many uses which generate noise require Conditional Use permits. Conditions of approval can limit noise levels, hours of operation and other measure to reduce • The County is working to provide homebuyers within the JBLM operations noise impact area, real estate disclosure notices to advise them of noise impacts. • Rezone proposals are located in existing areas of compatibility or conditional compatibility with JBLM and not located closer to JBLM or in higher noise contour areas. <p>Risk of Explosion</p> <p><u>Mitigation Common to All Alternatives</u></p> <ul style="list-style-type: none"> • Maintenance of pipelines is regulated by State and Federal regulations • Enforcement of “Call before you Dig” requirements. • Observance of pipeline easements and setbacks for construction activities adjacent to pipelines. <p>Toxic or Hazardous Materials</p> <p><u>Impacts Common to Alternatives</u></p> <ul style="list-style-type: none"> • Remediation of hazardous materials and sites will need to be done in accordance with State and Federal regulations
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Topic	Impacts	Mitigation Measures
		<ul style="list-style-type: none"> Workers involved in remediation activities will need to meet State and Federal requirements to prevent exposure. Over time, remediation of hazardous materials sites will result from development and reduce the number of hazardous materials sites in the communities.

1.9 Significant Areas of Controversy and Uncertainty

The following are areas of possible controversy and uncertainty presented by the Community Plan Updates:

- Consistency of the Community Plan Updates and the Centers and Corridors proposal with Multicounty Planning Policies, particularly the Regional Growth Strategy;
- Impacts to the local and regional transportation and transit networks by locating additional growth in the Centers and Corridors, the Portland Avenue rezone, the Residential Resource/Single-Family to Moderate-Density Single-Family rezone, and other proposed zoning changes;
- Land use and property valuation impacts within Centers and Corridors;
- Timing of infrastructure with future growth;
- Impacts to school capacity and location of school facilities;
- Impacts to surface and groundwater resources; and
- Lack of improved north-south arterials and the need for transportation infrastructure that reflects community priorities.

2 Alternatives

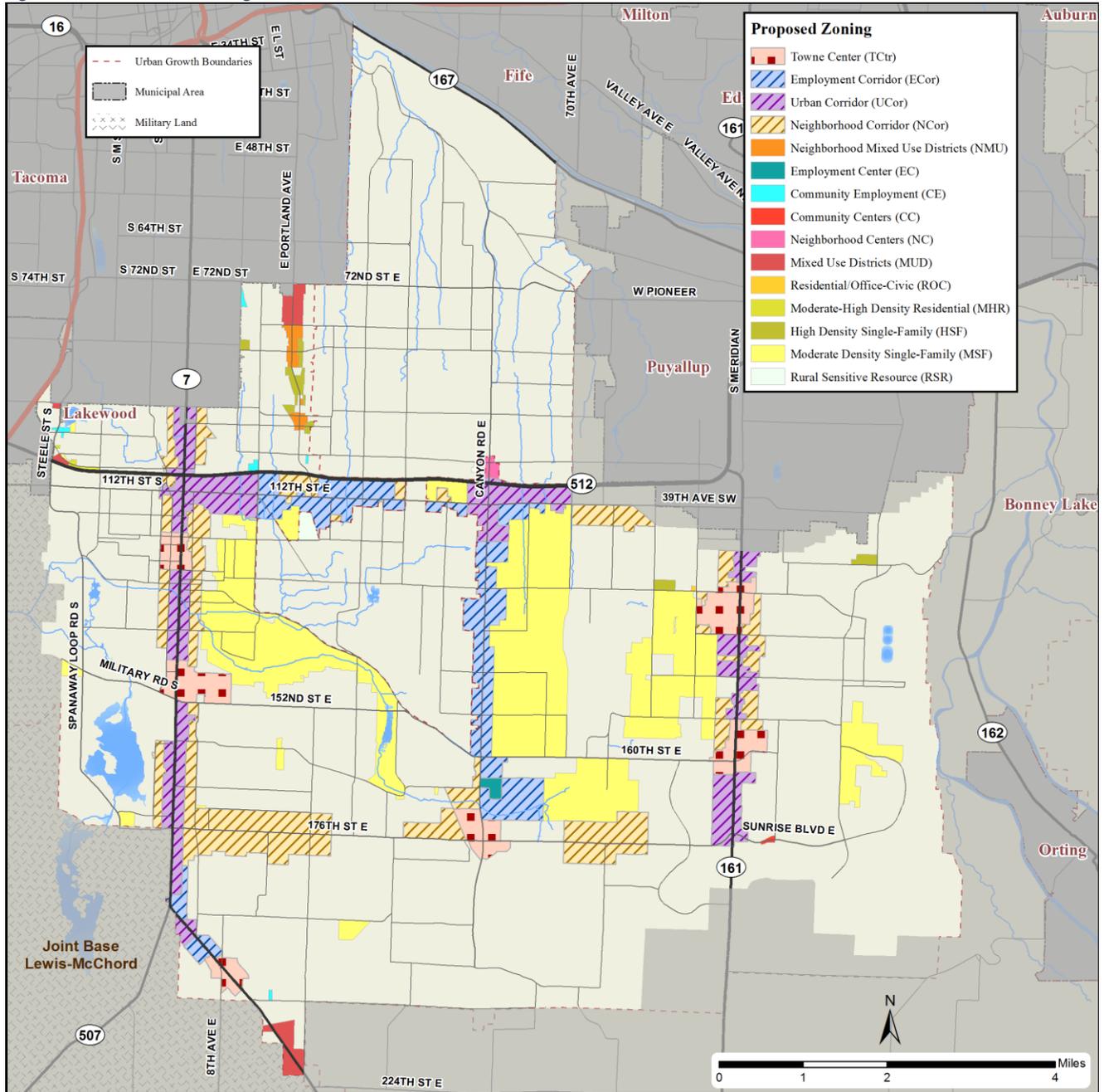
2.1 Introduction

This chapter provides a description of the No Action Alternative and three action alternatives, including the Proposed Action.

2.2 Alternative 1 - Proposed Action: Community Plan Updates

The Proposed Action includes updates to the text, policies, and maps for the Comprehensive Plan, the Frederickson, Mid-County, Parkland-Spanaway-Midland and South Hill Community Plans, and new policies related to zoning for Centers and Corridors. The Proposed Action also includes the land use designation and zone changes for each community plan as well as Centers and Corridors (which are describe in detail in Chapter 2.2). This alternative is distinguished by a less intensive land use proposal by using a Neighborhood Corridor designation in certain areas of the Centers and Corridors to provide a step down in density and height to surrounding single-family residential areas.

Figure 2-1 Alternative 1 Zoning



2.2.1 Centers and Corridors Rezone Component

Alternative 1 includes Comprehensive Plan policy and land use designations amendments in support of the Community Plan Updates with Centers and Corridors land use designations. The Comprehensive Plan amendments add additional policies in support of Centers and Corridors land use designations as well as designate locations for proposed Centers of Local Importance, for recognition through the Pierce County Countywide Planning Policies .

History

In the 2015 update to the Pierce County Comprehensive Plan, the County adopted policies to designate Centers/Central Places and Transit Oriented Corridors in order to create compact urban communities. These centers and corridors were to be designated during the community plan planning process. These policies established the framework for the centers and corridors to be designated and given appropriate zoning designations during the Community Plan update process

The four Community Plans also contain polices directing growth to mixed-use centers and along major transportation corridors. The Centers and Corridors framework is built upon the existing polices of the community plans. Similarly, the Centers and Corridors proposal builds on the existing land use pattern and designations and are generally located in the same areas.

Description

The Centers and Corridors proposal builds on the historic land use pattern and supports the development patterns described in the community plans. The Centers and Corridors designations plan for compact, high-density communities around Pacific Avenue (SR-7), 112th Street East, Meridian Avenue (SR-161), 176th Street East, and Canyon Road East.

The goals of the proposed Centers and Corridors designations include:

- Reduce development pressure on rural areas and single-family neighborhoods further from major transportation corridors;
- Create compact, high-density communities along major transportation corridors that support travel by walking and biking;
- Provide land uses and densities that would support and enhance transit service to and within the Centers and Corridors;
- Enhance economic development;
- Utilize existing infrastructure and prioritize future infrastructure investments; and
- Decrease the per capita costs of infrastructure by concentrating services and growth along major transportation corridors and serving more residents with existing and proposed improvements.

The new land use designations and zones are based on policies in the County’s Comprehensive Plan and the Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plans to focus and concentrate growth within the urban area for efficient utilization of public facilities. These centers and corridors zones are also supported by similar regional and countywide policies.

The proposal consists of two land use designations—Centers and Corridors—and three zone classifications: Towne Center (TCTR), Neighborhood Corridor (NCOR), and Urban Corridor (UCOR),

shown in Figure 2-2 Centers & Corridors Designations. Also included is the Employment Corridor (ECOR) which is incorporated into the Centers and Corridors proposal; however this zone is designated under the Employment Center land use designation to maintain its connection to the industrial areas of the County.

Towne Center. The Towne Center zone is intended to grow into well-designed central places with a diversity of activities and uses like high-density housing, businesses, entertainment, and services that are most easily accessed by walking. These centers are intended to support substantial growth for the unincorporated urban area, efficiently utilize existing infrastructure and services, co-locate residences and jobs, and provide opportunities for a vibrant multimodal transportation system. Highly urban forms and densities are encouraged. By increasing residential densities, Towne Centers will likely encourage residential growth. And while a wide variety of commercial and business-related uses are allowed, the Towne Center zone generally includes existing zones which allow very similar use types; thus, the zone is not expected to experience significantly more commercial growth than would occur under existing zoning.

Table 2-1 Towne Center General Land Use Characteristics

Minimum/Maximum Density	20 units per acre / <i>no maximum</i>
Permitted Uses	Multifamily housing, senior housing, civic, supportive utilities, offices, small to moderate-scale commercial and retail, cafes and restaurants
Maximum Height	65 feet ¹
Minimum Setbacks	<i>none</i>

¹Additional 20 feet in height allowed when providing 20% affordable housing

Urban Corridor. As with Towne Centers, the UCOR zone is intended to be developed with a mix of uses, including high-density residential, commercial, and civic uses. The UCOR zone will be located between Centers and oriented around major travel corridors for convenient access and high-quality pedestrian and bicycle facilities that connect to services. However, the UCOR zone will develop in a way that provides for more convenient access by automobile to cater to the greater urban area. By increasing residential densities, Urban Corridors will likely encourage residential growth. And while a wide variety of commercial and business-related uses are allowed, the Urban Corridor zone generally includes existing zones which allow very similar use types; thus, the zone is not expected to experience significantly more commercial growth than would occur under existing zoning.

Table 2-2 Urban Corridor General Land Use Characteristics

Minimum/Maximum Density	12 units per acre / <i>no maximum</i>
Permitted Uses	Multifamily housing, senior housing, civic, supportive utilities, offices, moderate- to large-scale commercial and retail, cafes and restaurants, vehicle sales, storage, pet kennels
Maximum Height	45 feet ¹
Minimum Setbacks	<i>none</i>

¹Additional 20 feet in height allowed when providing 20% affordable housing

Neighborhood Corridor. The Neighborhood Corridor zone is a lower intensity mixed-use zone intended to allow more neighborhood-scale development, and in some cases buffers Urban Corridor and/or Towne Center zones from single-family residential neighborhoods. The zone would provide multifamily housing, neighborhood commercial services, schools, and civic activities at a neighborhood scale. While this zone generally allows more commercial uses than is currently allowed, the scale, height, and type is limited; so, this zone is not expected to experience significantly more commercial growth than would occur under existing zoning in the community plan areas.

Table 2-3 Neighborhood Corridor General Land Use Characteristics

Minimum/Maximum Density	6 units per acre / 25 units per acre
Permitted Uses	Single-family housing, multifamily housing, senior housing, civic, supportive utilities, offices, small-scale commercial and retail, cafes and restaurants
Maximum Height	45 feet
Minimum Setbacks	<i>none</i>

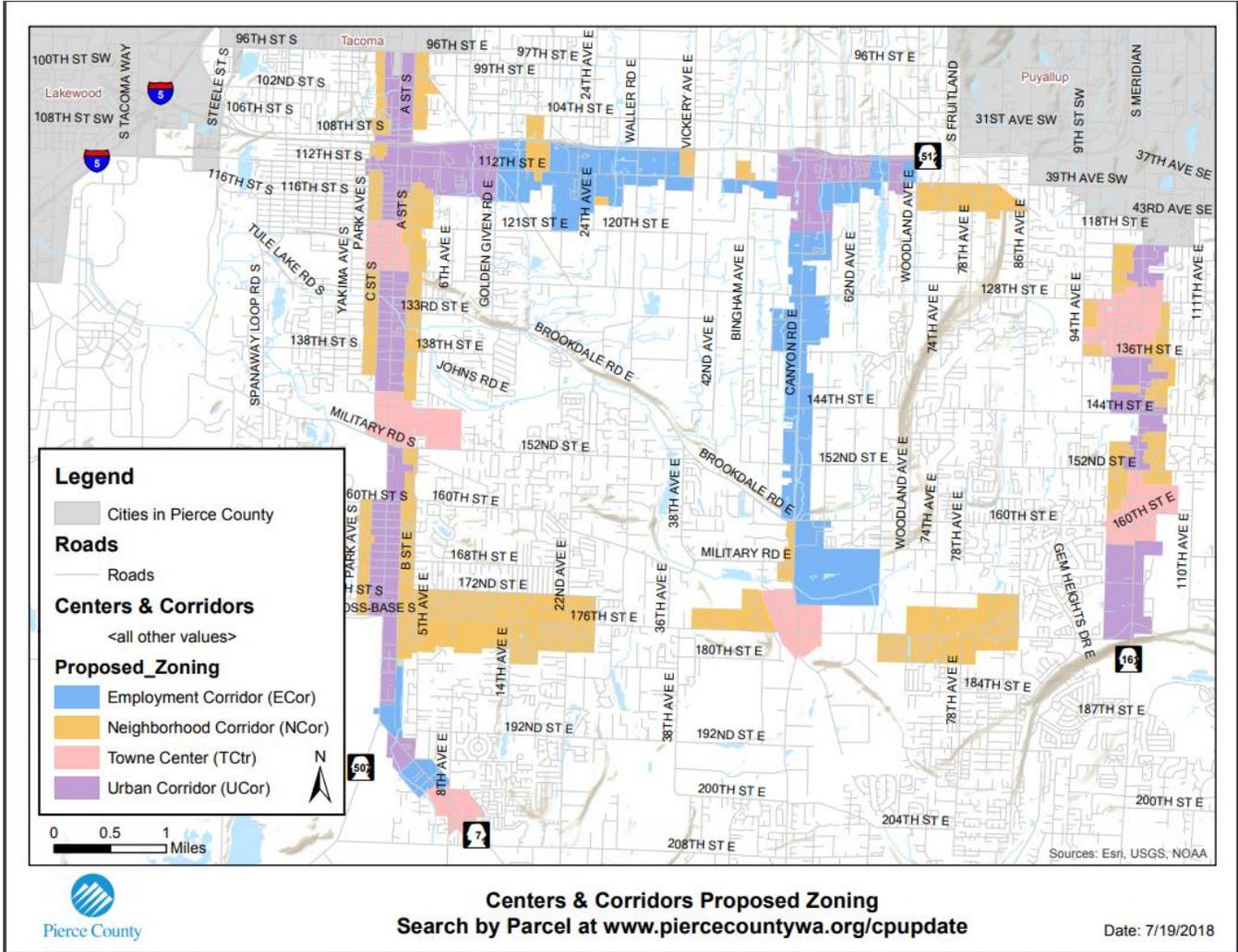
Employment Corridor. The Employment Corridor zone is intended to concentrate and encourage employment-oriented uses primarily around both Canyon Road and the 112th Street East corridor, and allows a mix of office and industrial uses. The Employment Corridor zone allows a wide variety of commercial, office, and moderate-industrial uses. However, this zone largely consolidates existing zones with similar uses and intensities as is allowed today; so, the zone is not expected to experience significantly more commercial growth than would normally occur under existing zoning.

Table 2-4 Employment Corridor General Land Use Characteristics

Minimum/Maximum Density	<i>No new residential uses permitted</i>
Permitted Uses	Civic, utilities, offices, agricultural businesses, commercial and retail, restaurants, moderate-intensity industrial
Maximum Height	65 feet
Minimum Setbacks	25 front arterial, 15 front non-arterial

Figure 2-2 Centers & Corridors Designations Figure 2-4 Alternative 2 Zoning shows the designation of the areas along the major corridors with new land use designations and zoning. There are six Towne Centers generally connected by Urban Corridors. Alternative 1 is distinguished as less intensive as it includes a Neighborhood Corridor designation which is located in certain areas and provides either a step down in height and density from the Urban Corridor, or designates areas desired for higher density residential along the corridors particularly along 176th Street East. The Neighborhood Corridor designation provides a buffer and transition to single-family areas. Neighborhood Corridor allows for a maximum height of 45 feet and a maximum density of 25 units per acre, while the Urban Corridor allows for unlimited density and a maximum height of 45 feet with a 20-foot height bonus with the provision of affordable housing. The Employment Corridor is primarily located along Canyon Road and 112th Street East

Figure 2-2 Centers & Corridors Designations



This proposal provides the foundation for improving transportation options and making efficient and effective investments in infrastructure, which support and are supported by the new designations. Specific components include:

- Develop pedestrian and bicycle infrastructure throughout the Corridors connecting to Centers.
- Focus on ensuring efficient connections for all transport modes from residential areas to goods and services for everyday needs.
- Seek ways to serve the Centers and Corridors with short-interval local transit for shopping and commuter trips, and express service to regional connections, such as the Puyallup, Tacoma, and Lakewood transit stations.
- Focus infrastructure expenditures to support increased density and transit services within Centers and Corridors.
- Prioritize investment in infrastructure in Centers and then Corridors.

2.2.2 Community Plan Policy Updates Component

Frederickson

Land Use Element

- New Centers and Corridors zones (Towne Center, Neighborhood Corridor, Employment Corridor, Urban Corridor) added and zones that they replaced (Mixed Use District, Community Employment, Moderate-High Density Residential, Residential-Office-Civic, High Density Single Family, Employment Services) were removed.
- Added policies and background related to becoming a Potential Incorporation Area.
- Removed policies per LUAC request: related to other community plan areas, related to requiring Planned Development District for rezone request, related to removed zones, and related to airport overlay.
- Added policies related to new zones, multifamily housing should be in close proximity to transit and urban infrastructure should be provided and retaining the Regional Manufacturing/Industrial Center designation.
- Retain and amend policies currently in place for the Frederickson Towne Center related to adverse impacts to the Canyon Road East freight corridor.

Community Character & Design Element

- Removed list of entrances to the community.
- Removed reference to “curvilinear streets” and related to low impact development strategies that are now standard practice.
- Added policies related to fencing of residential land divisions and increased road widths for emergency vehicle access when parallel parking is allowed.
- Removed policies related to trees and landscaping that are now standard practice.
- Removed policies related to amortization period for billboards.

Economic Development Element

- Added content and policies related to Regional Manufacturing/Industrial Center designation.
- Updated policies to encourage expedited review of permits that will provide high economic benefit, especially related to jobs and industry.
- Added policies and goals related to becoming a Potential Incorporation Area.
- Incorporated policy related to serving the Frederickson community with Express Bus service connecting the community to regional transit stations in Tacoma and/or Puyallup.

Environment Element

- Removed policies related to native vegetation, tree conservation, impervious surfaces, wetlands, low impact development, and stormwater treatment where those policies have become standard practice.
- Removed policies related to studying Clover Creek, because studies have been completed and incorporated into Clover Creek Basin Plan and Clover Creek TMDL Alternative Plan.
- Remove policies related to transfer of development rights for wetlands, because that program, Wetland In-Lieu Fee Program, has been established for the Clover Creek basin.

Facilities & Services Element

- Removed Transportation related background and policies and moved to Chapter 7.
- Incorporated more language about community goal of providing more urban-level infrastructure to serve the community.
- Updated Parks and Recreation policies to reflect community desires and the latest Parks, Recreation, and Open Space Plan, Trails Plan, and adopted Park Impact Fee.

Transportation Element

- New chapter consisting of content and policies previously found in Chapter 6.
- Added goals for service standards, future improvements, and funding, as well as north-south road connections parallel to SR-161, Canyon Road East, and SR-7.
- Added a section of prioritized road improvements.
- Added policy to consider safe wildlife and pedestrian crossing on Canyon Road East.
- Added policy promoting non-motorized access and pedestrian crossing in Centers and Corridors.
- Added policy for express bus service on Canyon Road East. Removed Implementing Actions that were completed or no longer applicable.

Mid-County

Land Use Element

- Added policy preserving the Rural Separator.
- Added policy prohibiting surface mining in ARL areas.
- Added policy to include high density residential within the Urban Corridor and Neighborhood Corridor, changing the previous primary use of HRD zone.
- Added policy designating the majority of commercial uses within the Urban Corridor.
- Removed policy regarding limited Neighborhood Corridor-NC expansion and adoption.
- Removed policy for a new Mixed Use District at 104th St E and Canyon Road E.

-
- Added policy on Centers and Corridors – including the Canyon Road East Corridor, 112th St East Corridor, Urban Corridor, Employment Corridor, and Neighborhood Corridor.
 - Added a short-term implementing action to preserve the rural separator.

Community Character & Design Element

- Added a section on Urban Commercial and Industrial.
- Removed policy to encourage narrower streets within neighborhoods.
- Removed policy regarding landscaping bonds.
- Added policy allowing for electronic reader board signs for civic uses.
- Added lighting design policy so that lighting in the rural areas should be limited to what is necessary for public safety.
- Replaced regulations on signs to allow electronic reader boards for civic uses in the Rural Separator zone.

Economic Development Element

- Removed policies creating compact neighborhood centers at specific intersections.
- Removed policy to work with private sector to create a redevelopment strategy for 112th St East.
- Removed policy regarding Estate Type Development.
- Removed short term and long term implementing actions.

Environment Element

- Removed policies reducing reliance on traditional conveyance and pond technologies.
- Removed policies about development techniques controlling stormwater.
- Updated policies on in-lieu fee for wetland mitigation program.
- Removed policies to retain or make buffers in natural areas.

Facilities & Services Element

- Removed Transportation related background and policies and moved to Chapter 7.
- Removed policy dictating the size of parks.
- Removed policy on Pederson Farm, surface mine reclamation sites, Faith Dairy, and Orangegate Park.
- Removed policy about funding for park maintenance, impact fees, and land dedication for parks.
- Removed high priority locations for parks and policy to provide subdivision parks in all new residential developments in urban areas.
- Removed policies providing incentives for bonus densities.

-
- Removed policy to develop an aquatic center in Franklin Pierce High School neighborhood.
 - Added policy for sewer and wastewater treatment facilities to follow six-year Capital Facilities Plan and Sewer Improvement Plan.

Transportation Element

- New chapter consisting of content and policies previously found in Chapter 6
- Added policies recognizing Canyon Road East as a freight corridor and a need to improve access and vegetation along the road.
- Added a policy to provide sidewalks and consider reducing speed limits on roads without pedestrian facilities.
- Removed policy limiting sidewalks to major arterials and locations of schools and businesses.
- Added policy supporting extensions of service.

Parkland-Spanaway-Midland

Land Use Element

- Added Neighborhood Mixed Use (NMU) designation policies for the Portland Avenue area to provide for a mix of neighborhood-scale commercial and service uses and high-density residential uses.
- Removed the Commercial Mixed Use District, Office Mixed Use District, Residential-Office-Civic, and Research-Office zone policies.
- Added policy related to making nonconforming uses more compatible with existing and future conforming uses.
- Removed parking program policies.
- Added Employment Center designation policies to emphasize employment growth.
- Consolidated Moderate Density Single Family designation policies.

Community Character & Design Element

- Consolidated historic building policies.
- Updated the list of community entries.
- Added list of streets for streetscape improvement plans.
- Removed list of allowed uses in designated open space.
- Added policies on bringing signs into conformance with current standards.

Economic Development Element

- Updated commercial revitalization areas.
- Removed list of areas targeted for planned actions.

Environment Element

-
- Removed surface water policies about drainage courses and filling or modifying surface waters.
 - Removed water policies related to spill response and wellhead protection signage.
 - Removed supplemental wetland restoration activity and incentive program policies.
 - Removed priority habitat, vegetation buffers for riparian areas/aquatic systems, and removal of material from stream policies.
 - Removed supplemental open space policies.

Facilities & Services Element

- Moved transportation policies to a new transportation element.
- Updated park impact fee policies.
- Removed park land dedication, regional park, park size, and specific park improvement policies.
- Added policies to prioritize sewer extensions and coordinate water purveyors.
- Removed policies about contamination protocols, discharge points, and stormwater pond adoption program.

South Hill

Land Use Element

- Added policies and background related to becoming a Potential Incorporation Area.
- Added a goal designating land use in the South Hill community to promote a mostly suburban, single family pattern and create growth along Meridian Avenue East.
- Removed policy to stop the expansion of the UGA.
- Added policy for Meridian Avenue to focus on pedestrian-oriented commercial in Centers, auto-oriented commercial in Corridors, and provide a mix of transportation options along the corridor.
- Removed policies regarding a market vacancy study.
- Added policy for small affordable housing to follow cottage design.
- Added policy designating two Towne Centers in the South Hill plan area (intersection of 128th Street East to 136th Street East, and between 152nd Street East and 160th Street East).
- Removed policy reshaping Centers along Meridian Avenue.
- Added policy expanding allowable uses within the Centers and Corridors and commercial zones.
- Added policy to integrate high density residential and commercial.
- Removed policy regarding nuisance abatement.
- Added policy for Towne Centers design, use, and transportation policies.
- Added policy designating a specific Urban Corridor on Meridian Avenue East and encouraging mixed use.
- Added policy characterizing the NCOR and addressing connectivity.

-
- Removed policy designating two or three areas for community commercial use.
 - Removed policy detailing community commercial uses and policy that designates a central place as the focal point of commercial activity.
 - Added policy regarding zoning of properties in the ECOR near Thun Field, allowing the extension of the Community Center if 110th Avenue East is extended south of Sunrise Boulevard East in the future.

Community Character and Design Element

- Replaced references to “Urban Village” with new “Centers” zone.
- Added policy recognizing Heritage Park as being located within South Hill’s Community Plan area.
- Added policy related to sustainable site design and building practices.
- Added policy more specifically addressing setbacks.
- Added policy addressing open public space, adding a variety of housing types, and creating a community identity through design.
- Removed policies related to trees and landscaping.
- Removed policy addressing parking regulations.
- Removed policy addressing community groups’ participation in the community plans.

Economic Element

- Added a section identifying economic goals.
- Updated policies and mid-term actions to focus business promotion in Centers or Employment Centers rather than Urban Villages.

Environment Element

- Removed policies related to surface water and infrastructure to improve air quality (besides trees).

Facilities and Services Element

- Removed Transportation related background and policies and moved to Chapter 7.
- Added policy regarding crosswalk systems.
- Removed policies and action regarding the Master Plan of Pierce County airports.
- Removed policy outlining specific recreational needs of the community to create a more general use.
- Added policy to periodically review and update the County’s trail plan and trail network.

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- Removed Horse Haven Creek Park and Trail, Ates Pond Park and Trail, Reservoir Park and Trail, and Half Dollar Park from the list of priorities of parks and added Horse Haven Creek Park instead.

Transportation Element

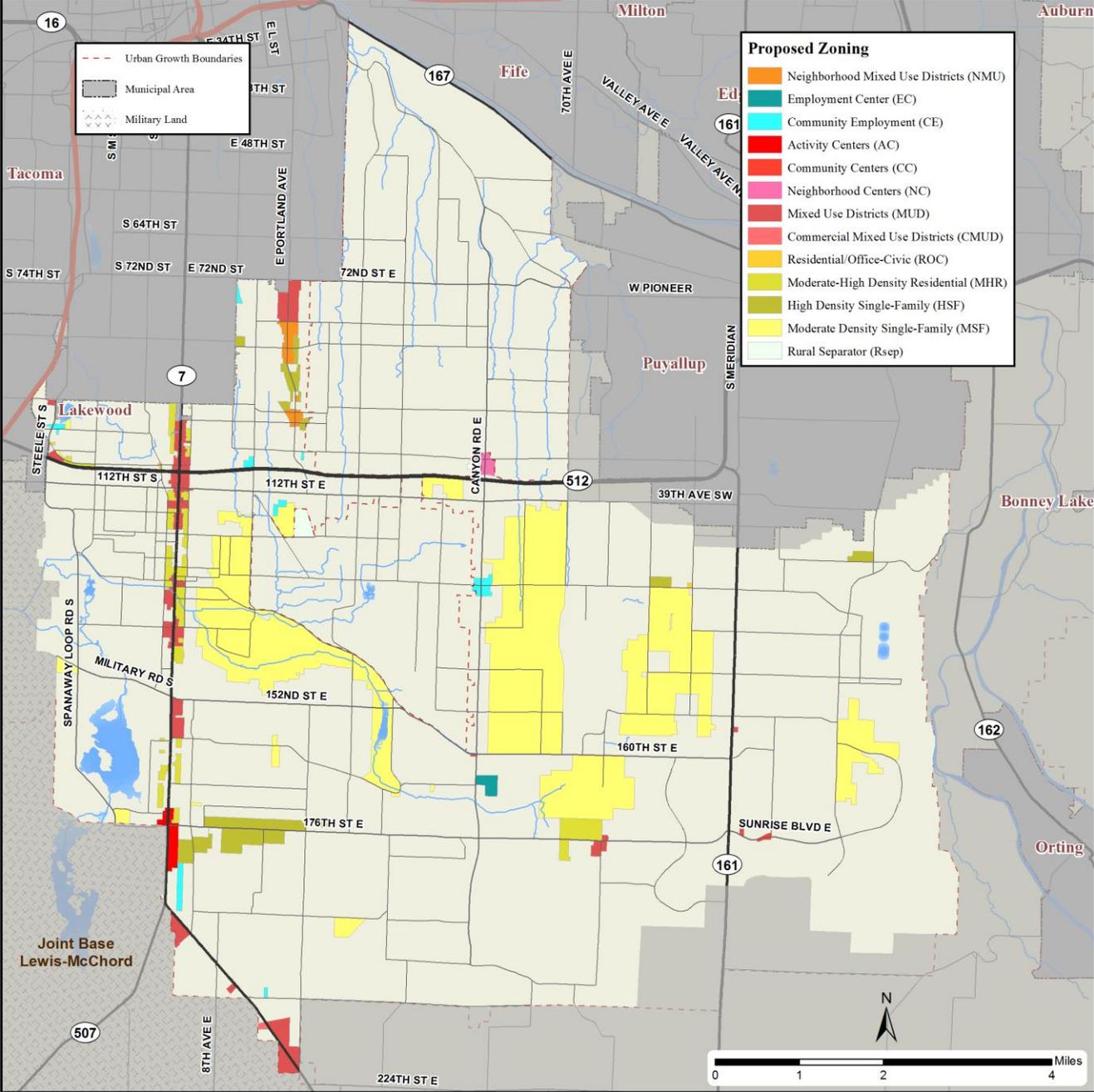
- New chapter consisting of content and policies previously found in Chapter 6.
- Added information and policies to prioritize north-south corridors for increased circulation parallel to Meridian Avenue.
- Added a policy section detailing specific prioritized road improvements.
- Added policy regarding connectivity, wildlife crossing, and non-motorized access.
- Added an express bus service connecting Canyon Road East to Tacoma or Puyallup and additional policies to support transit within Centers and Corridors and connections to regional transit centers.

2.2.3 Requested Rezones Component

In addition to the Centers and Corridors designation/zoning changes, other land use designation and zoning changes are proposed as part of the Community Plan Updates and are a part of Alternative 1. These land use designation/zoning changes were proposed by the LUACs or by property owners and are listed in Figure 2-3 Map Change Requests. More details can be found in

Appendix C: Map Change Requests.

Figure 2-3 Map Change Requests



Major rezones associated with these requests include:

- changing large areas of Single Family and Residential Resource zones to Moderate Density Single Family, and
- changing properties along Portland Avenue to Mixed Use District, Neighborhood Mixed Use, and High-Density Single-Family zones, while allowing townhouses in the new HSF areas.

Table 2-5 LUAC Proposed Zone Changes

Community Plan Area	Description	Number of Acres
Mid-County	Canyon Rd E/104th St E: MUD/CC to NC	29.8
Mid-County	121st St E: MHR to RSep	43.1
Mid-County	104th St E: MUD to RSep	11.6
Parkland-Spanaway-Midland	Portland Avenue changes	203.5
Parkland-Spanaway-Midland	Code consolidation to eliminate CMUD, OMUD, RO, and ROC	145.5
Parkland-Spanaway-Midland	96th St S/Steele St S: MHR to MUD	4.3
Parkland-Spanaway-Midland	Sales Rd S: MSF to MHR	0.3
Parkland-Spanaway-Midland	Golden Given Rd E/SR-512: SF to CE	10.2

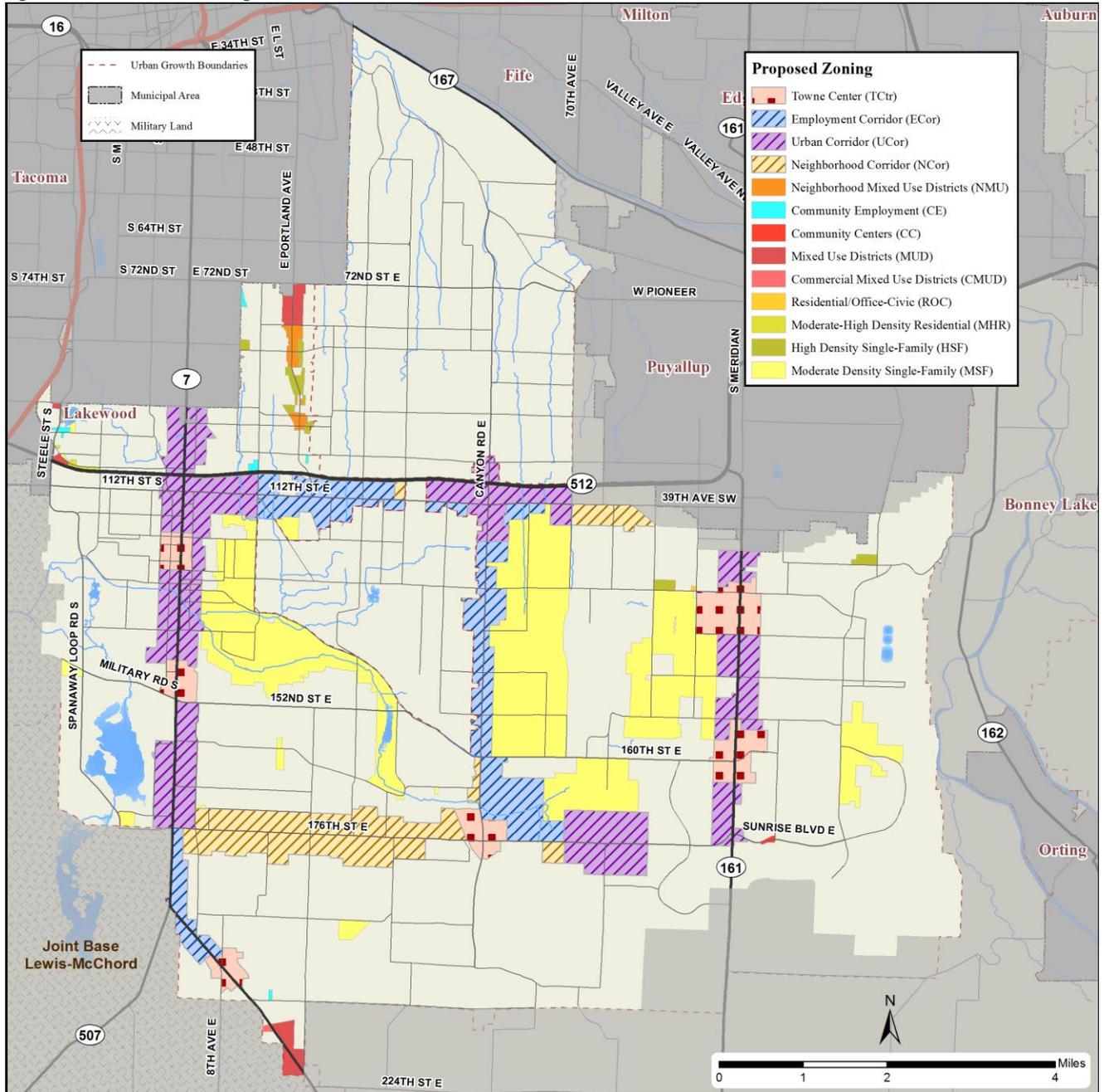
Table 2-6 Map Change Requests by Property Owners

Community Plan Area(s)	Description	Number of Acres
Frederickson	Canyon Rd E/Military Rd E: CE to EC	32.0
Frederickson	192nd St E: EC to MSF	41.0
Frederickson	176th St E: EC to TCTR	8.8
Frederickson	Within Corridors: RR/SF to MSF	715.3
Mid-County	Within Corridors: RR/SF to MSF	1,670.0
Parkland-Spanaway-Midland	Mountain Highway: MHR to MUD	6.3
Parkland-Spanaway-Midland	208th St E: MSF to CE	3.5
Parkland-Spanaway-Midland	19th Ave Ct E: SF to CE	2.1
Parkland-Spanaway-Midland	Within Corridors: RR/SF to MSF	1,119.8
South Hill	Sunrise Blvd E/110th Ave E: EC to CC	6.6
South Hill	128th St E/94th Ave E: HSF to ROC	2.6
South Hill	112nd St E/Shaw Rd E: MHR to HSF	22.6
South Hill	128th St E/86th Ave E: MSF to HSF	20.5
South Hill	Within Corridors: RR/SF to MSF	1,123.6

2.3 Alternative 2: Community Plan Updates with More Intensive Centers and Corridors

Alternative 2 includes all the elements of Alternative 1; however, Alternative 2 is more intensive in that it proposes the Urban Corridor zone for the entire width of the Corridor along Pacific Avenue (SR-7) and Meridian Avenue (SR-161) as well as extending the Neighborhood Corridor designation and designates a large area of Urban Corridor on 176th Street East as shown in Figure 2-4 Alternative 2 Zoning. Alternative 2 reflects residential development at a higher density and allows more auto-oriented commercial along the Corridors.

Figure 2-4 Alternative 2 Zoning



2.4 Alternative 3: Community Plan Updates without Centers and Corridors

Alternative 3 includes all the changes of Alternative 1 except the Centers and Corridors policy and zoning changes. This alternative would include all policy changes to the community plans and map change requests by the LUACs or property owners, but not those for Centers and Corridors. The land use designation and zoning change are shown in Figure 2-3 Map Change Requests.

2.5 Alternative 4: No Action

This proposal would maintain existing policies and zoning.

2.6 The Alternatives and the Environmental Analysis

Alternative 1 will be used to compare the impacts and mitigation measures between the alternatives. Generally, the impacts of Alternative 2 will be somewhat greater due to the potential for additional residential units. Likewise, Alternative 3 will have less impacts than Alternates 1 and 2, as it is based primarily on existing zoning with some map changes and density increases resulting from zone changes proposed by the LUACs and property owners.

2.7 Note on Level of Analysis

As the SEPA lead agency, Pierce County Planning & Public Works has prepared a non-project EIS to analyze impacts and determine and disclose any significant adverse environmental impacts. This non-project EIS is prepared under RCW 197-11-442 and RCW 42.21C.030 (2)(c). The Draft EIS discusses impacts and alternatives in the level of detail appropriate for the scope and level of planning of this non-project proposal. [WAC 197-11-442 (2)].

This DEIS describes the affected environment, potential impacts, and mitigation measures, in relation to the proposed action. The following elements have either been determined to not be significantly affected or to be beyond the scope of a non-project review:

- Traffic hazards
- Water, rail, and air traffic
- Historic and cultural preservation
- Agriculture
- Light and glare
- Infrastructure
 - Maintenance
 - Communications
- Earth
 - Geology
 - Soils
 - Topography
 - Unique physical features
 - Erosion/Accretion
- Plants and animals
 - Habitat, population, and diversity

-
- Unique species
 - Migration routes

3 Affected Environment, Impacts, Alternatives and Mitigation Measures, and Significant Unavoidable Adverse Impacts

3.1 Land Use and Built Environment

3.1.1 Affected Environment

This section addresses land use patterns and development compatibility in the four Community Plan areas of Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill. The review provides a baseline for analyzing the impacts of the alternatives for implementing the Community Plan Updates. This section relies on the Pierce County Comprehensive Plan for background information.

Regulatory Framework

The Washington Growth Management Act (GMA) requires Pierce County to prepare a Comprehensive Plan to encourage compact, urban growth in areas served by adequate public facilities and infrastructure, and reduce the conversion of undeveloped land into sprawling, low-density development. The Pierce County Comprehensive Plan guides land use, housing, aesthetics, and design for unincorporated Pierce County over a 20-year planning period and considers the general distribution and location of land uses, as well as the appropriate intensity and density of land uses in urban and rural areas. The County's development regulations must be consistent with this Plan. The land use designations and zoning provided in the Plan correspond to the Zoning Atlas which sets the location and intensity of land uses.

Existing Conditions

Historical Land Use Pattern in All Community Plan Areas

Significant differences in character exist not only between the community plans, but also among neighborhoods within the plan areas. This can be attributed to historical settlement patterns, among many other factors. Much of Pierce County's UGA developed before World War II and consisted of concentrated cities and towns centered around sea and rail transportation, including Puyallup, Tacoma, Midland, Spanaway, and Parkland. Access to land was limited by these travel modes, and few had access to automobiles or significant automobile infrastructure. As a result, much of the land in the four Community Plan areas was used by the few that could economize it, namely for agriculture, forestry, and resource extraction.

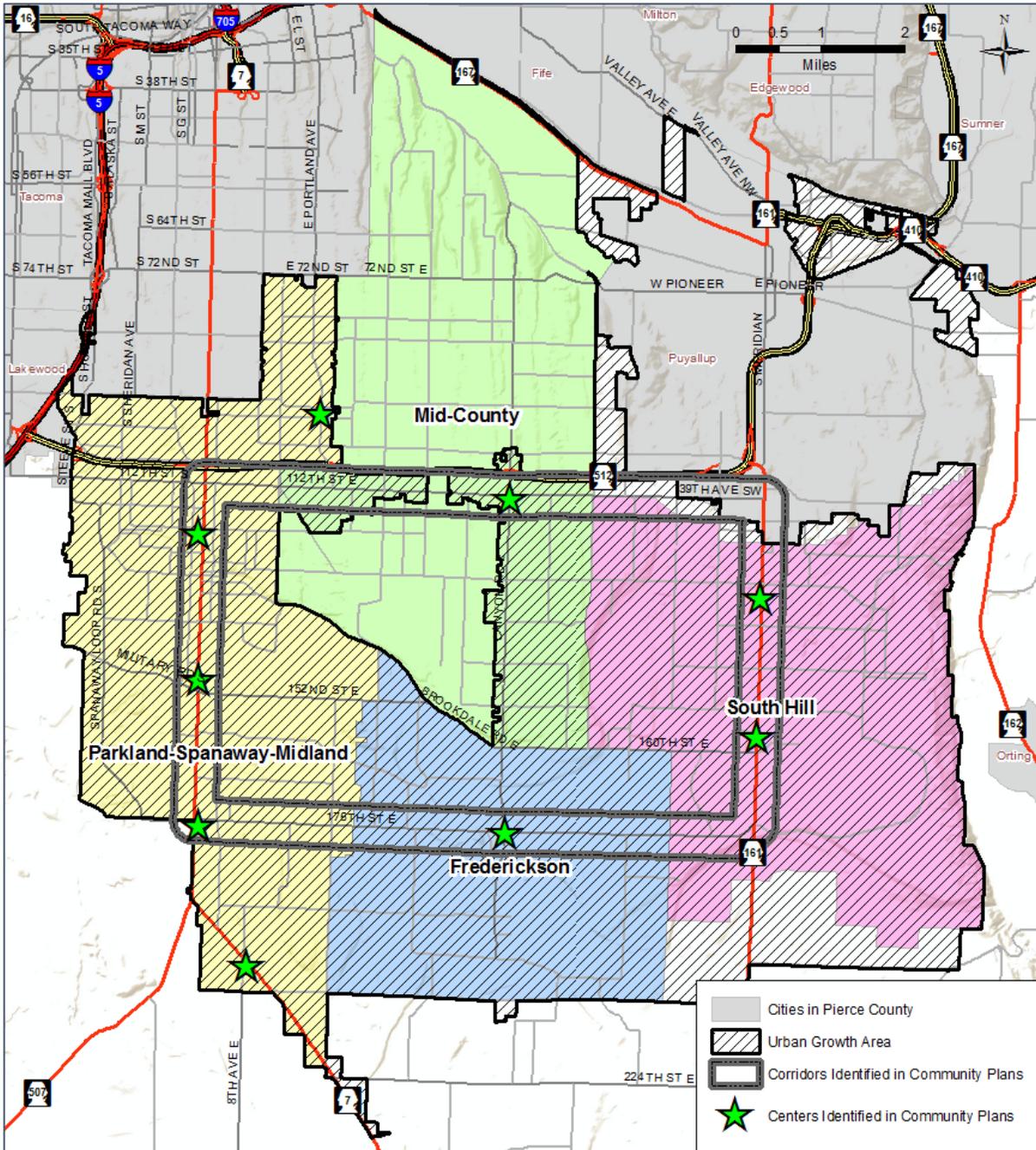
After World War II, development of the interstate highway system and increased middle-class prosperity unlocked access to this land for nearly everyone. New suburbs and single-family housing began to grow in the county's undeveloped land between historic cities and towns due to the proximity and access to major employment centers like Tacoma and Seattle. Businesses and services subsequently followed newly prosperous residential communities. These post-World War II suburbs

and shopping centers developed into what now comprises the Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill communities.

Historically, the Pierce County Comprehensive Plan and Community Plans have designated commercial, industrial, and higher-density residential along five major roads in the central UGA: Pacific Avenue (SR-7), Canyon Road East, Meridian Avenue (SR-161), and 112th Street East. 176th Street East has higher intensity development at major intersections and has seen major road improvements.

In the 2015 update of the Pierce County Comprehensive Plan, the County adopted policies to support compact centers and transit-oriented corridors. In 2016, Pierce County Council adopted the “Urban Communities of Pierce” report and implementation actions through Resolution No. 2016-150s. This resolution is intended to expand upon and implement the idea carried forward in the community plans.

Figure 3-1 Centers and Corridors Concept Identified in Plans



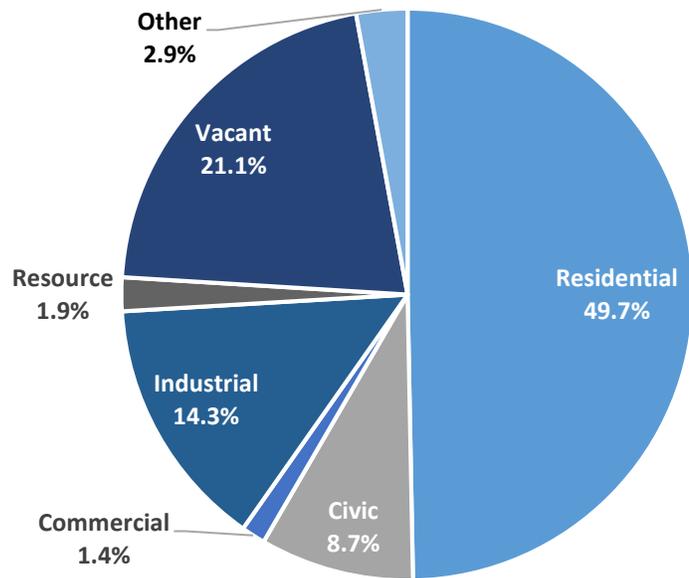
Existing Zoning and Development Pattern

The areas designated as commercial areas in the community plans have been developing as commercial and higher-density residential uses. Figure 3-2 Existing Zoning Pattern shows the current zoning in the area. The various shades of red are mixed-use zones, the yellow shades are residential, and the blue shades are industrial and employment.

There are few commercial businesses in Frederickson, and nearly all are located at or near the intersection of Canyon Road East and 176th Street East. Civic uses cover 8.7 percent of land area and are primarily utilities, parks and recreation, and schools.

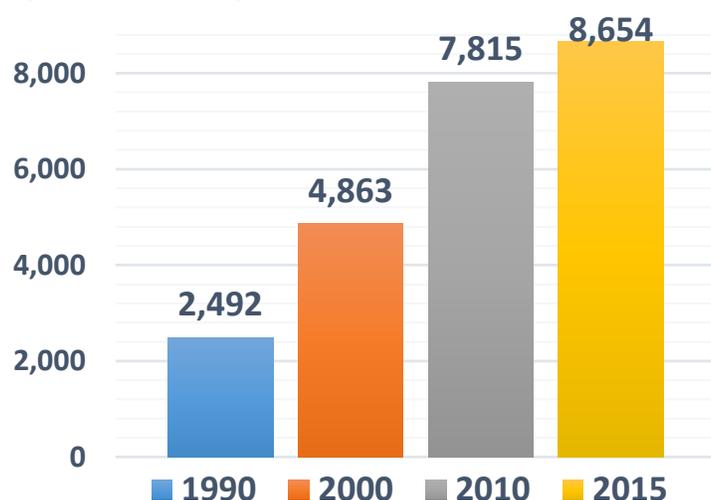
The number of housing units in the area has grown by 78 percent in the last 15 years. Housing growth has kept up with population growth, but the number of units available only narrowly exceeds the number of households in the Plan area, which suggests a low vacancy rate. In the decade prior to the adoption of the Community Plan (1990-2000), the number of housing units in Frederickson doubled, with the addition of 2,371 units. The decade after adoption (2000-2010) produced an additional 2,952 units. The number of units is currently over 8,600 with around 6,100 of those built since 1990. The vacancy rate has remained around four percent over the last 15 years, which is considered low. Around six percent to seven percent is considered a healthy vacancy rate. Housing in the plan area is predominantly owner-occupied, with only 20 percent attributed to renters.

Figure 3-3 Distribution of Land Use in Frederickson (2016)



In the decade prior to the adoption of the Community Plan (1990-2000), the number of housing units in Frederickson doubled, with the addition of 2,371 units. The decade after adoption (2000-2010) produced an additional 2,952 units. The number of units is currently over 8,600 with around 6,100 of those built since 1990. The vacancy rate has remained around four percent over the last 15 years, which is considered low. Around six percent to seven percent is considered a healthy vacancy rate. Housing in the plan area is predominantly owner-occupied, with only 20 percent attributed to renters.

Figure 3-4 Total Housing Units in Frederickson (1990-2015)



In the Frederickson area, there are approximately 5,405 jobs across multiple industries. The largest share of jobs in the Community Plan area are in manufacturing industries, accounting for about 56 percent of all jobs located there. Almost 22 percent of jobs in the Plan area are in services and retail and construction accounts for about 11 percent. Of the retail businesses, the most common uses are miscellaneous store retailers (27 percent of retail businesses), motor vehicle and parts dealers (12 percent of retail businesses), and food and beverage stores (11 percent of retail businesses).

The majority of businesses (97 percent) in the Community Plan area employ less than 100 workers, and about 78 percent have fewer than 10 employees.¹

Table 3-1 Employment in Frederickson

Industry	Jobs ¹ Located in Community Plan Area ²		Occupation of Residents of Community Plan Area ³	
	Count	Percent	Count	Percent
Const/Res	585	10.8%	641	8.0%
FIRE	37	0.7%	529	6.6%
Manufacturing	3,018	55.8%	858	10.7%
Retail	157	2.9%	1,428	17.7%
Services	1,027	19.0%	3,831	47.6%
WTU	416	7.7%	106	1.3%
Government	165	3.1%	654	8.1%
Total	5,405	100.0%	8,047	100.0%

¹Survey of jobs is limited to those positions that are covered by unemployment insurance (Covered Employment)

²Source: Puget Sound Regional Council; Washington State Employment Security Department (2014)

³Source: US Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

The community is characterized primarily by suburban residential development, particularly single-family homes. A large 2,000-acre Regional Manufacturing and Industrial Center is located on Canyon Road East south of 176th Street East. Major employers include Boeing and Amazon. A small commercial center at the intersection of Canyon Road East and 176th Street East provides basic services like groceries, gas, fast food, coffee, and dentistry for the community. Structures are generally limited in height and only partially occupy the property. Surrounding properties include parking lots, open space, and undeveloped land. Significant pockets of open space, forests, and vacant land remain in the area.

Development Capacity

The 2014 Buildable Lands Report inventory (2010 parcels) identifies half of the land in Frederickson as fully developed or not developable. Vacant land comprises 19 percent of land area in Frederickson, (averaging 6.48 acres per lot). Underutilized land comprises 27 percent of land area (averaging 2.08 acres per lot). The remainder is currently under development or has been developed since 2010.

Aesthetics and Design

The Frederickson community has seen significant growth. Frederickson has transformed from a quiet, rural community with farms and large tracts of undeveloped land to a busy suburban community with many homes and businesses. The Frederickson Regional Manufacturing and Industrial Center has become one of the defining features of the community. Historically, Frederickson could be defined by

¹ Source: Puget Sound Regional Council; Washington State Employment Security Department

its rural and agricultural character, but it has become more industrial and suburban over time. The Manufacturing and Industrial Center includes a wide array of industrial operations including the Boeing manufacturing plant. While almost 30 percent of the plan area is dedicated to industrial uses, Frederickson includes substantial areas of open space, vacant land, and tree cover.

Land Use

The Frederickson Community Plan area has five land use designations and nine zoning classifications.

Table 3-2 Existing Land Use Designations in Frederickson

Land Use Designation	Zone	Portion of Plan Area
Employment Center	Community Employment	3%
	Employment Center	28%
	Employment Services	1%
High-Density Residential District	Moderate-High Density Residential	2%
	Residential-Office-Civic	1%
Moderate-Density Single-Family	Moderate-Density Single-Family	51%
	Residential Resource	6%
	Single-Family	5%
Mixed-Use District	Mixed-Use District	1%
Parks & Recreation	Parks & Recreation	2%

Approximately 62 percent of land in the Community Plan area has the Moderate-Density Single-Family land use designation which prohibits commercial and industrial uses. This designation allows civic uses, single-family housing, duplexes, and multi-unit attached single-family housing. The Employment Center designation is characterized by office, manufacturing, and industrial development. Some commercial development is allowed secondary to employment uses. The High-Density Residential District permits multifamily and high-density single-family housing and limited neighborhood retail and commercial services along major roads. Mixed-Use Districts allow for a broad mix of uses related to commercial, office, and multifamily development around major roads. These districts provide services, jobs, and housing for the community, and are generally auto-oriented and land-intensive in character. Multifamily and office uses provide economic diversity and housing opportunities.

Mid-County Plan Area

The Mid-County Community Plan area is primarily rural but surrounded by urban areas. Residential uses comprise about 62 percent of the community and range from homes on large (sometimes agricultural) lots to single-family subdivisions. Civic, commercial, industrial, and multifamily development is limited to specific locations along the major roadways. There are multiple garden-style apartment complexes, offices, and light-industrial businesses along 112th Street East. Service-oriented businesses like restaurants, storage, auto shops, and grocery stores are generally located along Canyon Road East.

Figure 3-5 Distribution of Land Use in Mid-County (2016)

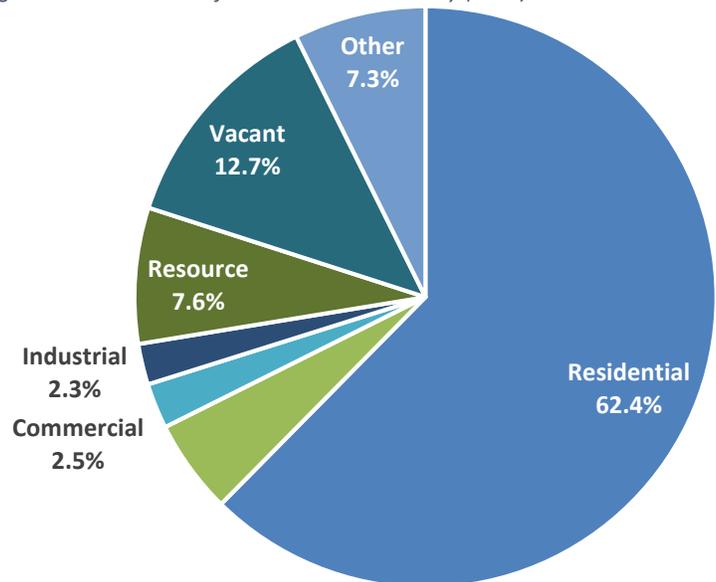
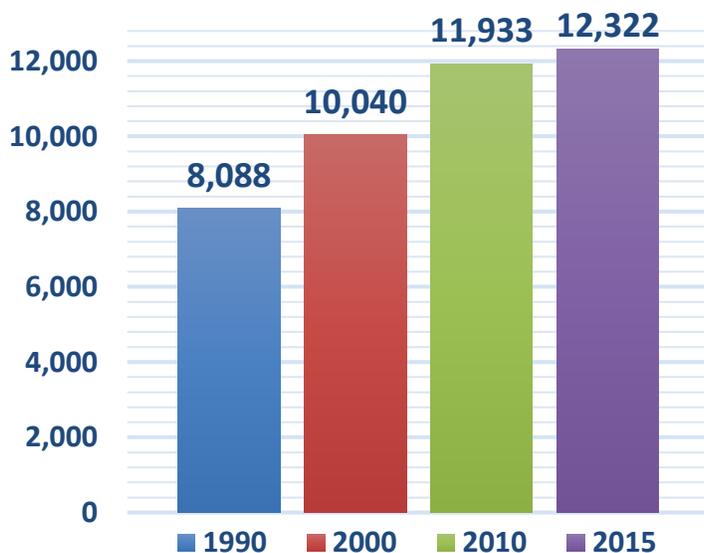


Figure 3-6 Total Housing Units in Mid-County (1990-2015)



The number of housing units in the area has grown by more than 50 percent in the past 25 years, but only by 23 percent in the last 15 years. The larger increase between 1990 and 2000, as opposed to the decreased growth from 2000-2010 may be due to the build out of developments approved prior to the GMA. Growth should have slowed after the early 2000s due to changes in policy and regulations for the rural area. Since 2000, the vacancy rate has only increased by 0.6 percent and is still at a healthy level of 6.3 percent. The area is primarily owner-occupied, with less than 30 percent occupied by renters.

There are approximately 6,723 jobs across multiple industries in Mid-County. The service industry comprises over 45 percent of the jobs in the area, and nearly 30 percent of employees work in construction and resource industries. Of retail businesses, the most common uses are miscellaneous store retailers (22 percent of retail businesses), clothing and accessories stores (14 percent of retail businesses), and food and beverage stores (10 percent of retail businesses).² Nearly all businesses (99

² Source: Dunn & Bradstreet

percent) in the Community Plan area employ less than 100 workers, and about 90 percent have fewer than 20 employees.³

Table 3-3 Employment in Mid-County

Industry	Jobs ¹ Located in Community Plan Area ²		Occupation of Residents of Community Plan Area ³	
	Count	Percent	Count	Percent
Const/Res	1,928	28.7%	1,372	10.0%
FIRE	177	2.6%	707	5.1%
Manufacturing	262	3.9%	1,361	9.9%
Retail	542	8.1%	1,835	13.4%
Services	3,066	45.6%	6,032	43.9%
WTU	318	4.7%	386	2.8%
Government	430	6.4%	919	6.7%
Total	6,723	100.0%	13,730	100.0%

¹Survey of jobs is limited to those positions that are covered by unemployment insurance (Covered Employment)

²Source: Puget Sound Regional Council; Washington State Employment Security Department (2014)

³Source: US Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

The community is generally semi-rural in character with large properties, farms, and vegetation interspersed with major natural features including the Clover Creek, Swan Creek, and Clear Creek watersheds. Some small subdivisions exist, but the residential areas are primarily single-family homes and duplexes on large lots. The more developed portions of the Plan area have commercial, civic, and multifamily structures along Canyon Road East and 112th Street East. The structures are generally limited in height, and only partially occupy the property. Property surroundings include parking lots, open space, and undeveloped land. Businesses range in scale from small restaurants to large shopping centers with grocery, storage, and hardware stores. A broad mix of residential uses are located in the community, including single-family homes, garden-style apartments, townhouses, duplexes, triplexes, and mobile homes.

Development Capacity

The 2014 Buildable Lands Report inventory (2010 parcels) identifies approximately 39 percent of land in the urban portion of the Mid-County community as developed or not developable. Vacant land makes up 13 percent of the community, averaging 1.73 net acres per vacant subdividable lot. 42 percent of the land is considered underutilized, averaging 2.14 net acres per lot. The remainder is currently under development or has developed since 2010.

³ Source: Puget Sound Regional Council; Washington State Employment Security Department

Aesthetics and Design

Mid-County includes urban and rural land. A majority of the land area and population are located outside the UGA. As a result, Mid-County is more rural in character than the surrounding communities. The rural zones are characterized by larger properties with single-family residential and resource uses. Vegetative buffers and significant stands of trees are present and border areas that have been cleared for agricultural practices. The natural character of the area is shaped, in part, by its proximity to Clover Creek drainage southward and Swan Creek and Clear Creek drainage to the north. Rural landscapes emphasize the natural look and feel of the community.

Land Use

The Mid-County Community Plan area has 10 land use designations and 11 zoning classifications.

Table 3-4 Existing Land Use Designations and Zoning in Mid-County

Land Use Designation	Zone	Portion of Plan Area
Rural/Resource Area		
Agricultural Resource Land	Agricultural Resource Land	5%
Rural Neighborhood Center	Rural Neighborhood Center	<1%
Rural Separator	Rural Separator	71%
Urban Area		
Community Center	Community Center	2.45%
Employment Center	Community Employment	5.37%
High-Density Residential District	Moderate-High Density Residential	<1%
Mixed-Use District	Mixed-Use District	<1%
Moderate-Density Single-Family	Residential Resource	4%
	Single-Family	8%
Neighborhood Center	Neighborhood Center	2%
Parks and Recreation	Parks and Recreation	1%

Approximately 77 percent of land in the Community Plan area is designated as Rural, which allows only very low-density residential and civic uses. Limited commercial uses are allowed in Rural Neighborhood Center (RNC) zone that are deemed appropriate for rural areas. About 22 percent of land area in Mid-County is urban. About half of the urban land only allows single-family homes and subdivisions, while the other half allows a mix of uses including multifamily residential, commercial, and industrial uses.

Agricultural Resource Land is designated in areas along the Puyallup River valley and is intended to protect land suitable for long-term agricultural use. The RNC zone includes areas that have already-established commercial uses that serve the everyday needs of local rural residents. The RNC zones are limited in size to retain a scale and intensity appropriate for maintaining the rural character. The Rural Separator allows very low-density residential development, and limited resource and civic uses.

Parkland-Spanaway-Midland Plan Area

Parkland-Spanaway-Midland varies broadly in built form and how land is used. The communities are primarily urban and low-density. Office, commercial, and light industrial uses comprise 5.6 percent of land in the communities and are typically strip developments along major roads. Residential uses surround those developments and comprise the majority (67 percent) of the land area. Civic and community amenities are distributed across the communities comprising 10 percent of land, and include schools, a private university, parks, open spaces, water bodies, and recreation facilities.

Figure 3-7 Distribution of Land Use in Parkland-Spanaway-Midland (2016)

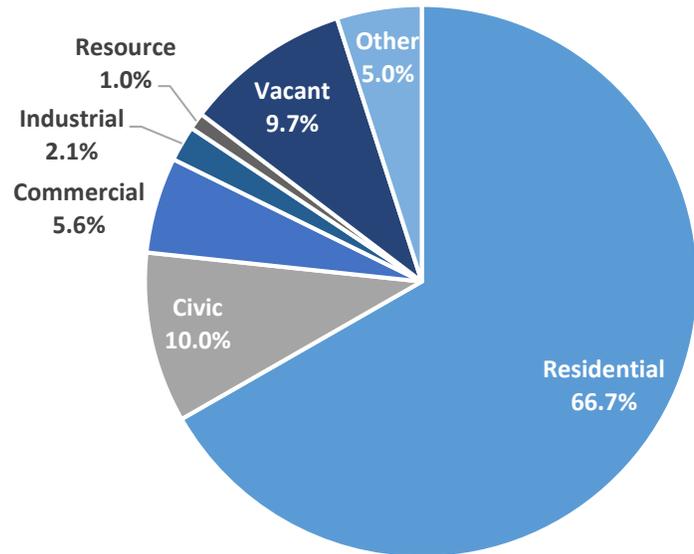
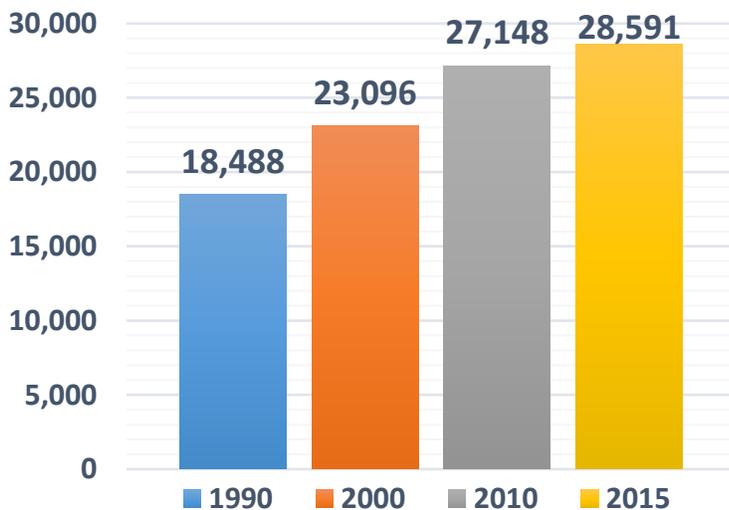


Figure 3-8 Total Housing Units in Parkland-Spanaway-Midland (1990-2015)



Housing increased by over 50 percent between 1990 and 2015. Parkland-Spanaway-Midland has gained approximately 10,103 housing units since 2000. The majority of housing growth occurred between 2000 and 2010. Occupancy is closely split with 49 percent owner occupied and 43 percent renter occupied. The eight percent vacancy rate is higher than what is considered a healthy vacancy rate (between six percent and seven percent).

In the Parkland-Spanaway-Midland area, there are approximately 11,887 jobs across multiple industries. Service and retail industries comprise around 74 percent, with service being the predominant industry. About half of the retail businesses are spread across three types of uses: miscellaneous store retailers (22 percent of retail businesses), motor vehicle and parts dealers (16 percent of retail businesses), and food and beverage stores (12 percent of retail businesses).⁴ Nearly all businesses (99 percent) in the Community Plan area employ less than 100 workers, and over 80 percent have fewer than 10 employees.⁵

⁴ Source: Dunn & Bradstreet

⁵ Source: Puget Sound Regional Council; Washington State Employment Security Department

Table 3-5 Employment in Parkland-Spanaway-Midland

Industry	Jobs ¹ Located in Community Plan Area ²		Occupation of Residents of Community Plan Area ³	
	Count	Percent	Count	Percent
Const/Res	803	6.8%	2,109	7.4%
FIRE	434	3.7%	1,134	4.0%
Manufacturing	444	3.7%	2,676	9.3%
Retail	1,973	16.6%	3,516	12.3%
Services	6,798	57.2%	13,878	48.4%
WTU	980	8.2%	812	2.8%
Government	455	3.8%	2,310	8.1%
Total	11,887	100.0%	28,667	100.0%

¹Survey of jobs is limited to those positions that are covered by unemployment insurance (Covered Employment)

²Source: Puget Sound Regional Council; Washington State Employment Security Department (2014)

³Source: US Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

The communities are characterized by suburban form and most of the land is comprised of single-family homes, while commercial and service uses are located along major roads. Structures are generally limited in height, and only partially occupy the property. Property surroundings are composed of parking lots, open space, and undeveloped land. The communities make up a large portion of the unincorporated urban area. Parkland-Spanaway-Midland includes a variety of notable places including Pacific Lutheran University, the historic Garfield Street center, Sprinker Recreation Center, Spanaway Park, Lake Spanaway Golf Course. The area also includes farmsteads, wooded subdivisions, pastures, wetlands, woodlands, and the historic townsites of Parkland, Spanaway, and Midland. Businesses range in scale from small restaurants to large centers and big-box retail stores. A broad mix of residential uses are located in the communities, including single-family homes, garden-style apartments, duplexes, triplexes, and mobile homes. The Community Plan area borders both Joint Base Lewis-McChord and the cities of Tacoma and Lakewood.

Development Capacity

The 2014 Buildable Lands Report inventory (2010 parcels) identifies about 71 percent of land in the Parkland-Spanaway-Midland communities as developed or not developable. Approximately eight percent of the land within the plan area is vacant, averaging 1.47 net acres per vacant subdividable lot. 19 percent is considered underutilized, averaging 1.85 net acres per lot. The remainder is currently under development or has been developed since 2010.

Aesthetics and Design

In Parkland-Spanaway-Midland, commercial development tends to be located in strip development along Pacific Avenue South/SR-7. Signs and parking lots are prevalent along the road. Residential areas are located to the east and west of SR-7 and make up approximately two-thirds of land uses in the plan area, contributing to the overall aesthetic of the area. The plan area includes larger lots in

the northern and eastern areas near the Mid-County plan area. Larger lots combined with the lack of sidewalks, creates a more rural look and feel within the UGA. The area is also shaped by the prominent natural features.

Land Use

The Parkland-Spanaway-Midland Communities Plan has eight land use designations and 15 zoning classifications.

Table 3-6 Existing Land Use Designations and Zoning in Parkland-Spanaway-Midland

Land Use Designation	Zone	Portion* of Plan Area
Activity Center	Activity Center	2%
Community Center	Community Center	1%
	Residential-Office-Civic	1%
	Moderate-High Density Residential	<1%
Employment Center	Community Employment	3%
	Research-Office	<1%
High-Density Single-Family	High-Density Single-Family	<1%
High-Density Residential District	Residential-Office-Civic	1%
	Moderate-High Density Residential	4%
Mixed-Use District	Office Mixed-Use District	1%
	Commercial Mixed-Use District	2%
	Mixed-Use District	1%
Moderate-Density Single-Family	Moderate-Density Single-Family	36%
	Single-Family	18%
	Residential Resource	27%
Neighborhood Center	Neighborhood Center	<1%

*Spanaway Lake occupies approximately 2 percent of PSM Community Plan Area

Approximately 81 percent of the Plan area is designated Moderate-Density Single-Family, which prohibits commercial and industrial uses. MSF allows single-family and multiple-unit attached single-family housing, and civic uses. Zones within the MSF designation vary in allowed uses and densities.

The High-Density Single-Family zone is intended for moderate- to high-density single-family developments. Activity Centers act as the primary draw for the larger urban area by focusing recreational, cultural, commercial, office, residential, and educational activity in compact areas. In contrast, Community Centers allow community-serving commercial uses with supportive multifamily housing that serve multiple neighborhoods. Neighborhood Centers concentrate small-scale retail, service commercial, multifamily residential, and offices that serve the daily needs of surrounding residents.

Employment Centers allow office, manufacturing, and industrial development. Some commercial development is allowed secondary to employment uses. The High-Density Residential District permits multifamily and high-density single-family housing with limited neighborhood retail and service commercial along major roads. Mixed-Use Districts allow a mix of commercial, office, and multifamily

uses. These districts provide services, jobs, and housing to the community, and are generally auto-oriented and land-intensive in character.

Compatibility with Joint Base Lewis McChord

The Parkland-Spanaway-Midland Community Plan area is located adjacent to the Joint Base Lewis-McChord (JBLM) military installation. The County is working actively to assure compatibility between land use activities in the County and military operations on JBLM. Several studies have been done to analyze compatibility between the base and surrounding areas, with the most recent being the Joint Land Uses Study for Joint Base Lewis-McChord completed in October 2015. The Study concludes that “most current land uses around JBLM do not have negative impacts on military capabilities” however there are ongoing efforts to increase compatibility.

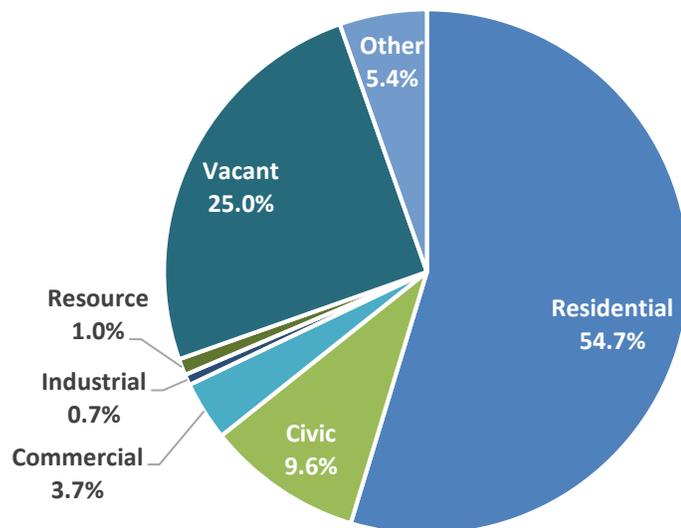
The County is actively participating in the South Sound Military and Communities Partnership (SSMCP) to address compatibility with JBLM operations. Recent efforts have focused on notification and disclosure of potential noise impacts from aircraft as well as military operations on surrounding neighborhoods and specifically to homebuyers (see Chapter 3.7.2 of this DEIS). In addition, studies and recommendations are being conducted regarding urban lighting and impacts to night operations training. Washington State is also preparing a State Guidebook on Military and Community Compatibility. The County will review and pursue appropriate compatibility strategies as recommended by the final Guidebook and the SSMCP.

South Hill Plan Area

The South Hill Community Plan area is bisected by Meridian Avenue East (SR-161), with predominately non-residential development located along this major road. Strip commercial and suburban shopping centers dominated the landscape between 122nd Avenue East and 176th Street East and comprise 3.7 percent of plan area.

Residential uses, primarily single-family homes, occupy 55 percent of the community’s land area. Civic uses cover 9.6 percent and are primarily utilities, transportation, and schools.

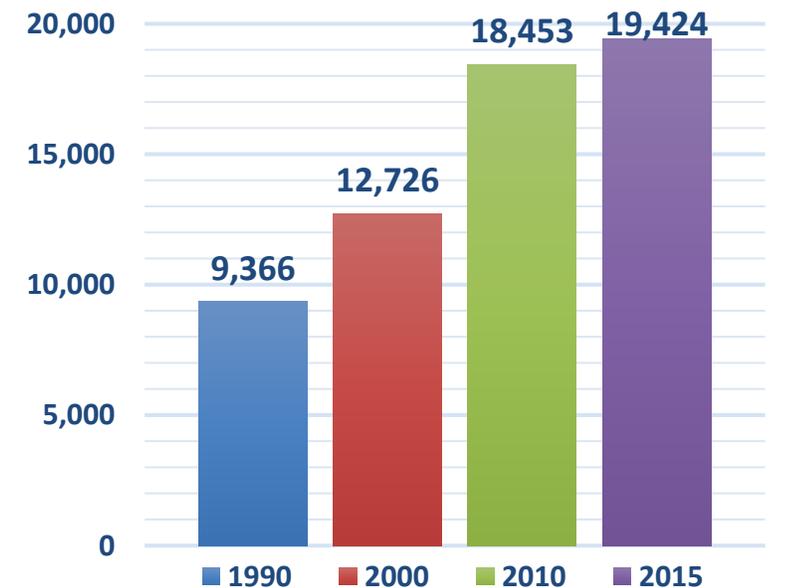
Figure 3-9 Distribution of Land Use in South Hill (2016)



The number of housing units in the area has grown by more than 50 percent in the past 15 years. Housing growth has kept up with population growth and the number of units available exceeds the number of households in the Plan area. In the decade prior to adoption of the Community Plan (1990-2000), South Hill saw an increase of 3,360 units. The decade after adoption (2000-2010) added 5,729

more, almost double what it had seen the decade before. More than 10,000 units have been built in the community since 1990. Since 2000, the vacancy rate has increased by 2.6 percent to a healthy level of 6.5 percent. While owner occupancy has declined in the last 15 years, it is still the predominant occupancy type in the plan area at 67 percent.

Figure 3-10 Total Housing Units in South Hill (1990-2015)



There are approximately 8,561 jobs across multiple industries in South Hill. The largest share of jobs in the Community Plan area are in service and retail industries, accounting for about 83 percent of all jobs in South Hill. The most common retail businesses are miscellaneous store retailers (22 percent of retail businesses), clothing and accessories stores (14 percent of retail businesses), and food and beverage stores (10 percent of retail businesses).⁶ Most businesses (98 percent) in the Community Plan area employ less than 100 workers, and about 50 percent have fewer than four employees.⁷

Table 3-7 Employment in South Hill

Industry	Jobs ¹ Located in Community Plan Area ²		Occupation of Residents of Community Plan Area ³	
	Count	Percent	Count	Percent
Const/Res	480	5.6%	1,946	8.5%
FIRE	304	3.6%	1,345	5.8%
Manufacturing	120	1.4%	2,464	10.7%
Retail	1,631	19.1%	2,964	12.9%
Services	5,488	64.1%	10,639	46.2%
WTU	231	2.7%	544	2.4%
Government	307	3.6%	1,559	6.8%
Total	8,561	100.0%	23,016	100.0%

¹Survey of jobs is limited to those positions that are covered by unemployment insurance (Covered Employment)

²Source: Puget Sound Regional Council; Washington State Employment Security Department (2014)

³Source: US Census Bureau, 2010-2014 American Community Survey 5-Year Estimates

⁶ Source: Dunn & Bradstreet

⁷ Source: Puget Sound Regional Council; Washington State Employment Security Department

The community is characterized by suburban form and most of the land is comprised of single-family subdivisions, while commercial uses are located along major roads. The community is defined by its proximity to Meridian Avenue East (SR-161), with several identifiable places along that corridor: Longston Place with many big-box retailers and satellite commercial (132nd Street East), Sunrise Village with big-box stores and main street of small restaurants and personal services, a small airport at Thun Field, and Meridian Habitat Park. Other shopping centers and strip commercial occupy most other areas along Meridian Avenue East. Structures are generally limited in height, and only partially occupy the property with surroundings composed of parking lots and natural areas.

Development Capacity

The 2014 Buildable Lands Report inventory (2010 parcels) identifies more than half (64 percent) of land in the South Hill Community Plan area as developed or not developable. Vacant land makes up 11 percent of the South Hill community, averaging 4.08 net acres per vacant subdividable lot. 14 percent is considered underutilized, averaging 2.05 net acres per lot. The remainder is currently under development or has developed since 2010.

Aesthetics and Design

South Hill is characterized by low-rise, suburban-style development. The community experienced rapid population growth between 1990 and 2000 leading to rapid changes to the urban and natural landscapes. Commercial zones in the plan area developed largely without consistent design themes or standards. The community falls within the Mount Rainier viewshed and Meridian Avenue East has an impressive view of the mountain, but commercial signage often obstructs natural features. South Hill also lacks vegetative buffers in most areas, except older, more established neighborhoods.

Land Use

The South Hill Community Plan Area has 12 land use designations and 12 zoning classifications.

Table 3-8 Existing Land Use Designations and Zoning in South Hill

Land Use Designation	Zone	Portion of Area
Activity Center	Activity Center	<1%
Community Center	Community Center	2%
Employment Center	Employment Center	8%
High-Density Residential District	High-Density Residential District	<1%
	Moderate-High Density Residential	<1%
High-Density Single-Family	High-Density Single-Family	6%
Master Planned Community	Community Center	1%
	High-Density Single-Family	1%
	Moderate-Density Single-Family	14%
	Moderate-High Density Residential	3%
	Residential Resource	4%
Mixed-Use District	Mixed-Use District	2%
Moderate-Density Single-Family	Moderate-Density Single-Family	40%
	Residential Resource	16%
Moderate-High Density Residential	Moderate-High Density Residential	<1%
Neighborhood Center	Neighborhood Center	<1%
Parks & Recreation	Parks & Recreation	2%
Urban Village	Urban Village	3%

Approximately 63 percent of land in the Community Plan area is designated as Moderate-Density Single-Family, which prohibits commercial and industrial uses. MSF allows single-family and multiple-unit attached single-family housing, and civic uses. Zones within the MSF designation vary in allowed uses and densities. A significant portion of the plan area is designated as Master Planned Community (MPC). MPC is a special designation for master planned developments, typically with development agreements, that may provide not just homes, but also recreation, open space, and public facilities and services.

Community Centers allow community-serving commercial uses with supportive multifamily housing to serve multiple neighborhoods. Employment Centers allow office, manufacturing, and industrial development. Some commercial development is allowed secondary to employment uses. The High-Density Residential District permits multifamily and high-density single-family housing with limited neighborhood retail and service commercial along major roads. Mixed-Use Districts allow a mix of commercial, office, and multifamily development around major roads. These districts provide jobs, housing, and services for the community, and are generally auto-oriented and land-intensive in character. Multifamily and office uses are allowed to provide economic diversity and housing opportunities.

Compatibility with Thun Field

The Thun Field Airport Area of Influence (AOI) overlays portions of the Meridian Avenue Corridor. The AOI has associated regulatory controls that limit height and the density of persons occupying buildings. The limitation would continue in place even with the rezones and updates. The limitation

of the AOI would limit the potential density and height increases proposed under Centers and Corridors in the South Hill area along Meridian Avenue.

3.1.2 Impacts

Impacts Common to All Action Alternatives

All action alternatives include property- or neighborhood-specific land use designation changes, mainly through expanding existing zones and typically allowing more residential development capacity or commercial uses.

Under all alternatives, the four Community Plan areas will likely continue to experience housing, employment, and population growth over the long-term, similar to historical trends. The primary differences between the alternatives lie in the distribution and intensity of growth across the study area, with varying land use patterns resulting from development regulations, application of community plan policies, and decisions made by individual property owners and developers.

Alternatives 1 and 2 would generally focus the majority of future growth into compact areas around major transportation corridors, which are characterized by improved access to services and potentially redevelopable parcels. The precise mix of uses and locations of development would vary by Alternative. The change in growth expected under Alternative 1 and Alternative 2 would emphasize density and a highly diverse mix of land uses in close proximity to major road corridors.

Most other portions of the community plan areas would continue to be comprised of low-density, predominately single-family residential uses. Though Alternatives 1, 2, and 3 would make a variety of small changes to the permitted density and use of various properties across the community plan areas.

The proposed changes to land use designations and zones are expected to result in additional housing and capacity for residential development in the long-term due to increasing the types of permitted residential uses and densities on a significant amount of land. Short-term development would likely occur on vacant or underutilized lands. Depending on the extent of residential development and resulting supply, housing costs may be affected by the proposed alternatives.

All action alternatives, especially Alternatives 1 and 2, increase the capacity for development of a variety of uses and are expected to result in more infill and redevelopment.

To that end, future redevelopment under the alternatives would potentially result in the demolition of existing structures.

Alternative 1

The finer-grained focus of land use designations and zones proposed in Alternative 1, as detailed in the Alternatives Chapter, would create a greater level of certainty about future land use patterns and built forms compared to those proposed in Alternative 2. The new zones—TCTR, UCOR, NCOR, ECOR, and NMU—are tailored to the context of where they are located: TCTR zones focus high-density commercial and residential activity around major intersections, UCOR zones allow for more land-intensive and auto-oriented uses along transportation corridors, NCOR and NMU zones provide for a smaller scale mix of commercial and mid-density residential uses near single-family areas, and ECOR zones set the stage for more intensive commercial and light-industrial activity in areas that are already developing in that manner.

The high mix of uses, increased residential densities, and greater height limits proposed in Alternative 1 would increase the intensity of residential and commercial growth in the new zones.

The intensity of job growth associated with industrial, office, and other employment uses would also be concentrated in the ECOR zone. These zones aim to create several high-density urban cores for each community and neighborhood, with more auto-oriented mixed-use areas along existing transportation corridors. Notably, all other zones allow some level of commercial, office, and light industrial uses. The proposed Centers and Corridors zones generally consolidate commercial and mixed-use zones that already exist. So, while commercial development may intensify in the Centers and Corridors area, overall future commercial and job growth across the community plan areas is not expected to markedly change compared to that which would occur under current zoning.

Alternative 1 is expected to increase the mix of uses and scale of uses in Centers and Corridors zones, which may lead to land use compatibility impacts. If future developments take advantage of allowed building scales, densities, and uses, there may be abrupt transitions as larger buildings infill around smaller buildings. Due to uncertainty about future development patterns and market conditions, it is unclear whether such abrupt transitions would continue to exist for a long period. The mix of uses in each proposed land use designation are designed to be compatible with and support other neighboring uses. For example, multifamily apartments would be permitted next to eating and drinking establishments or similar retail commercial uses.

Such growth and intensity of development near areas of existing low-density single-family neighborhoods may result in conflicts between land uses. However, Alternative 1 includes NCOR zones in some areas as a transitional zone between single-family zones and the more intense TCTR and UCOR zones on major roads. The NCOR zone is intended to serve and be compatible with neighboring single-family neighborhoods, and so permits low- and moderate-density residential development but limits many other uses.

Development under Alternative 1 is expected to occur incrementally over time, which would help prevent sudden major changes to the mix and scale of land uses.

Alternative 2

Alternative 2 is similar to Alternative 1 in that it would increase residential densities and the intensity of residential and commercial growth in the new zones. This Alternative differs from Alternative 1 by allowing more uses in larger areas through the broad application of the UCOR zone.

Alternative 2 is expected to increase the mix of uses and scale of uses in Centers and Corridors zones, which may lead to land use compatibility impacts—especially in those areas with low-density single-family homes. If future developments take advantage of allowed building scales, densities, and uses, there may be abrupt transitions as larger buildings infill around smaller buildings. Due to uncertainty about future development patterns and market conditions, it is unclear whether such abrupt transitions would continue to exist. However, redevelopment has historically occurred incrementally over time, so sudden major changes in the mix and scale of land uses are not expected.

Further, the mix of uses in each proposed land use designation are designed to be compatible and support other neighboring uses. For example, multifamily apartments would be permitted next to eating and drinking establishments or similar retail commercial uses.

Therefore, no long-term significant impacts are expected.

Alternative 3

Alternative 3 would result in the fewest land use changes—the most significant of which would occur along Portland Avenue involving a wide swath of properties being rezoned to Mixed Use District, Neighborhood Mixed Use, and High-Density Single-Family zones. While such rezones are expected to moderately increase the development and growth potential of land (such as allowing denser single-family neighborhoods), the impact on housing, employment, and commercial growth overall is not expected to outpace that which would occur under today's conditions.

Therefore, no significant adverse impacts related to land use are anticipated from Alternative 3.

Alternative 4

Alternative 4 would continue the strategy of the currently-adopted community plans and is expected to direct the greatest amount of expected housing and job growth to areas outside major transportation corridors—meaning development and redevelopment is more likely to occur within existing low-density commercial and residential areas across the County's urban area. For example, housing development would likely occur at lower densities and consist of more single-family homes

or lower-density multifamily apartments in more places, than the probable higher-density but concentrated pattern of multifamily and mixed-use development supported by Alternatives 1 and 2.

As the No Action Alternative, Alternative 4 represents the least amount of difference from past growth patterns in its projected future growth compared to the other EIS alternatives. It represents a kind of “future baseline” condition where growth in the community plan areas would be distributed across the communities in similar proportions as seen historically.

This Alternative is expected to result in the least amount of incompatible mix of uses, as existing zoning would continue and a wide variety of uses already exist where they are currently permitted.

3.1.3 Mitigation Measures

As previously mentioned, some land use impacts are expected from the alternatives, especially Alternatives 1 and 2. The alternatives are expected to encourage redevelopment which, over time, may reduce housing costs through added housing supply and offer new opportunities for relocating displaced residents and businesses.

The Centers and Corridors proposal provides land use mitigation by increasing the efficient use of urban land, creating walkable compact communities, building on the existing land use pattern of more intensive land uses in the major corridors, reducing development pressure on rural lands and helping preserve single-family lower density areas.

Under all alternatives, both the proposed permitted uses, as well as existing County development standards for building design, character, and landscaping, are expected to mitigate potential compatibility impacts between existing land uses and new developments.

The added housing and employment capacity provided under the alternatives, in addition to what is currently permitted, would continue to accommodate future population and economic growth in the community plan areas. Further, by encouraging housing and employment growth in compact and central areas under Alternative 1 and Alternative 2, existing single-family neighborhoods located further from transportation corridors would be preserved and would reduce any future redevelopment pressure.

The height and density of occupancy limitations will continue to apply within the Thun Field AOI.

Aesthetics and Design

Development under Alternatives 1, 2, and 3 will be subject to an updated version of Title 18J Development Regulations – Design Standards and Guidelines. New design regulations would require developments to meet regulatory measures for a range of concerns. Title 18J includes requirements for landscaping, building orientation and design, and bicycle and pedestrian facilities. There will also be new standards for drive-throughs and parking garages. Additionally, under Alternative 1, new

regulations are proposed in Title 18B – Signs. New pole signs would not be allowed, and monument and building signs would have new square footage limits.

3.1.4 Significant Unavoidable Adverse Impacts

No significant unavoidable land use impacts are anticipated under any Alternative.

3.2 Plans and Policies

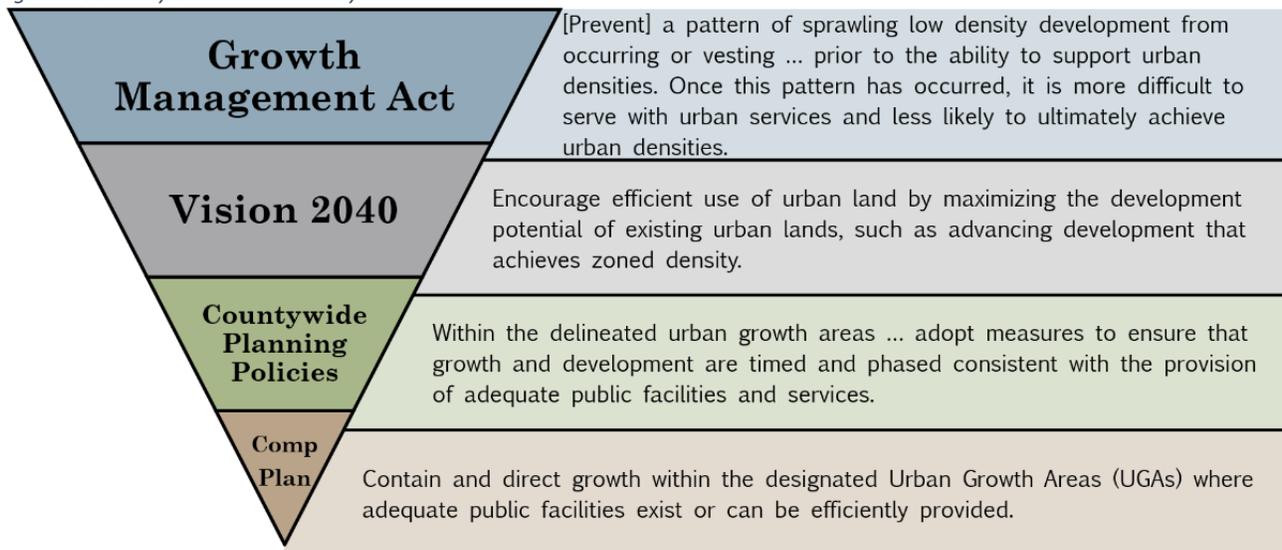
3.2.1 Affected Environment

Introduction

This section of the Draft EIS evaluates consistency of the Community Plan Updates—including the Centers and Corridors proposal—with applicable state, regional, and local policies and plans. This includes the GMA, Vision 2040 Multicounty Planning Policies (MPPs), Pierce County Countywide Planning Policies (CPPs), and the Pierce County Comprehensive Plan. Consistency with the four Community Plans is assumed, because the update includes changes proposed by local planning bodies, thereby making them consistent with themselves.

Figure 3-11 Policy Direction Summary shows how statewide, regional, and countywide policies interact with local policies found in the Comprehensive Plan.

Figure 3-11 Policy Direction Summary



The focus of the consistency analysis is on the Centers and Corridors policies and land use proposal. Existing community plans have been found to be consistent with the Comprehensive Plan. Other policy changes within the four Community Plans are consistent with the direction of promoting growth within UGAs and providing public facilities, per the GMA.

Regulatory Framework

Washington State Growth Management Act

The GMA was adopted in 1990 and was designed to reduce sprawling land development and conserve rural areas and resource lands through a framework of coordinated,

planned growth. The Act has 14 goals providing direction for the policies for coordinated growth. These goals set the framework to

- reduce sprawl,
- direct development and growth into urban areas,
- coordinate the extension of services and facilities concurrent with growth,
- and foster significant public involvement in the development of plans.

A 15th goal was recently added and promotes health and active communities. GMA requires each jurisdiction to plan under its provisions by developing a Comprehensive

Plan with policies and land use designations that reflect the jurisdiction’s direction for growth.

Growth Management Act Goals
<ul style="list-style-type: none"> • Urban Growth • Reduce Sprawl • Transportation • Housing • Economic Development • Property Rights • Permits • Natural Resource Industries • Open space and Recreation • Environment • Citizen Participation • Public Facilities and Service • Historic Preservation • Shoreline Management • Health and Active Communities

Vision 2040 Multicounty Planning Policies

VISION 2040 is the long-range growth management, environmental, economic, and transportation strategy for the central Puget Sound region adopted in April 2008 by the Puget Sound Regional Council (PSRC) General Assembly. Counties, including Pierce County, are partner jurisdictions in PSRC.

VISION 2040 calls for a more efficient, sustainable, and strategic use of the region’s land. It identifies urban lands as a critical component to accommodate population and employment growth in a sustainable way. VISION 2040 calls for directing development to the region’s existing urban lands, especially in centers and compact communities, and limiting growth on rural lands.

VISION 2040 recognizes that compact development creates vibrant, livable, and healthy urban communities that offer economic opportunities for all, provide housing and transportation choices, and use our resources wisely. The MPPs support

- the effective use of urban land and include provisions that address brownfield and contaminated site clean-up,
- the development of compact communities and centers as pedestrian-friendly, transit-oriented locations and a mix of residences, jobs, retail, and other amenities, and
- the siting of facilities and major public amenities in compact urban communities and centers.

VISION 2040 includes a set of MPPs that provide an integrated framework for addressing land use, economic development, transportation, public facilities, and environmental issues. MPPs are adopted by each county planning under GMA and establish a common regionwide framework that ensures consistency among county and city comprehensive plans.

VISION 2040 emphasizes the important role of centers and compact urban communities in accommodating future population and employment. VISION 2040 envisions a future where:

- The overall natural environment is restored, protected, and sustained.
- Population and employment growth are focused within the designated UGA.
- Within the UGA, growth is focused in cities.
- Within cities, centers serve as concentrations of jobs, housing, and other activities.
- A better balance of job locations and housing is achieved, facilitated, and supported by incentives and investments.
- Rural development is minimized.
- Resource lands are permanently protected, supporting the continued viability of resource-based industries, such as forestry and agriculture.
- Existing infrastructure and new investments are used more efficiently and effectively and are prioritized for areas that are planning for and accommodating growth.
- Meaningful steps are taken to reduce carbon emissions and minimize the region's contribution to climate change.

Recent work by PSRC continues to strengthen the use of Centers as the framework to accommodate regional growth.⁸

Policies

Urban Lands

Goal: The region will promote the efficient use of land, prevent urbanization of rural and resource lands, and provide for the efficient delivery of services within the designated urban growth area.

MPP-DP-1: Provide a regional framework for the designation and adjustment of the urban growth area to ensure long-term stability and sustainability of the urban growth area consistent with the regional vision.

MPP-DP-2: Encourage efficient use of urban land by maximizing the development potential of existing urban lands, such as advancing development that achieves zoned density.

Other Centers

⁸ See Centers Framework Update Project dated February 2017 and Regional Centers Framework Update dated March 22, 2018

Goal: Subregional centers, such as those designated through countywide processes or identified locally, will also play important roles in accommodating planned growth according to the regional vision. These centers will promote pedestrian connections and support transit-oriented uses.

MPP-DP-11: Support the development of centers within all jurisdictions, including town centers and activity nodes.

MPP-DP-12: Establish a common framework among the countywide processes for designating subregional centers to ensure compatibility within the region.

MPP-DP-13: Direct subregional funding, especially county-level and local funds, to centers designated through countywide processes, as well as to town centers, and other activity nodes.

Compact Urban Communities

MPP-DP-14: Preserve and enhance existing neighborhoods and create vibrant, sustainable compact urban communities that provide diverse choices in housing types, a high degree of connectivity in the street network to accommodate walking, bicycling and transit use, and sufficient public spaces.

Unincorporated Urban Growth Area

Goal: All unincorporated lands within the urban growth area will either annex into existing cities or incorporate as new cities.

MPP-DP-18 Affiliate all urban unincorporated lands appropriate for annexation with an adjacent city or identify those that may be feasible for incorporation. To fulfill the regional growth strategy, annexation is preferred over incorporation.

MPP-DP-19 Support joint planning between cities and counties to work cooperatively in planning for urban unincorporated areas to ensure an orderly transition to city governance, including efforts such as: (a) establishing urban development standards, (b) addressing service and infrastructure financing, and (c) transferring permitting authority.

MPP-DP-20 Support the provision and coordination of urban services to unincorporated urban areas by the adjacent city or, where appropriate, by the county as an interim approach.

Countywide Planning Policies

CPPs are policy documents that have both a procedural and a substantive effect on the comprehensive plans of cities and the County. The immediate purpose of the CPPs is to achieve consistency between and among the plans of cities and the County on regional matters. A long-term

purpose of the CPPs is to facilitate the transformation of local governance in UGAs so that cities become the primary providers of urban governmental services and counties become the providers of regional and rural services and the makers of regional policies.⁹ Another purpose is to facilitate urban growth at urban densities.

CPPs are intended to provide the guiding goals, objectives, policies, and strategies for local comprehensive plans, but are not to be a substitute for such plans. The level of detail in CPPs must be sufficient to provide specific guidance, yet not so detailed as to constrain appropriate local choice in future comprehensive planning. This is particularly important because CPPs apply to the County and all municipalities no matter the characteristics, whether large, small, near other cities, or far from other cities.

Centers

Centers are to be areas of concentrated employment and/or housing within UGAs which serve as the hubs of transit and transportation systems. Centers and connecting corridors are integral to creating compact urban development that conserves resources and creates additional transportation, housing, and shopping choices. Centers are an important part of the regional strategy (VISION 2040) for urban growth and are required to be addressed in the CPPs. Centers will become focal points for growth within the county's UGA and will be areas where public investment is directed.

Centers exist to

- be priority locations for accommodating growth;
- strengthen existing development patterns;
- promote housing opportunities close to employment;
- support development of an extensive multimodal transportation system which reduces dependency on automobiles;
- reduce congestion and improve air quality; and
- maximize the benefit of public investment in infrastructure and services.

Policies

UGA-15. Centers shall be designated based upon the following:

15.1 Consistency with specific criteria for centers adopted in the Countywide Planning Policies;

⁹ Poulsbo, 92-3-0009c, FDO, at 23. Snoqualmie, 92-3-0004c, FDO, at 9.

15.2 The center's location in the County and its potential for fostering a logical and desirable countywide transportation system and distribution of centers;

15.3 The total number of centers in the County that can be reasonably developed based on projected growth over the next twenty years;

15.4 Environmental analysis which shall include demonstration that urban services including an adequate supply of drinking water are available to serve projected growth within the center and that the jurisdiction is capable of ensuring concurrent urban services to new development;

15.5 If a jurisdiction designates a center, it must also adopt the center's designation and provisions in its comprehensive plans and development regulations to ensure that growth targeted to centers is achieved and urban services will be provided;

15.6 Centers shall be characterized by all of the following:

15.6.1 Clearly defined geographic boundaries;

15.6.2 Intensity/density of land uses sufficient to support high-capacity transit;

15.6.3 Pedestrian-oriented land uses and amenities;

15.6.4 Pedestrian connections shall be provided throughout;

15.6.5 Urban design standards which reflect the local community;

15.6.6 Provisions to reduce single-occupancy vehicle use especially during peak hours and commute times;

15.6.7 Provisions for bicycle use;

15.6.8 Sufficient public open spaces and recreational opportunities;

15.6.9 Uses which provide both daytime and nighttime activities; and

15.6.10 Centers shall be located in urban growth areas.

UGA-16. Each jurisdiction which designates a center within its comprehensive plan shall define the type of center and specify the exact geographic boundaries of the center. Centers shall not exceed one and one-half square miles of land and Countywide centers shall not exceed one square mile of land. Infrastructure and services shall be either present and available or planned and financed consistent with the expected rate of growth.

16.1 Infrastructure and services shall be either present and available or planned and financed consistent with the expected rate of growth.

16.2 Priority for transportation and infrastructure funds shall be given to designated centers.

Community and Urban Design

CU-1. The County, and each municipality in the County, will develop high quality, compact communities that

- 1.1 impart a sense of place;
- 1.2 preserve local character;
- 1.3 provide for mixed uses and choices in housing types; and
- 1.4 encourage walking, bicycling, and transit use.

CU-2. The County, and each municipality in the County, shall design public buildings and public spaces that contribute to the unique sense of community and a sense of place.

CU-3. The County, and each municipality in the County, shall design transportation projects and other infrastructure to achieve community development objectives and improve the community.

CU-4. Promote context-sensitive design of transportation facilities, both for facilities to fit in the context of the communities in which they are located, as well as applying urban design principles for projects in centers and transit station areas.

Urban Growth Areas

UGA-2.3 The County and each municipality in the County shall seek to direct growth as follows:

- a. first to cities and towns, centers and urbanized areas with existing infrastructure capacity;
- b. second to areas that are already urbanized such that infrastructure improvements can be easily extended; and
- c. last to areas requiring major infrastructure improvements.

UGA 2.4 The urban growth area in unincorporated portions of the County shall be limited to the following:

- 2.4.1 build-out of existing partially developed areas with urban services;
- 2.4.2 new fully contained communities;

2.4.3 redevelopment corridors.

UGA 2.6 Encourage efficient use of urban land by maximizing the development potential of existing urban lands, such as advancing development that achieves zoned density.

Rural Areas

Rur-2. Ensure that development in rural areas is consistent with the countywide and regional vision.

Rur-3. Prohibit urban net densities in rural areas.

Rur-4. Review and revise criteria and regulations to avoid new fully contained communities outside of the designated urban growth area because of their potential to create sprawl and undermine local, countywide, state, and regional growth management goals.

Rur-5. In the event that a proposal is made for creating a new fully contained community, the county shall make the proposal available to the Growth Management Coordinating Committee, Pierce County Regional Council, other counties, and to the Regional Council for advance review and comment on countywide and regional impacts.

Rur-6. Use existing and new tools and strategies to address vested development to ensure that future growth meets existing permitting and development standards and encourage consolidation where appropriate.

Rur-7. Ensure that development occurring in rural areas is rural in character and is focused into communities and activity areas.

Rur-8. Accommodate the county's growth first and foremost in the urban area. Ensure that development in rural areas is consistent with the rural vision.

Rur-9. Direct commercial, retail, and community services that serve rural residents into neighboring cities and existing activity areas to prevent the conversion of rural land into commercial uses.

Comprehensive Plan Policies

The Pierce County Comprehensive Plan is a policy document that guides County decisions related to growth and development in unincorporated Pierce County. The plan outlines existing conditions and a vision for the County's unincorporated areas. It contains goals and policies that are meant to direct growth and development in a way that will help the County achieve this vision. In the 2015 periodic update of the Pierce County Comprehensive Plan, the County adopted the policy framework for Centers and Corridors with an emphasis on Compact Communities tied to Centers/Central Places and Transit-Oriented Corridors.

Compact Urban Communities

The PSRC Vision 2040 policies and the Pierce County Countywide policies direct the development of compact urban communities that have a diversity of housing, high connectivity, and provide for multimodal transportation including pedestrian, bicycle, and transit. Many of the elements are found in Transit-Oriented Development. Transit-Oriented Development is a land use strategy intended to promote efficient use of land and transportation infrastructure with higher-density, pedestrian-friendly development with a mix of land uses located within an easy walk of a bus or rail transit center.

The central Pierce County UGA presents opportunities and alternative ways to provide for centers/compact communities, these include Centers/Central Places and Transit-Oriented Corridors:

- **Centers/Central Places:** Identification of existing developed areas comprised of significant intersections or existing commercial/employment development that would serve as a focus of a future center/compact community; and
- **Transit-Oriented Corridor Center:** A Transit-Oriented Corridor is located along major corridors where existing development patterns provide the functions of a center, but in a linear corridor. These Corridors may be enhanced with transit and increased connectivity between transit-oriented residential and commercial areas.

An example of a Central Place/Local Center is the Garfield/Pacific Lutheran University area. This area is designated an Activity Center and has an existing Transit Center. The specific focus of the area is Garfield Street South which is being redeveloped into a mixed-use commercial/residential center. This Central Place is identified in the Parkland-Spanaway-Midland Community Plan.

Centers/Central Places and Transit-Oriented Corridors

GOAL LU-10 Designate Centers/Central Places and Transit-Oriented Corridors within the UGA. These Centers/Central Places and Transit-Oriented Corridors shall be characterized by the following:

- LU-10.1** Clearly defined geographic boundaries;
- LU-10.2** Intensity/density of land uses sufficient to support high-capacity transit;
- LU-10.3** Pedestrian-oriented land uses and amenities;
- LU-10.4** Pedestrian connections shall be provided throughout;
- LU-10.5** Urban design standards which reflect the local community;
- LU-10.6** Provisions to reduce single-occupancy vehicle use especially during peak hours and commute times;
- LU-10.7** Provisions for bicycle use;
- LU-10.8** Sufficient public open spaces and recreational opportunities; and

-
- LU-10.9** Uses which provide both daytime and nighttime activities.
 - GOAL LU-11** Recognize and map Central Places/Local Centers and Transit-Oriented Corridors through the comprehensive plan and community planning process.
 - LU-11.1** The Garfield/Pacific Lutheran University area is designated as a Central Place/Local Center.
 - LU-11.2** Recognize other Local Centers designated through community plans.
 - LU-11.3** Evaluate Central Places/Local Centers for designation as Centers of Local Importance for regional planning purposes.
 - GOAL LU-12** The County will develop high quality, compact communities that:
 - LU-12.1** Impart a sense of place;
 - LU-12.2** Preserve local character;
 - LU-12.3** Provide for mixed uses and choices in housing types; and
 - LU-12.4** Encourage walking, bicycling, and transit use.
 - GOAL LU-13** The County shall design public buildings and public spaces that contribute to the unique sense of community and a sense of place.
 - GOAL LU-14** The County shall design transportation projects and other infrastructure to achieve community development objectives of connectivity, walkability, bikability and transit support.
 - LU-14.1** Promote context-sensitive design of transportation facilities, both for facilities to fit in the context of the communities in which they are located, as well as applying urban design principles for projects in centers and transit station areas.
 - GOAL LU-15** Use community design that enhances the streetscape including:
 - LU-15.1** Wide sidewalks;
 - LU-15.2** Buildings that are located in close proximity to the right of way;
 - LU-15.3** Street trees;
 - LU-15.4** Landscape strips;
 - LU-15.5** Pedestrian amenities;
 - LU-15.6** Allowance for vertical mixed-use development in selected places; and
 - LU-15.7** Transit amenities.
 - GOAL LU-16** Road designs in the centers and corridors must provide for all users including pedestrians, bicyclists and transit.
 - LU-16.1** Planning the design of the roads should focus on the particular need of that roadway to provide for the range of users.
 - GOAL LU-17** The Centers/Central Places and Transit-Oriented Corridors will be provided with transit amenities including bus stops, commuter parking and transit designated lanes.

GOAL LU-18 The County will coordinate with local transit providers to support high interval transit service that provides access to services within the entire Center/Central Place or Transit-Oriented Corridor and access to transit facilities that access regional centers of activity.

Infrastructure Funding Priority

The PSRC Vision 2040 policies and the Pierce County Countywide policies direct that transportation and economic development funds should be prioritized for Centers. The following types of improvements that promote compact urban communities and provide for multimodal transportation including pedestrian, bicycle, and transit:

- Amenities and community design elements that create a sense of place
- Wide sidewalks
- Street trees
- Landscape strips
- Pedestrian amenities, benches, etc.
- Allowance for vertical mixed-use development in selected places
- Transit amenities, bus stops, commuter parking, and transit designated lanes or corridors

GOAL LU-19 GOAL LU-19 Infrastructure funding to support the growth and development of locally designated Centers/Central Places.

- LU-19.1** The Capital Facilities Plan shall include a separate funding category that identifies infrastructure improvements and funding allocations for infrastructure improvements for Centers/Central Places and Transit-Oriented Corridors.
- LU-19.2** The County shall develop plans and policies for designated Centers/Central Places and Transit-Oriented Corridors that identify the objectives to be met by future improvements.
- LU-19.3** The County shall establish criteria for prioritizing improvements in Centers/Central Places and Transit-Oriented Corridors.
- LU-19.4** Infrastructure identified in the Capital Improvement Plans shall support the policies and objectives of the Centers/Central Places and Transit-Oriented Corridors.

Community Plan Policies

The four Community Plans have policy language that support the Centers and Corridors framework.

Frederickson

GOAL FR LU-6 Create a well-defined commercial and civic service area within the Employment Center that will meet the daily goods and service needs of the employees of the center and local residents.

GOAL FR LU-7 Provide well-designed, appropriately scaled retail and service development at limited locations in the community.

FR LU-8.4 Limited areas for high density single- and multifamily development should be designated near the intersections of 78th Avenue/176th Street East and 40th Avenue/176th Street East, reflecting proximity to major transportation routes and commercial centers.

GOAL FR T-4 Develop regulations that require new subdivisions to be designed in a manner that maximizes opportunities for connectivity.

Mid-County

GOAL MC LU-13 Encourage commercial centers, corridors, and districts to contain a diverse mix of uses.

MC LU-13.1 Recognize and support the Community Centers near SR 512 and Portland Avenue and SR 512 and Canyon Road as commercial and limited mixed use residential areas, whose growth must be nurtured in a motor vehicle-oriented market environment with a balance of pedestrian and transit facilities.

GOAL MC LU-16 Identify and utilize public and private sector incentives and methods in the establishment of uses and developments in areas where redevelopment and revitalization will improve service, visual attractiveness, and quality of life.

Parkland-Spanaway-Midland

GOAL PSM LU-1 Commercial centers shall be focused around key intersections in transportation corridors that serve one or more neighborhoods or communities and provide a people place as well as a commercial focus for businesses along the corridor.

PSM LU-2.2 The commercial centers along the Pacific Avenue/Mountain Highway corridor shall be comprised of a mixture of uses consistent with each center's role as a pedestrian-oriented gathering place for the Parkland and Spanaway communities and the broader central Pierce County area.

PSM LU-2.3 The commercial centers along the Portland Avenue corridor shall be comprised of a mixture of uses consistent with each center's role as a pedestrian-oriented gathering place for the Midland community.

GOAL PSM LU-6 Preserve and enhance the role of the Garfield Street and Spanaway Park neighborhoods as the civic centers of the community and focal points for the broader area for governmental, educational, recreational, and cultural activities and businesses which support these activities, each with its own distinct image and character.

PSM LU-6.1 A diversity of uses, including pedestrian-oriented commercial, civic, and mixed use residential uses, shall be encouraged. Allow moderate intensity, pedestrian-oriented commercial retail and service, entertainment, and office uses.

GOAL PSM LU-7 Promote the Garfield Street Activity Center as a compact, pedestrian-oriented, transit-friendly center.

GOAL PSM LU-8 Promote the Spanaway Park Activity Center as a pedestrian-oriented, transit-friendly center.

GOAL PSM LU-9 Develop economically strong Community Centers, each with a distinct image and character, of bold architectural form, that provide for a mixture of commercial, civic, and residential uses, along with access to transit and public amenities, which will meet the general high intensity, pedestrian-oriented, auto-friendly shopping and service needs of community residents and the surrounding communities and will partially satisfy community housing needs.

PSM LU-9.1 The Community Centers shall continue to be recognized as the business focal points of the community.

PSM LU-9.2 A diversity of uses, including moderate and high density residential uses in appropriate locations, should be encouraged to maintain a vibrant, active, and competitive center for the community.

GOAL PSM LU-10 Promote the 176th Street Community Center as a compact pedestrian-oriented, auto-friendly commercial center focused toward providing general household goods, specialty goods, banking, professional, and commercial services.

GOAL PSM LU-12 Provide needed products and services to neighborhood residents in a convenient, recognizable, compact, pedestrian-oriented location, while protecting existing and future residential neighborhoods from the disruptive effects of commercial intrusions.

PSM LU-13.3 MUDs are corridors in which buildings, parking, and plantings are prominent and uses are oriented to transit and automobiles.

PSM LU-25.1 Consider the following characteristics when applying the Moderate-High Density Residential (MHR) zone classification:

PSM LU-25.1.2 Locations that provide direct access to public transportation services, commercial personal service and retail establishments, and other community amenities;

PSM LU-27.1 Consider the following characteristics when applying the High Density Single-Family (HSF) zone classification:

PSM LU-27.1.1 Located on an arterial, within 1,500 feet of a transit route;

South Hill

SH LU-1.1 Uses should embrace a livable community of residential, commercial, and civic uses situated among trees and green space, supplemented by design features that lend to a greater sense of community, and connected by a fully linked system of roads and nonmotorized pathways.

GOAL SH LU-6 Utilize innovative techniques and strategies to achieve the desired land use patterns and supporting infrastructure.

SH LU-9.1 Ensure the incentive-based, flexible regulations contain the necessary requirements to allow for higher density development. Higher density development shall not occur when infrastructure is inadequate and amenities are absent.

GOAL SH LU-13 Create separate and distinct commercial centers along Meridian Avenue through zoning and design standards. Establish centers for specific purposes, designed in appropriate scale and intensity for the identified function and purpose.

SH LU-13.2 Reshape the existing commercial corridor along Meridian Avenue into separated commercial nodes distinguishable through activities, architecture, and site design and are based on the surrounding neighborhood and development potential.

SH LU-13.5.1 Arrange the diverse land uses in ways that encourage walking and discourage driving for short trips and errands.

GOAL SH LU-19 Designate a central place that is the focal point of commercial activity for the community.

3.2.2 Impacts

This section evaluates consistency of the Community Plan Updates and the Centers and Corridors proposal with the state, regional, countywide, and local planning policies.

Plans, Policies, and Codes

Growth Management Act

Table 3-9 Consistency with the Growth Management Act

GMA Policy Topic	Consistency Discussion
GMA Goals	All alternatives are consistent with GMA Goals. Alternatives 1 and 2 encourage orderly growth within urban areas and promote the more efficient use of urban lands and the prioritization of urban services and facilities within the Centers and Corridors. All alternatives preserve rural areas by maintaining the rural character of the Mid-County Community Plan’s Rural Separator. Alternatives 1, 2, and 3 will also have the broader effect of preserving the rural areas of the county by increasing the capacity of the central unincorporated UGA to accommodate and serve urban growth, forestalling the need to expand the UGA in the future.
Growth in Urban Areas/Reduce Sprawl	Alternatives 1, 2, and 3 will increase the capacity for urban growth in the central unincorporated urban area and build on existing investments in roads, sewer and other urban services consistent with GMA goals. Alternatives 1 and 2 will particularly promote the effective use of the UGA by focusing growth in Centers and Corridors building on the existing higher-intensity land use pattern. In these areas, Alternatives 3 and 4 are also consistent with GMA and promote development of commercial, industrial, and high-density residential within the UGA, however would not increase the use of the UGA over existing land use allowances.
Provide adequate facilities and services	The Community Plan Updates will focus development in areas already served by urban facilities and services. Policies prioritize the location of utilities and other infrastructure investment in the Centers and Corridors.
Ensure early and continuous public participation	The public participation program for the Community Plan Updates and the associated EIS has been consistent with RCW requirements for early and continuous public participation. The Community Plan Updates process included extensive public outreach during the review of policies and provided for public involvement at LUAC study sessions. The County has provided over 100 study sessions, along with open houses, online open houses, and surveys.
Healthy and Active Communities	The Centers and Corridors policies are consistent with the goal of providing healthy and active communities by promoting growth in compact communities. Centers will serve as compact communities that are connected by transit, as well as pedestrian and bike paths, to encourage physical activity and provide multimodal transportation opportunities.
Rural Areas	The Community Plan Updates maintains the rural status of the Rural Separator in the Mid-County Community Plan. The proposal to increase density and use existing urban land more efficiently will also preserve rural areas by reducing the pressure to expand the UGA.

Vision 2040 Multicounty Planning Policies.

Table 3-10 Consistency with the Multicounty Planning Policies summarizes consistency of the alternatives with the MPPs of Vision 2040, specifically the Development Pattern policies that encourage growth in urban areas, the designation of centers, and the creation of compact urban communities.

Table 3-10 Consistency with the Multicounty Planning Policies

Development Pattern Policy Topic	Consistency Discussion
Urban Lands Goal and Policies	All alternatives would support continued growth in the urban area consistent with Vision 2040 goals. The Community Plan Updates with the Centers and Corridors policies in Alternatives 1 and 2 would increase the potential for the efficient delivery of services, including utility and transit (Urban Lands Goal). They would promote development in centers consistent with the regional framework (MPP-DP-1). They would further maximize the development potential of existing urban lands (MPP DP-2). They would increase the capacity for urban growth in the central unincorporated UGA and build on the existing investment in roads, sewer, and other services consistent with GMA goals. Alternative 3 would provide some additional growth of single-family and multi-family housing in the urban area as a result of map change requests including the Portland Avenue rezones and MSF rezone (from RR and SF).
Other Centers Goal and Policies	Alternatives 1 and 2 would establish six Centers to focus growth in an urban form and promote densities that support availability of businesses and services, increased transit and mobility options, the efficient use of prioritized infrastructure investments, and the enhancement of pedestrian and bicycle access and connectivity. They would increase the opportunity for sub-regional funding opportunities through regional funding sources. Alternatives 3 and 4 do not create Centers, which is not consistent with policies to designate and steer growth to Centers; however, both would maintain the commercial areas and nodes created in the original community plans. Alternatives 3 and 4 would not increase funding opportunities.
Compact Urban Communities Policies	Alternatives 1 and 2 would maximize the preservation of existing neighborhoods by concentrating growth within Centers and Corridors and reduce the pressure for growth in single-family neighborhoods further from transportation corridors. Alternatives 1, 2, and 3 would have some impact on single-family areas, changing the designation of some areas from a less dense single-family designation to a higher-density single-family designation or include them in the Centers or Corridors designation. Alternatives 1 and 2 will provide an increase in the diversity of housing types and will encourage a high degree of connectivity to accommodate walking, bicycling, and transit use. Alternative 4 would maintain existing land use patterns

Development Pattern Policy Topic	Consistency Discussion
Unincorporated Urban Growth Area	Under Alternatives 1,2, and 3, the Communities of Frederickson and South Hill have proposed to be designated as Potential Incorporation Areas (PIAs). This policy change would be consistent with Multi-County Planning Policies that unincorporated UGA areas annex or incorporate.

Countywide Planning Policies

Table 3-11 Consistency with the Countywide Planning Policies

Policy Topic	Consistency Discussion
Centers/Non-Industrial Centers	While existing land use designations provide areas of more intense commercial and retail activity, and even have designations such as Activity Center and Commercial Center, the Centers identified in Alternatives 1 and 2 are more closely aligned with concepts in the CPPs. The proposed TCTR zone would be consistent with Policy UGA 15.6, which outlines the character of these Centers (i.e. densities to support high-capacity transit, pedestrian connections, and provisions for pedestrian and bicycle amenities and use). Alternatives 3 and 4 would be less consistent with the Countywide Planning Policies for Centers, as no centers would be created.
Community and Urban Design	All four Community Plans have design standards to implement the design policies. As such, all four alternatives would be consistent with the Community and Urban Design Policies of the CPPs. The Community Plan Updates provides new design standards for the Centers and Corridors and provide the architectural and urban form guidelines for compact communities, consistent with the Community and Urban Design Policy CU-1.
Urban Growth Areas	All four alternatives would continue to direct growth to the UGA Alternatives 1 and 2 would direct growth to Centers and increase the efficient use of urban land, consistent with Policy UGA-2.6.
Rural Areas	All four alternatives maintain the existing rural area in the Mid-County Community Plan, prohibit increased density in the rural area, and maintain rural character. Alternatives 1 and 2 will further preserve rural areas by accommodating more growth in the Centers and Corridors and preventing the premature need to expand the UGA.

Pierce County Comprehensive Plan

Table 3-12 Consistency with the Pierce County Comprehensive Plan

Policy Topic	Consistency Discussion
Urban Growth Areas	All four alternatives will continue to focus growth in the UGA. Alternatives 1, 2, and 3 will increase the growth accommodated within the UGA, consistent with policies to maximize the use of urban areas and minimize the need to expand into rural areas.
Central Places and Transit-Oriented Corridors	Alternatives 1 and 2 would be consistent with adopted Comprehensive Plan Policies to designate Centers/Central Places and Transit-Oriented Corridors (Goals and Policies LU-10 and LU-11, et al.). Alternatives 3 and 4 would be inconsistent with MPPs, CPPs, and Pierce County Comprehensive Plan policies to locate growth in Centers, as well as the specific direction by the Comprehensive Plan to designate Centers and Corridors as part of a community plan process. Areas proposed to be designated as TCTR, NCOR, UCOR, and ECOR would be consistent with the central places and transit-oriented corridors policies of the Comprehensive Plan and respective community plans. The Centers and Corridors policies in Alternatives 1 and 2 would be consistent with community plan policies that established the preliminary framework for the Centers and Corridors proposal.
Rural Areas	All alternatives would maintain and promote the rural residential land uses and rural character of the Mid-County Community Plan (see Policies LU-63.3, LU-63.3.1, and LU-63.3.2).
Moderate-Density Single-Family	Alternatives 1, 2, and 3 would amend the zoning of several areas zoned RR to MSF. This would be consistent with policies to allow for a range of housing types and densities in the MSF land use designation; however, would be inconsistent with policies that indicate that RR is intended to provide for low-density single-family residential uses compatible with areas of environmental sensitivity. This would apply to areas that have high value environmental features with complex structure and functions (LU-31.4 and LU-31.4.1).
Map Change Requests and Amendments	Alternatives 1, 2, and 3 include map change requests from LUACs and property owners. Map change requests recommended for support by County staff are consistent with Comprehensive Plan and community plan policies. Map change requests that are inconsistent are not supported by County staff. (See specific map changes in Section 2.2.3 Requested Rezones Component)
Community Plan Policy Changes	Alternatives 1, 2, and 3 include community plan policy changes recommended by the LUACs which would become part of the Comprehensive Plan and would be consistent.

3.2.3 Mitigation Measures

Designation of Centers

Alternatives 1 and 2 would be more consistent with regional, countywide and Comprehensive Plan policies to direct growth to centers, particularly the County’s Comprehensive Plan policy to designate

Centers/Central Places and Transit-Oriented Corridors. Alternatives 3 and 4 would be inconsistent with this policy direction.

Residential Resource Zone

The map change request to rezone lands within the community plan updates area from Residential Resource to Moderate-Density Single-Family would require additional policy changes to the Comprehensive Plan. The adoption of Title 18E, the Critical Areas Ordinance, is an existing regulation that provides protection, preservation, and compatibility with areas of environmental sensitivity.

3.2.4 Significant Unavoidable Adverse Impacts

There are no significant adverse impacts resulting from any inconsistency with adopted state, regional, countywide, County Comprehensive Plan, or community plans policies.

3.3 Transportation

This section presents a multimodal transportation analysis prepared to evaluate the potential impacts of implementing the range of land use alternatives under consideration. Alternative 1 revises land use controls to allow dense, walkable, and transit-supportive development patterns along major existing transportation corridors. In addition to land use, the Community Plan Updates proposes a set of transportation system improvements intended to guide the future transportation system in the area through better connectivity, improved alternative transportation facilities, and increased capacity for growth. These transportation system improvements proposed by the community, and which are discussed in each community plan, have been incorporated into the transportation analysis.

This section summarizes current and future transportation conditions in the four Community Plan areas. The impact analysis compares the effects of four alternatives, including one No Action Alternative representing a continuation of the County's existing land use regulations, and three action alternatives reflecting variations in how the County may manage the distribution of future growth over the next 20 years. Transportation impacts and mitigation measures are identified.

3.3.1 Affected Environment

Existing Conditions

Roads

The street system in the study area is generally characterized by a widely-spaced grid of infrequent through roads with many short, disconnected local roads. Roads in the study area can serve two purposes: (1) moving people and goods from one location to another (mobility) and (2) providing access to land and buildings. The roads support a wide variety of travel modes, including automobiles, bicycles, pedestrians, transit, and freight vehicles.

In the study area, the network of arterial roadways supports most travel trips. North-south travel utilizes Spanaway Loop Road South, Pacific Avenue South (SR-7), Portland Avenue East, Waller Road East, Canyon Road East and Pioneer Way East, Woodland Avenue East, 94th Avenue East, Meridian Avenue East (SR-161), and 122nd Avenue East. East-west travel occurs on 176th Street East, Military Road East to 152nd and 160th Street East, 128th Street East, 112th Street East, SR-512, and 72nd Street East.

Pierce County owns and operates most of the area's roads. However, short private roads in commercial and residential developments are common. Additionally, the Washington State Department of Transportation (WSDOT) has authority over Pacific Avenue South/Mountain Highway (SR-7), Meridian Avenue East (SR-161), and SR-512.

Traffic and Parking

Between 2010 and 2018, population in the study area increased from 172,934 to 195,249. With the growing population and improving economy increasing the number of vehicle trips, traffic congestion increases in the study area.

Notably, besides the Frederickson Regional Manufacturing Industrial Center, the study area lacks office employment centers and major commercial destinations, so residents have little choice but to travel by personal vehicle and contribute to traffic congestion. Few alternative travel routes are available due to the disconnected road network, which concentrates traffic on few roads, as shown in Figure 3-12 Existing Street Network.

Vehicle parking in the community plan areas occurs primarily in off-street parking facilities. On-street parking is relatively rare and often illegal or infeasible. Commercial parking lots are numerous and frequently below capacity.

Figure 3-13 Existing Traffic Volumes on Major Roads

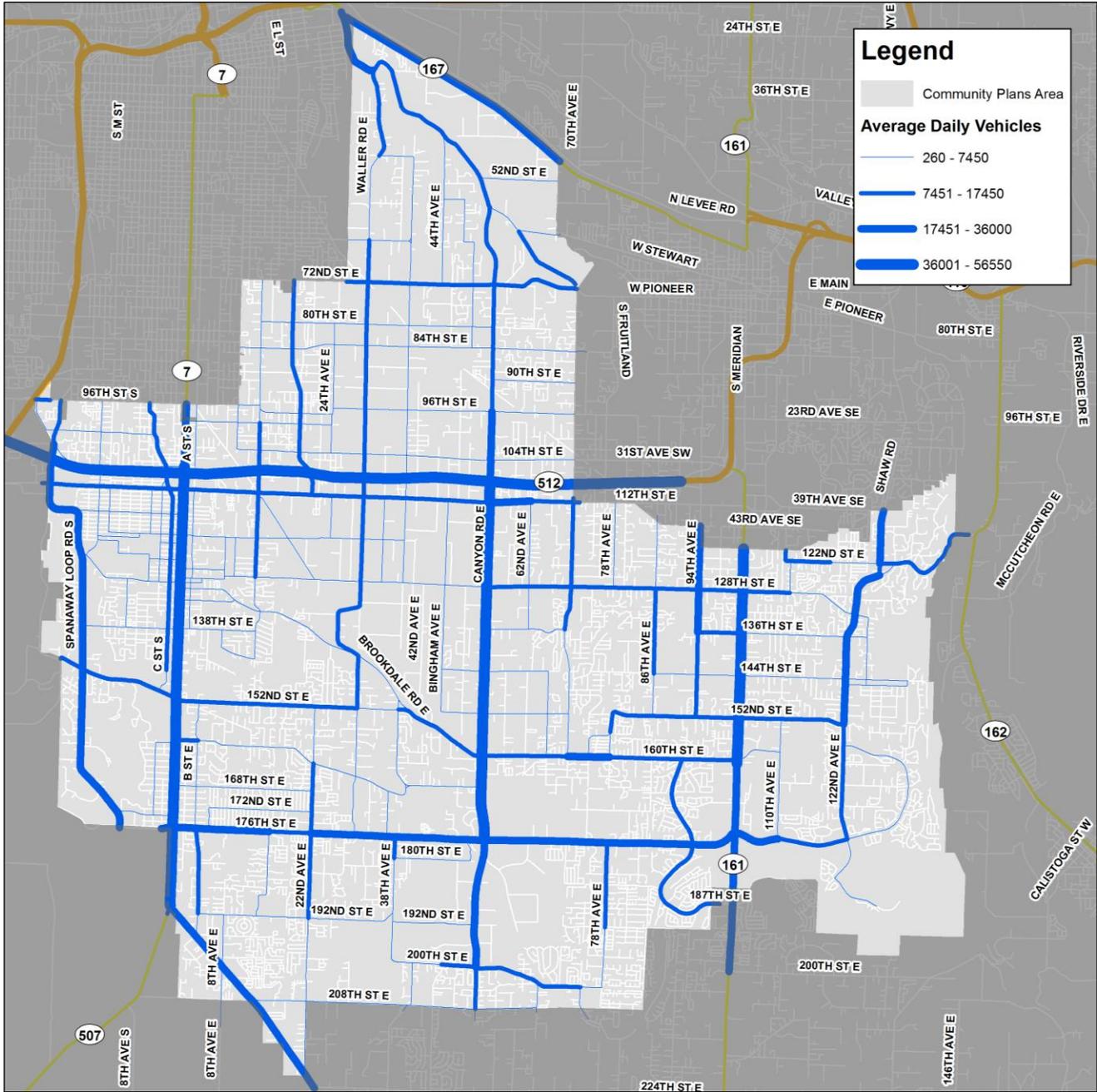
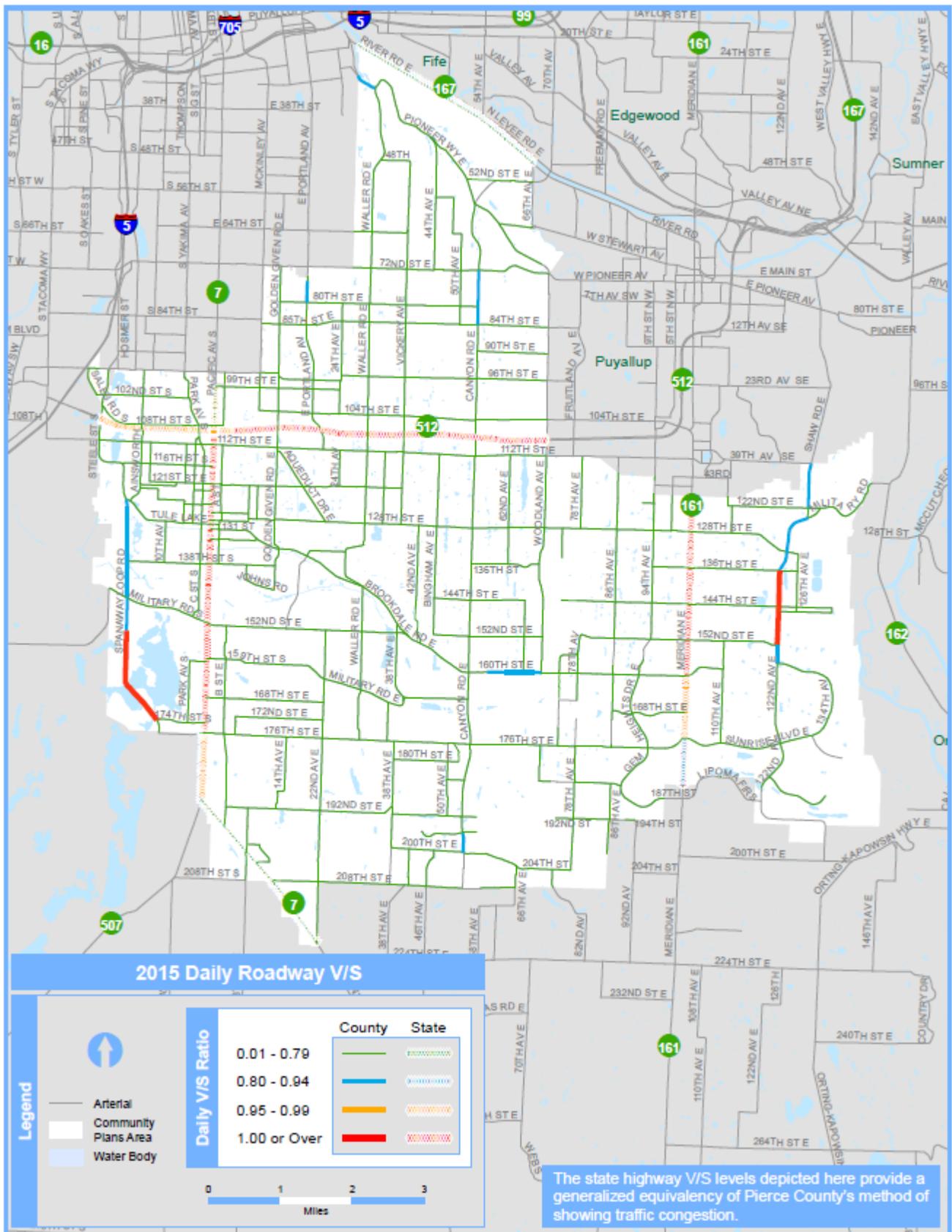


Figure 3-14 Existing (2015) Roadway Traffic Congestion (V/S)



Transit

Public transit service in the community plan areas is provided by Pierce Transit, either as a typical fixed-route bus or door-to-door paratransit.

Table 3-13 Existing Transit Routes in Community Plan Areas

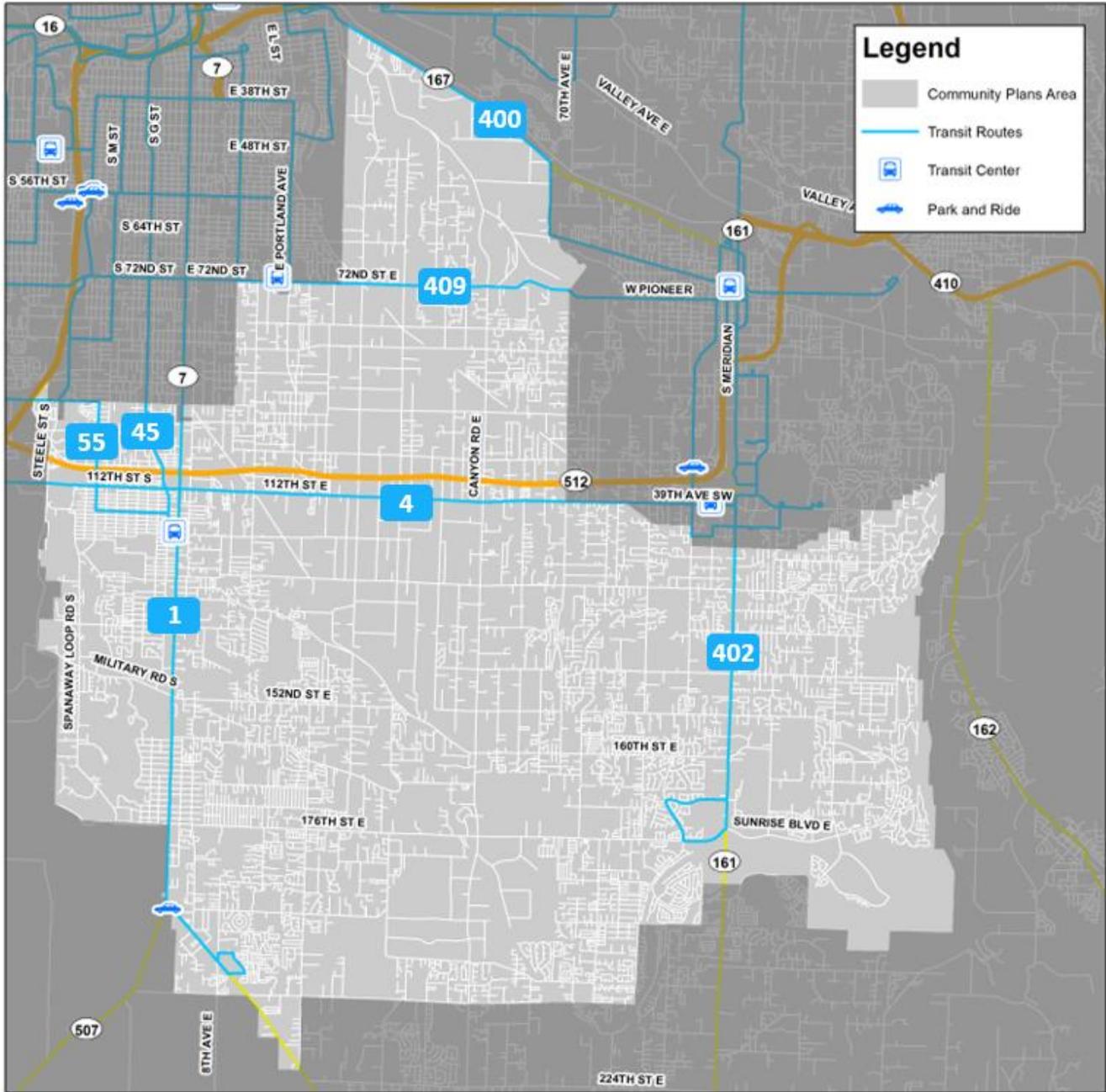
Route	Weekday Boardings	Community Plan Area(s) Served
1, 6th Ave-Pacific Ave	5,349	Parkland-Spanaway-Midland
4, Lakewood-South Hill	1,331	Parkland-Spanaway-Midland Mid-County South Hill
45, Yakima	675	Parkland-Spanaway-Midland
55, Tacoma Mall	730	Parkland-Spanaway-Midland
400, Puyallup-Tacoma	531	Mid-County
402, Meridian	1,077	South Hill
409, Puyallup-S 72nd St	149	Parkland-Spanaway-Midland Mid-County

Several transit facilities are located in the community plan areas. These provide centralized, convenient transfer centers for different travel modes and transit routes. The Parkland Transit Center at the intersection of 121st Street East and Pacific Avenue South (SR-7) includes a park-and-ride lot and serves Pierce Transit *Route 1-6th Ave-Pacific Ave*, *Route 45-Yakima*, and *Route 55-Parkland-Tacoma Mall*. The Roy Y Park-and-Ride is served by Pierce Transit *Route 1-6th Ave-Pacific Ave*.

Just inside Puyallup city limits, the South Hill Mall Transit Center, on 39th Avenue Southwest, is served by Pierce Transit *Route 4-Lakewood-South Hill*, *Route 400-Puyallup Downtown Tacoma*, *Route 402-Meridian*, and *Route 425-Puyallup Connector*. The South Hill Park-and-Ride connects Pierce Transit *Route 400-Puyallup Downtown Tacoma* and Sound Transit *Express Route 580*, a route that travels on SR-512 from the Lakewood Sounder Station to the Puyallup Sounder Station.

Public transit to regional destinations is provided by Sound Transit (ST), though stations must be accessed by other means, as none are located within the study area. At the Puyallup Sounder Station, *ST Express Route 578* travels to downtown Seattle. Only peak period transit service is provided on weekdays, but transitions to hourly service on the weekends. The Lakewood-Seattle Sounder Train can be accessed from multiple stations near the study area. It provides weekday, commute-only service to Lakewood, South Tacoma, Tacoma, Sumner, Auburn, Kent, Tukwila, and Seattle. Both regional and statewide destinations can be accessed via transit from the Tacoma Dome Station in downtown Tacoma. Multiple transit routes serve this station and a public parking garage is available for those arriving by automobile.

Figure 3-15 Existing Transit Routes



Active Transportation

The active transportation network in the community plan areas consists of roadways, sidewalks, pathways, bicycle lanes, and road shoulders. These are used for travel by bicyclists, skateboarders, pedestrians, and other active modes.

Few dedicated bicycle facilities exist in the study area, with most cycling occurring on the roadway, sidewalk, or shoulder. Marked bicycle lanes are located on Pacific Avenue South from 112th Street East to the SR-507 Junction and on Canyon Road East from 112th Street East to 152nd Street East. An

approximately one-mile off-street bike path, the Nathan Chapman Memorial Trail, travels from South Hill Community Park to Heritage Recreation Center.

Within residential and commercial properties, pedestrian travel generally occurs on sidewalks, paved pathways, or low-speed streets. On public roadways, people may travel on sidewalks, shoulders, or informal roadside paths. In comparison to the number of intersections where pedestrians are allowed to legally cross, little infrastructure exists (like marked crosswalks, traffic signals, pedestrian signals, or pedestrian flashing beacons) to accommodate those crossings. In addition, minimal sidewalk infrastructure exists in relation to the extent of the county’s urban roadway network. However, the sidewalk network in the community plan areas continues to be built out by both private parties and Pierce County.

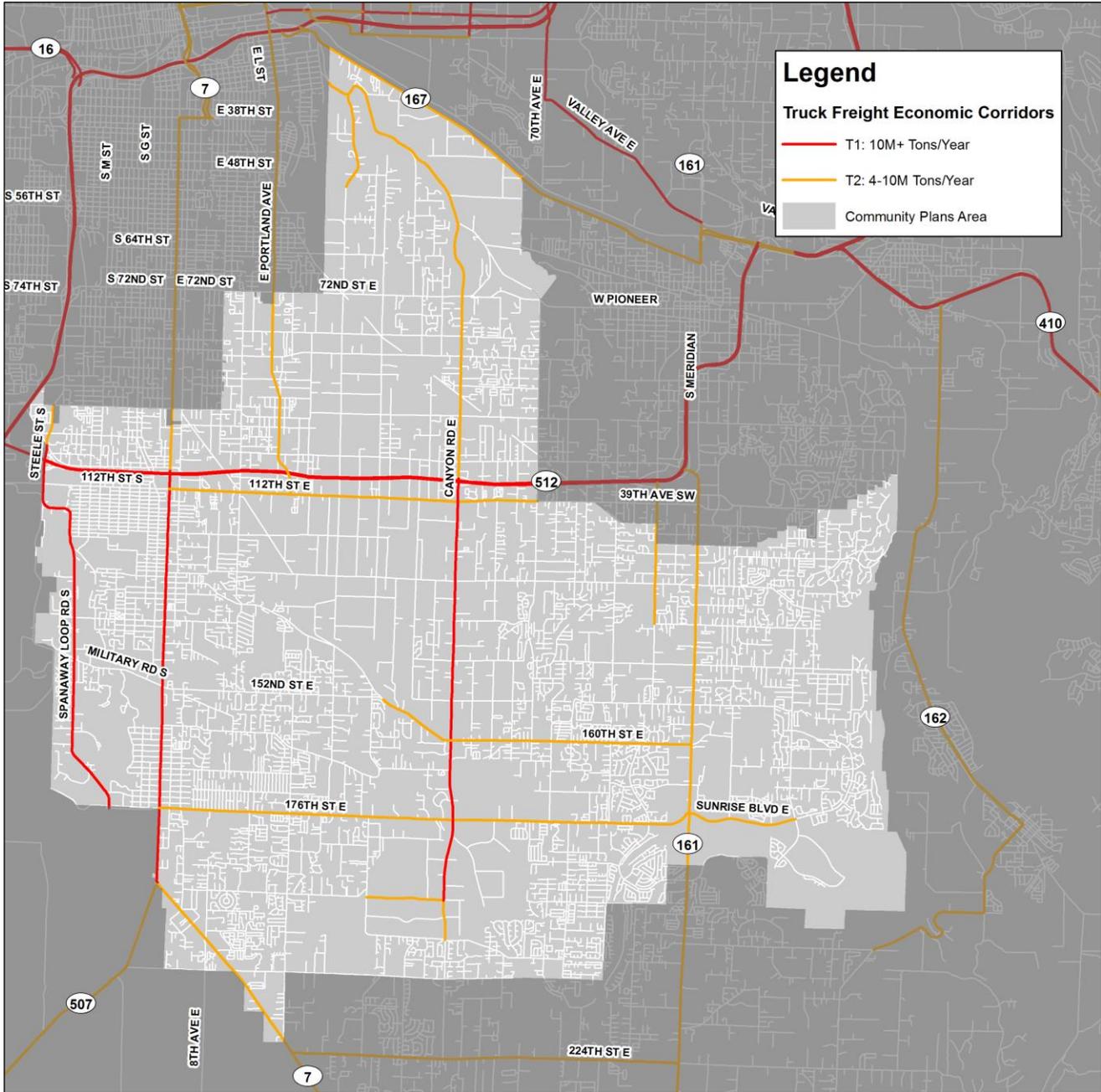
Due to the disconnected road network and dispersed land use pattern in the community plan areas, travel by foot or bike must occur over relatively long distances and frequently along multilane arterial roads. On roads in the community plan areas, six bicyclists were seriously injured and two were killed in traffic collisions between 2013 and 2018. In that same period, traffic collisions resulted in 11 pedestrian deaths and 29 pedestrians with serious injuries.¹²

Freight

The movement of goods in and through the study area primarily occurs by road. WSDOT defines significant Truck Freight Economic Corridors by tonnage per year. T1 Freight Corridors are roads that carry over 10 million tons of freight per year in the community plan areas. Such roads include Spanaway Loop Road South, Steele Street South, Canyon Road East, SR-512, and Pacific Avenue South (SR-7). Corridors that carry between four and 10 million freight tons per year—designated as T2 Freight Corridors—include 112th Street East, Brookdale Road East, 160th Street East, 176th Street East, Sunrise Boulevard East, Meridian Avenue East (SR-161), 94th Avenue East, 9th Street Southwest, and 192nd Street East.

¹² Source: Washington State Crash Data Portal
<https://remoteapps.wsdot.wa.gov/highwaysafety/collision/data/portal/public>

Figure 3-16 Existing Truck Freight Corridors



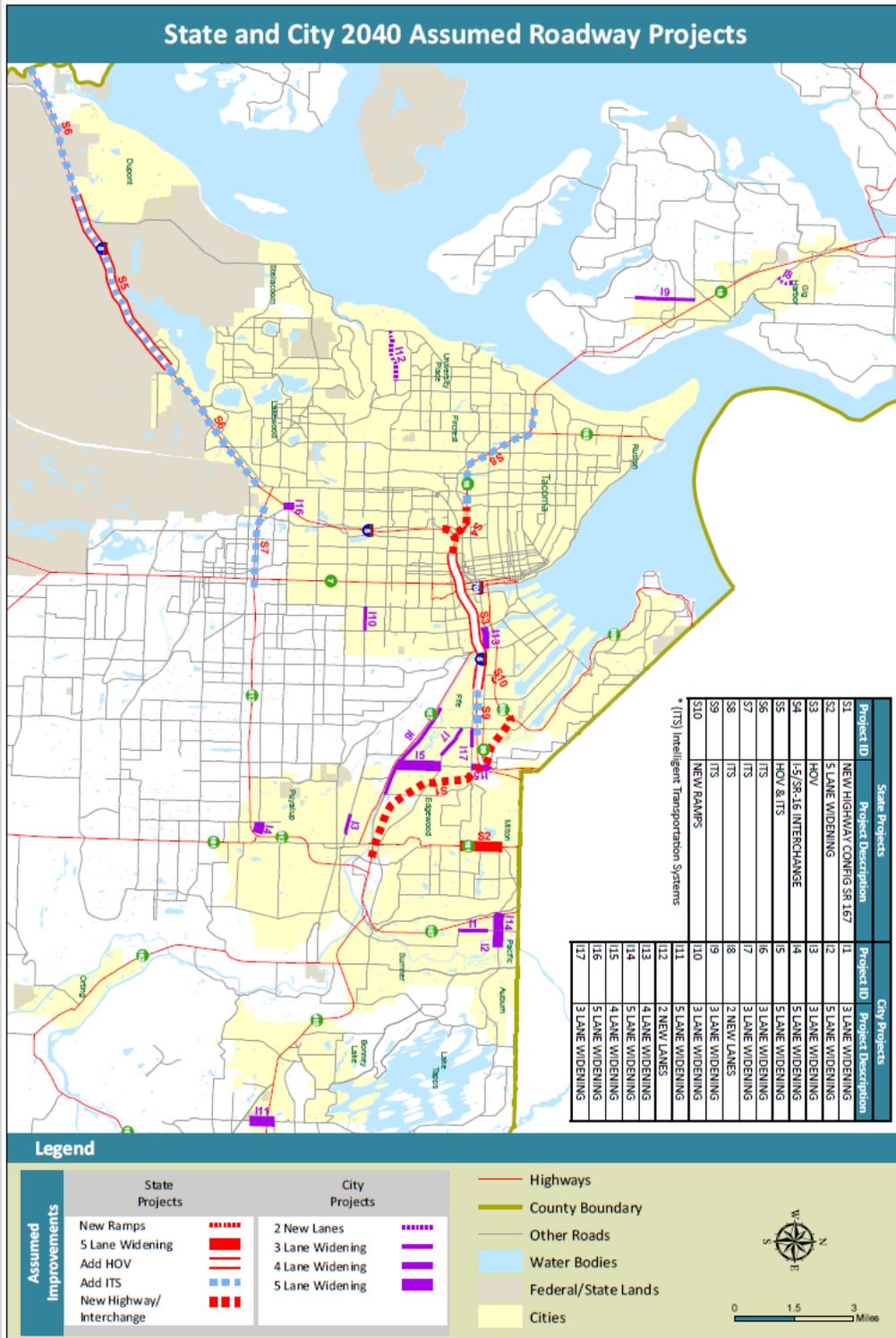
Planned Transportation Projects

Major future transportation projects in the community plan areas include roadway extensions and widenings, expanded public transit service, sidewalk construction, and accessibility improvements. The PSRC 2018 Regional Transportation Plan¹³ contains a list of planning transportation capacity improvements for all modes. Those projects that are in or near the study area are provided below.

¹³ <https://www.psrc.org/sites/default/files/rtp-appendixg-regionalcapacityprojectlist.pdf>

Furthermore, each community plan proposes a set of transportation projects which—while currently unfunded—have been included in the traffic analysis as reasonably foreseeable in the next 20 years; a full list of these projects may be found in the transportation section of each respective community plan. Finally, potential future transit projects proposed by ST and Pierce Transit are provided in Table 3-16 Future (2040) Transit Projects.

Figure 3-17 Future (2040) State and City Roadway Projects



Source: Pierce County Planning & Public Works

Figure 3-18 Future (2040) Roadway Projects Funded by Traffic Impact Fees

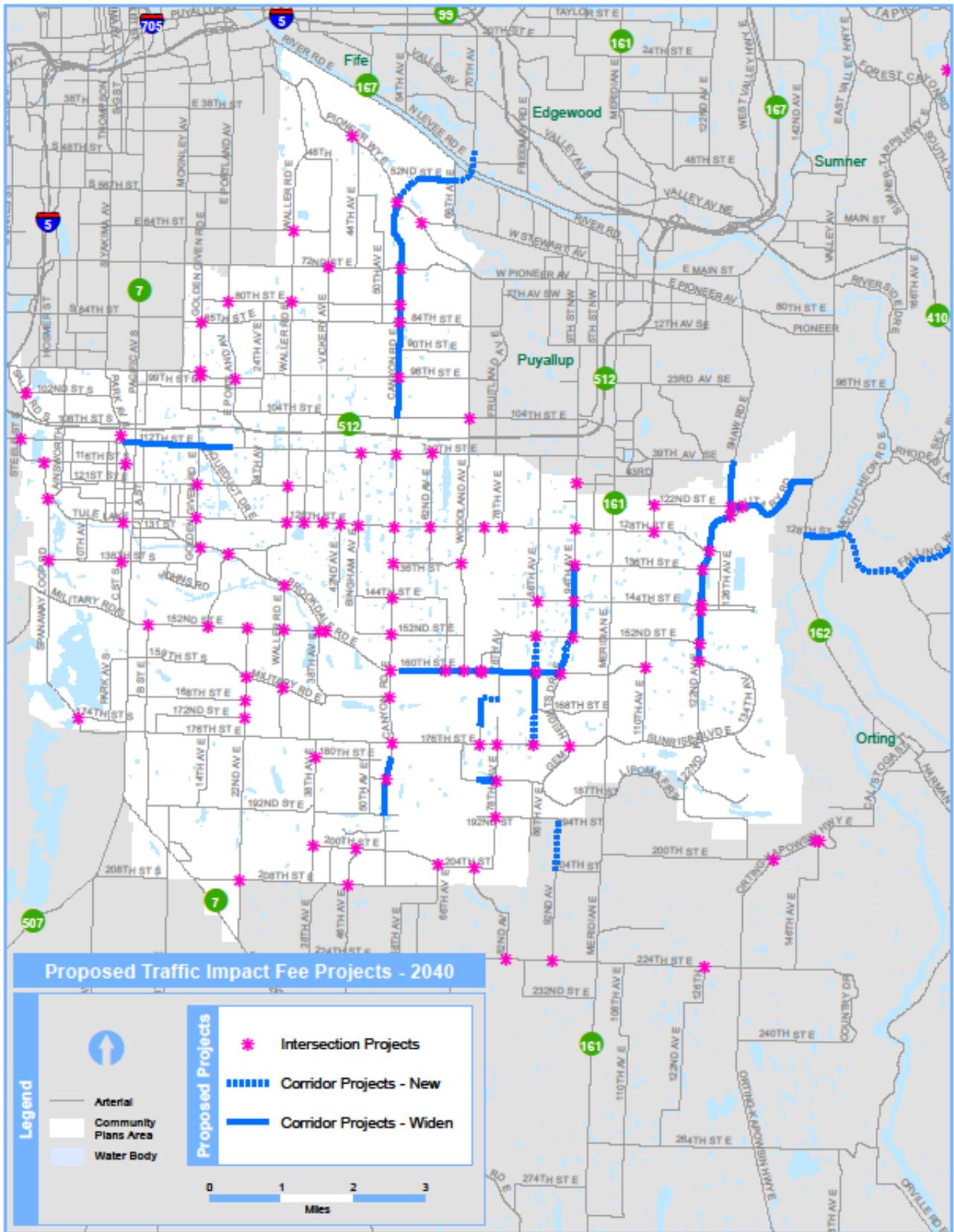


Table 3-14 Future (2040) Roadway Projects Funded by Traffic Impact Fee

ID	Road Name	Limits	Length in Mile	Proposed Improvement
C - 1	94 AV E	136 ST E TO 152 ST E	1.01	WIDEN TO 4/5 LANES
C - 2	94 AV EXT	152 ST E TO 160 ST E	0.55	NEW/WIDEN TO 3 LANES
C - 3	122 AV E / SHAW RD E	39 AV SE TO SUNRISE PKWY E	2.97	ADD 1 SB LANE
C - 4	160 ST E	EAST OF CANYON RD E TO GEM HEIGHTS DR E	2.24	NEW CHANNALIZATIONS
C - 5	MILITARY RD E	SHAW RD E TO SR-162	1.43	WIDEN TO 3/4 LANES
		Sub Total	8.20	
CC - 1	86 AV E	176 ST E TO 152 ST E	1.52	NEW 2 LANES
CC - 2	92 AV E	204 ST E TO 192 ST E	0.73	NEW 2 LANES
CC - 3	184 ST E	73 AV CT E TO 78 AV E	0.27	NEW 2 LANES
CC - 4	74 AV E/166 ST E	74 AV E TO 78 AV E	0.63	NEW 2 LANES
CC - 5	112 ST S / 112 ST E	C ST S TO 18 AV E	1.52	WIDEN TO 5 LANES
		Sub Total	4.67	
D - 1	128 ST E	SR-162 TO MCCUTCHEON RD E	0.52	WIDEN TO 5 LANES
D - 2	NEW RHODES LAKE RD	MCCUTCHEON RD E TO FALLING WATER BLVD E	1.22	NEW 5 LANES
D - 3	FALLING WATER BLVD E	TEHALEH BLVD E TO 181 AV E	1.20	NEW 3 LANES
		Sub Total	2.94	
M - 1	CANYON RD E NORTH EXT	52 ST E/62 AV E TO 48 ST E/70 AV E	0.81	NEW/WIDEN TO 4 LANES
M - 2	CANYON RD E NORTH EXT	PIONEER WY E TO 52 ST E/62 AV E	0.46	NEW 4 LANES
M - 3	CANYON RD E NORTH EXT	72 ST E TO PIONEER WY E	0.96	WIDEN TO 5 LANES
M - 4	CANYON RD E NORTH EXT	84 ST E TO 72 ST E	0.75	WIDEN TO 5 LANES
M - 5	CANYON RD E NORTH EXT	99 ST CT E TO 84 ST E	1.04	WIDEN TO 5 LANES
M - 6	CANYON RD E NORTH EXT	104 ST E TO 99 ST CT E	0.29	WIDEN TO 5 LANES
M - 7	CANYON RD E	FRED. INDUSTRIAL PARK DR E TO 192 ST E	0.80	WIDEN TO 5 LANES
		Sub Total	5.11	
Total			20.92	

The projects provided in Table 3-14 Future (2040) Roadway Projects Funded by Traffic Impact Fee (TIF) and Table 3-15 Future (2040) County Intersection Projects will likely include additional improvements such as sidewalks, traffic signals, street lights, and other elements to the extent practicable.

Table 3-15 Future (2040) County Intersection Projects

Intersection Location	Improvement Description	Intersection Location	Improvement Description
22ND AV E / 172ND ST E	Add Left Turn(s)	C ST S / 138TH ST S	Add Traffic Control
120TH ST E / WALLER RD E	Add Left Turn(s)	C ST S / PARK AV S	Add Traffic Control
121ST ST E / GOLDEN GIVEN RD E	Add Left Turn(s)	C ST S / TULE LAKE RD S	Add Traffic Control
128TH ST E / 34TH AV E	Add Left Turn(s)	MILITARY RD E / WALLER RD E	Add Traffic Control
128TH ST E / 42ND AV E	Add Left Turn(s)	ORTING KAPOWSIN HWY E / 200TH ST E	Add Traffic Control
128TH ST E / 78TH AV E	Add Left Turn(s)	22ND AV E / 152ND ST E	Add Traffic Control & Left Turn(s)
152ND ST E / WALLER RD E*	Add Left Turn(s)	22ND AV E / 168TH ST E	Add Traffic Control & Left Turn(s)
134TH AV KN / KEY PENINSULA HWY N	Add Left Turn(s)	72ND ST E / VICKERY AV E	Add Traffic Control & Left Turn(s)
180TH ST E / 38TH AV E	Add Left Turn(s)	111TH AV E / 122ND ST E	Add Traffic Control & Left Turn(s)
210TH AV E / EDWARDS RD E	Add Left Turn(s)	111TH AV E / 128TH ST E	Add Traffic Control & Left Turn(s)
214TH AV E / CONNELLS PRAIRIE RD E	Add Left Turn(s)	128TH ST E / 62ND AV E	Add Traffic Control & Left Turn(s)
224TH ST E / 58TH AV E	Add Left Turn(s)	128TH ST E / GOLDEN GIVEN RD E	Add Traffic Control & Left Turn(s)
C ST S / 116TH ST S	Add Left Turn(s)	128TH ST E / VICKERY AV E	Add Traffic Control & Left Turn(s)
GOLDEN GIVEN RD E / 96TH ST E	Add Left Turn(s)	144TH ST E / 86TH AV E	Add Traffic Control & Left Turn(s)
GOLDEN GIVEN RD E / 97TH ST E	Add Left Turn(s)	152ND ST E / BROOKDALE RD E	Add Traffic Control & Left Turn(s)
KELLY LAKE RD E / SUMNER-BUCKLEY HWY E	Add Left Turn(s)	152ND ST E / CHESNEY RD EXT	Add Traffic Control & Left Turn(s)
ORTING KAPOWSIN HWY E / 150TH AV E	Add Left Turn(s)	190TH AV E / 9TH ST E	Add Traffic Control & Left Turn(s)
ORTING KAPOWSIN HWY E / 150TH AV E	Add Left Turn(s)	192ND ST E / 78TH AV E	Add Traffic Control & Left Turn(s)
PIONEER WY E / 44TH AV E	Add Left Turn(s)	200TH ST E / 38TH AV E	Add Traffic Control & Left Turn(s)
PORTLAND AV E / 97TH ST E	Add Left Turn(s)	204TH ST E / 66TH AV E	Add Traffic Control & Left Turn(s)
10TH ST E / 68TH AV E	Add Traffic Control	224TH ST E / 92ND AV E	Add Traffic Control & Left Turn(s)
94TH AV E / 118TH ST E	Add Traffic Control	BROOKDALE RD E / CHESNEY RD E	Add Traffic Control & Left Turn(s)
102ND ST S / STEELE ST S	Add Traffic Control	BROOKDALE RD E / WALLER RD E	Add Traffic Control & Left Turn(s)
104TH ST E / WOODLAND AV E	Add Traffic Control	DRIFTWOOD DR E / SUMNER-TAPPS HWY E	Add Traffic Control & Left Turn(s)
110TH AV E / 158TH ST E	Add Traffic Control	PIONEER WY E / STEWART AV E	Add Traffic Control & Left Turn(s)
112TH ST E / 62ND AV E	Add Traffic Control	PORTLAND AV E / 80TH ST E	Add Traffic Control & Left Turn(s)
112TH ST E / BINGHAM AV E	Add Traffic Control	112TH ST S / STEELE ST S	Signalized Improvement Needs
128TH ST E / 74TH AV E	Add Traffic Control	SPANAWAY LOOP RD S / 138TH ST S	Signalized Improvement Needs
128TH ST E / BINGHAM AV E	Add Traffic Control	CANYON RD E / 112TH ST E	Signalized Improvement Needs
144TH ST NW / 54TH AV NW	Add Traffic Control	CANYON RD E / 128TH ST E	Signalized Improvement Needs
152ND ST E / 38TH AV E	Add Traffic Control	CANYON RD E / 136TH ST E	Signalized Improvement Needs
152ND ST E / MILITARY RD E	Add Traffic Control	CANYON RD E / 160TH ST E	Signalized Improvement Needs
174TH ST S / SPANAWAY LOOP RD S	Add Traffic Control	CANYON RD E / 176TH ST E	Signalized Improvement Needs
200TH ST E / 46TH AV E	Add Traffic Control	CANYON RD E / MILITARY RD E	Signalized Improvement Needs
204TH ST E / EUSTIS HUNT RD E	Add Traffic Control		
208TH ST E / 46TH AV E	Add Traffic Control		
214TH AV E / 112TH ST E	Add Traffic Control		
BROOKDALE RD E / GOLDEN GIVEN RD E	Add Traffic Control		

Table 3-16 Future (2040) Transit Projects

Responsible Agency	Project Location	Mode Supported	Description
Pierce Transit	Pacific Avenue S (SR-7) (from downtown Tacoma to 204 th Street E)	Transit	Construct Bus Rapid Transit (BRT) to provide faster, more frequent transit service focused on passenger comfort, convenience, and accessibility. Install boarding platforms, some bus-only lanes, park-and-ride lots, connecting pedestrian and bicycle infrastructure
Pierce Transit	Meridian Ave E (SR-161) (from downtown Puyallup to 176 th Street E)	Transit	Feasibility study for High Capacity Transit
Pierce Transit	Mountain Hwy and 8th Ave E	Transit, Automobile	New 550-space park-and-ride
Pierce Transit	176th St E and Sunrise Blvd E	Transit, Automobile	New 350-space park-and-ride; Bicycle and pedestrian access improvements
Sound Transit	Puyallup Sounder Station	Transit, Automobile	Adding 669 parking spaces in new garage and lot; Pedestrian and bicycle access improvements
Sound Transit	Sounder Commuter Rail (in Pierce County)	Transit	Improvements to Sounder connection from the south, including access, capacity, and service (e.g. platform extensions, track/signal upgrades, fleet expansion)
Sound Transit	Tacoma Dome Station	Transit, Pedestrian, Bicycle, Automobile	Adding 300 parking spaces, pedestrian access improvements, bicycle route improvements, and bicycle storage
Sound Transit	Link Light Rail Extension to Tacoma Dome Station	Transit	Light rail extension connecting Pierce County with regional light rail network

Source: Puget Sound Regional Council 2018 Regional Transportation Plan

3.3.2 Impacts

This section analyzes impacts resulting from Alternative 1, Alternative 2, Alternative 3, and the No Action Alternative (Alternative 4).

Approach to Traffic Analysis

Because project-level information is not available, and this EIS is not intended to analyze concrete growth forecasts usually prepared in a project-level EIS, the detailed traffic analysis presented here is for informational purposes only. This analysis is based on one potential scenario of hypothetical future growth that may result from adoption of the proposed alternatives.

Each action alternative represents a potential growth option that could result in a certain level of added growth beyond what might occur under existing land use designations and development regulations. For residential uses, each of the action alternatives involves some level of increased residential densities and mix of residential uses.

The action alternatives would allow a greater mix of non-residential land uses, so some added commercial and employment growth is expected beyond what would occur under existing development regulations. However, this increment of increased job growth that may result from the action alternatives has not been estimated because it is not expected to differ substantially from job normal job growth under existing zoning. Further, even an increase would likely fall within the margin of error of 2040 estimates. Furthermore, adding more jobs in the community plan areas would likely lessen the extent of traffic impacts presented here as fewer total commute miles would be traveled. So only the growth in housing units is used to provide upper level estimates of potential traffic impacts resulting from each Alternative.

The estimates of hypothetical growth in future housing units is based solely on the broader rezones to TCTR, NCOR, UCOR, and MSF. While rezones along Portland Avenue comprise a relatively large number of properties, permitted densities are increasing in some areas and decreasing in other areas. So, the net increase in permitted residential densities and associated vehicle trips is minimal. Further, where growth will actually occur is difficult to predict; and as discussed previously, the distribution of growth represents only one possible scenario. Thus, the impact from added housing units—whether from Portland Avenue rezones or other smaller-scale parcel or block-wide rezones—is assumed to be generally reflected in the overall analysis.

Several factors have been considered to establish the number and location of net new housing units over the next 20 years:

- Trending areas in today's development market
- Proximity to utilities to support dense development
- Availability of large parcels that have high development or redevelopment potential
- Existing or future access to high-capacity transit service

-
- Historic annual residential development trends
 - Expressed interest from property owners

Future supply and demand for housing can change rapidly due to the unpredictability of consumer choices and market conditions. Therefore, the specific effects stated here are provided only to show one possibility of future growth; actual growth—if it occurs—may be located in different areas than those modeled here. So the impacts on specific roadway segments are only intended to provide a general snapshot of how growth resulting from the alternatives might affect the roadway system in the community plan areas.

Based on this approach, the housing unit estimates were distributed across small geographic subsets called Traffic Analysis Zones (TAZs),¹⁴ then applied to the Pierce County travel demand model for the year 2040. This travel model was updated in 2015 for the County’s Comprehensive Plan Transportation Element and recently updated to forecast 2040 conditions to support the Pierce County TIF Program. Additional details regarding the travel model, inputs, and projects proposed can be found in the Pierce County Comprehensive Plan Transportation Element pages 12-89 through 12-113. Transportation projects assumed by the year 2040, as reflected within the *Planned Transportation Projects* section of this document, were developed in 2017 in conjunction with the Pierce County Transportation Advisory Commission.

Based on growth forecasts to the year 2040, future traffic volumes on public roads are calculated, then are compared to predetermined Service Thresholds (Figure 3-19 Roadway Service Thresholds); the result is provided as a ratio of traffic volume to service (V/S). The Pierce County Comprehensive Plan has established that roadways are beyond capacity when the V/S ratio exceeds 1.0. The V/S ratio for each Alternative is provided here to determine whether significant traffic impacts would result.

¹⁴ Maps of additional housing units by TAZ are provided in Appendix F: Growth Forecasts by Traffic Analysis Zone for Alternatives 1 and 2.

Figure 3-19 Roadway Service Thresholds

	Travel Lanes (both directions)	Without Turn Channelization ⁴	With Turn Channelization ⁴
Urban ²	2	17,600	22,000
	3	26,400	33,000
	4	35,200	44,000
	6	52,800	66,000
Rural ³	2	15,800	19,800
	4	31,600	39,600

Service Threshold was defined by Annualized Average Daily Traffic (AADT).

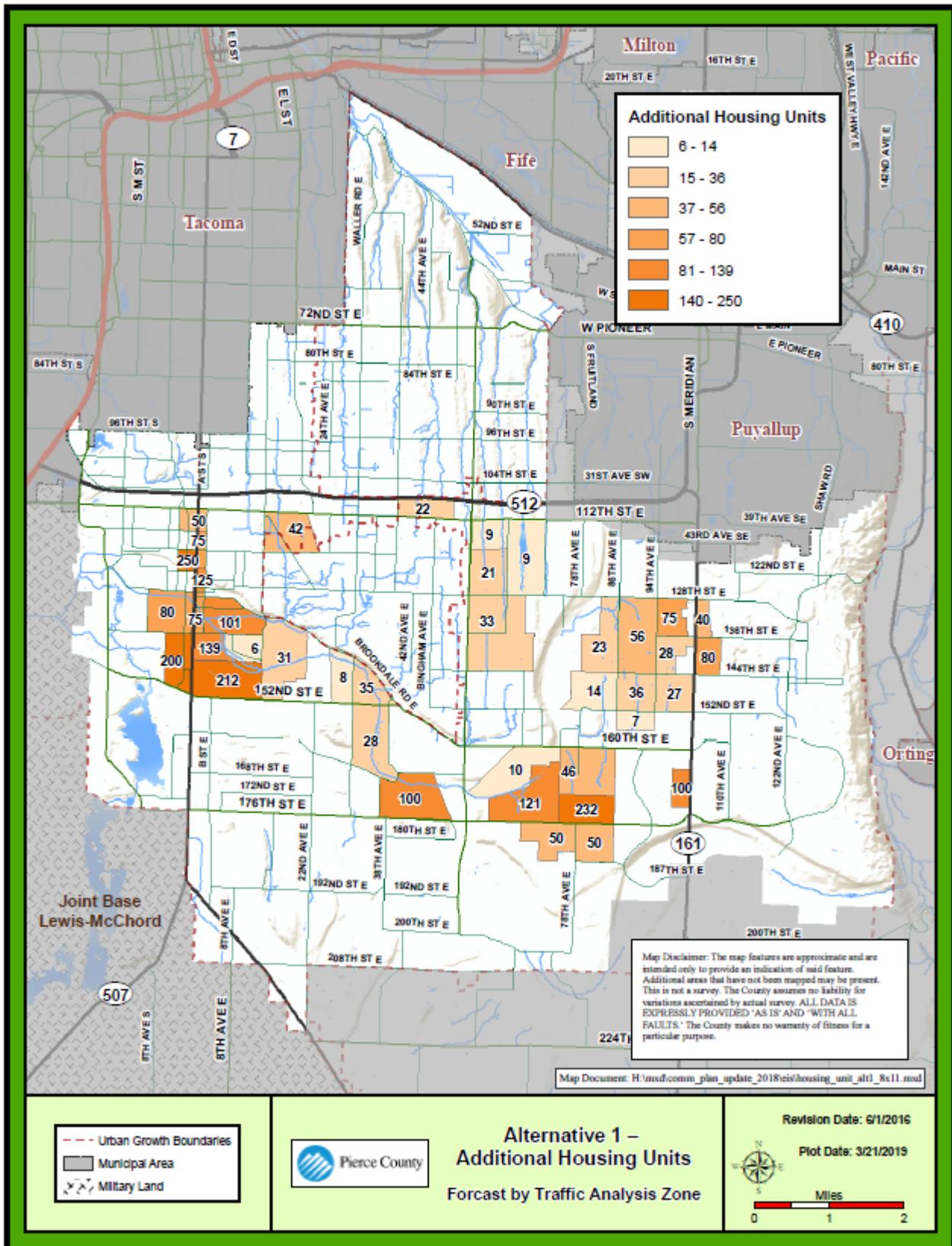
1. Urban Classifications include arterials with Federal Urban Arterial status and/or within the County's Urban Growth Area.
2. Rural Classifications include arterials that are not classified as Urban per the above definition.
3. Turn Channelization consists of a roadway having a center two-way left turn lane or exclusive turn pockets at key locations.
4. Three-lane thresholds pertain to uneven 3-lane arterials, which have one lane in one direction and two lanes in the other. Assumes 60% of a 2-lane capacity is in the direction with one lane (e.g. $0.6 * 17,600 = 10,560$), plus 40% of a 4-lane capacity in the direction with two lanes (e.g. $0.4 * 35,200 = 14,080$). Example total = $10,560 + 14,080 = 24,640$ or 24,600. If turn channelization is present, the Service Threshold increases to 30,800.
5. An additional capacity Service Threshold of 47,400 was derived for 4-lane arterials possessing access control. This capacity is applied to 176th St E after completion of capacity improvement.
6. Details of the methods used to create Service Thresholds can be found in the Pierce County Traffic Impact Fee Rate Study and the Technical Memorandum #3 of the Pierce County Traffic Impact Fee Notebook (September 30, 2005)

Source: Adapted from Florida DOT, ART-TAB software, *Level of Service Handbook (1998)*.

Alternative 1

Alternative 1 is assumed to result in approximately 2,646 additional housing units beyond the 18,180 housing units expected by 2040 under current zoning. The following figure provides the distribution of those additional units for each TAZ.

Figure 3-20 Alternative 1 Added Housing Units



Traffic and Parking

Alternative 1 would add traffic to roadways already exceeding capacity under the No Action Alternative. However, the marginal amount of added daily traffic would not result in any additional significant adverse impacts compared to the No Action Alternative. On one segment of Canyon Road East between 112th Street East to 128th Street East, Alternative 1 would cause traffic to increase beyond acceptable levels. However, this impact is not considered significant because it represents only a 1 percent increase over the No Action Alternative's impact.

Table 3-17 Alternative 1 Future (2040) Roadway Congestion (V/S)

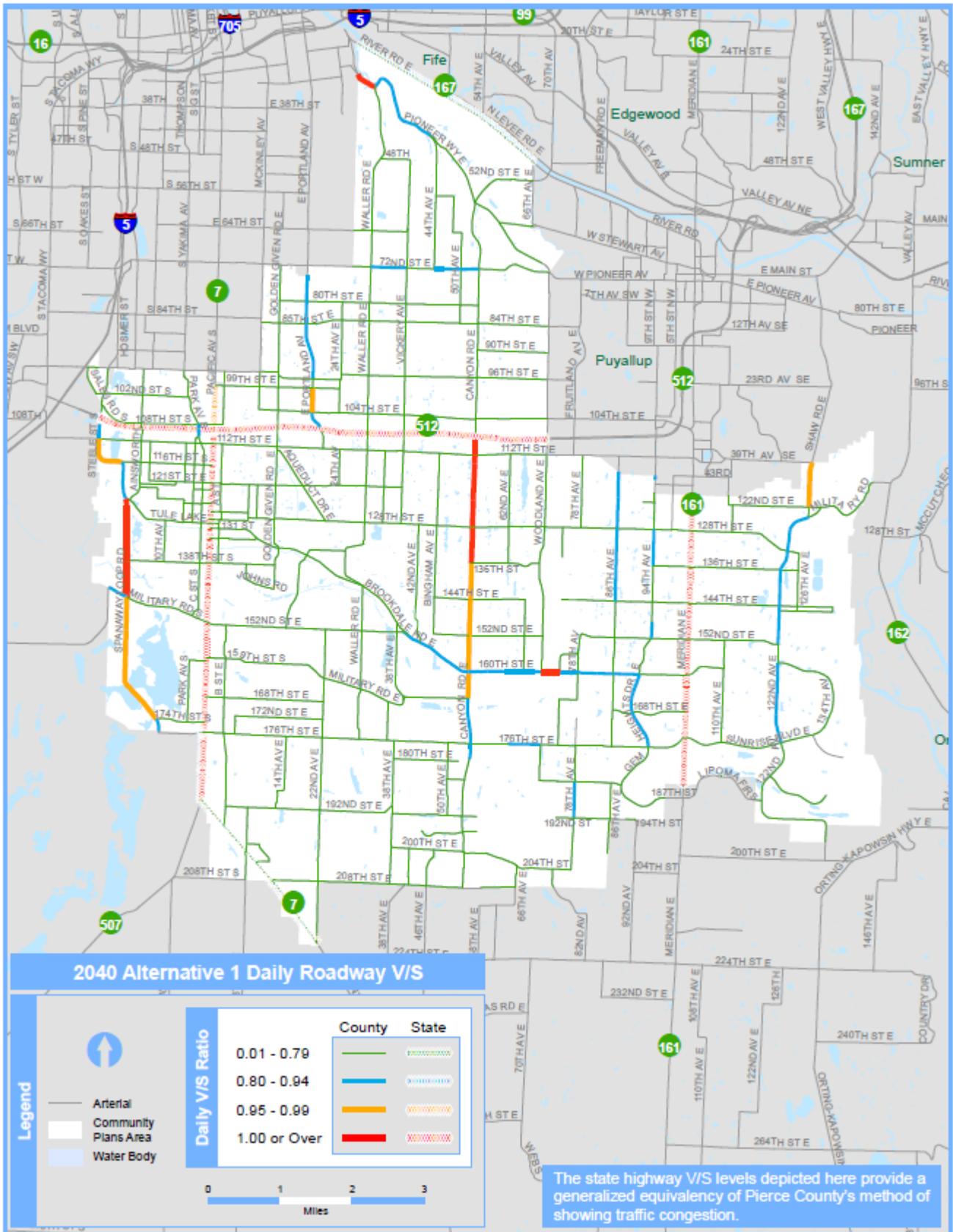
Name	Limits	2015 Traffic V/S	No Action V/S	Alt 1 V/S
122ND AV E	136 ST E TO 144 ST E	18,250/17,600 1.03	28,529/33,000 0.86	28,857/33,000 0.87
122ND AV E	144 ST E TO 145 ST E	17,850/17,600 1.01	27,337/33,000 0.82	27,695/33,000 0.83
122ND AV E	145 ST E TO 152 ST E	18,375/17,600 1.04	28,155/33,000 0.85	28,508/33,000 0.86
160TH ST E	70 AV E TO 74 AV E	16,952/22,000 0.77	22,395/22,000 1.01	22,743/22,000 1.03
CANYON RD E	SR 512 EB ON/OFF RAMP TO 112 ST E	52,500/66,000 0.79	66,354/66,000 1.00	67,052/66,000 1.01
CANYON RD E	112 ST E TO 128 ST E	50,729/66,000 0.76	65,224/66,000 0.98	66,107/66,000 1.00
CANYON RD E	128 ST E TO 136 ST E	49,625/66,000 0.75	67,882/66,000 1.02	68,845/66,000 1.04
PIONEER WY E	TACOMA C/L TO WALLER RD E	19,825/22,000 0.90	25,831/22,000 1.17	26,112/22,000 1.18
SPANAWAY LOOP RD S	TULE LAKE RD S TO 138 ST S	28,200/33,000 0.85	33,839/33,000 1.02	34,426/33,000 1.04
SPANAWAY LOOP RD S	138 ST S TO MILITARY RD S	28,575/33,000 0.86	34,054/33,000 1.03	34,696/33,000 1.05
SPANAWAY LOOP RD S	154 ST S TO 174 ST S	26,022/22,000 1.18	31,929/33,000 0.96	32,061/33,000 0.97

Note: Highlighted cells indicate roadway segments exceeding the V/S concurrency threshold.

As with County roadways, State highways are affected under the No Action Alternative, as previously discussed. Alternative 1 would contribute no more than 3-4 percent of traffic to existing roadways, an insignificant impact compared to the no action scenario.

While the traffic analysis shows major arterials to be absorbing most of the additional traffic, it is possible that other areas, such as Portland Avenue, may experience significant growth which is not modeled here. But like the major arterials, these roadways are not expected to experience significant increases in traffic beyond 3-4 percent. Therefore, no additional significant adverse impacts would result from Alternative 1.

Figure 3-21 Alternative 1 Future (2040) Roadway Congestion (V/S)



As would be expected with increases in traffic and housing, demand for parking is also expected to increase. However, existing and proposed regulations require all new development to provide parking with new development. Notably, residential parking requirements for Centers and Corridors zones in Alternative 1 would be slightly reduced; however, that loss of parking is expected to be offset by the Alternative's potential to encourage walking, biking, and transit use. Therefore, no significant adverse impacts on parking are expected to result from Alternative 1.

Transit and Active Transportation

In addition to traffic, pedestrian, and bicycle, transit trips are expected to increase due to future growth under Alternative 1. There are gaps in the transit and active transportation infrastructure in the community plan areas. Sidewalks exist sporadically along major corridors and public transit service is infrequent or nonexistent. Because the proposed rezones have a broad geography, it is difficult to pinpoint areas that would grow under the proposed action and determine where insufficient infrastructure exists. However, it can be said generally, that at present, inadequate pedestrian, bicycle, and transit facilities exist to serve future growth.

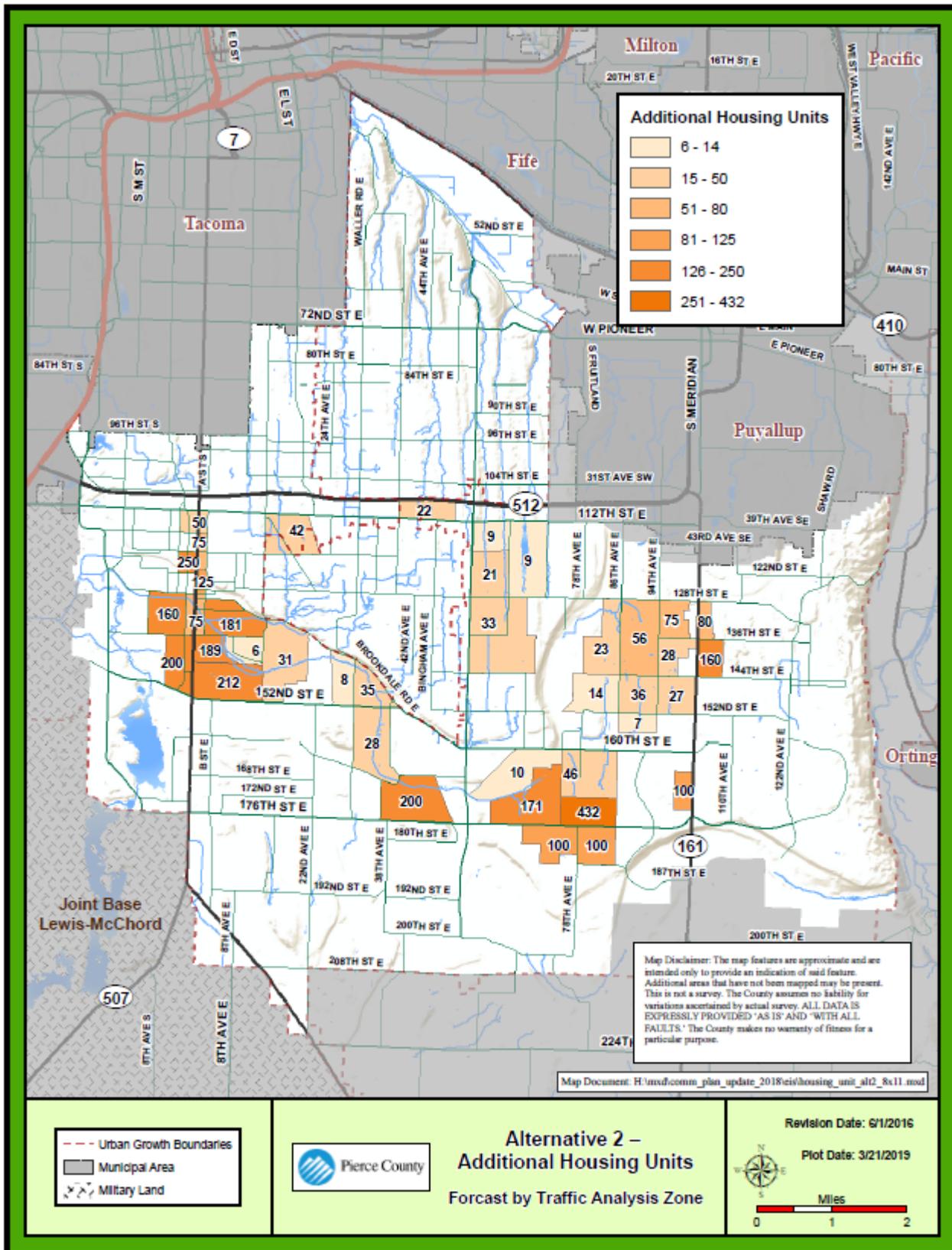
New sidewalks, bicycle facilities, crosswalks, traffic signals, and other pedestrian and bicycle improvements will likely be made in the future as part of future transportation projects discussed previously. New development will provide walkways and other active transportation amenities, as appropriate. With regional transit becoming more critical to mobility for those residents commuting outside Pierce County, future growth will need to be accommodated by those services. ST, WSDOT, and other service providers are commensurately investing heavily in regional rail and bus systems.

Finally, Alternative 1 would result in a denser and more mixed land use pattern that is conducive to walking, biking, and transit ridership. As a result, no significant adverse impacts on transit and active transportation are expected to result from Alternative 1.

Alternative 2

Alternative 2 is assumed to result in approximately 3,426 additional housing units beyond the 18,180 housing units expected by 2040 under current zoning. The following figure provides the distribution of those additional units for each TAZ.

Figure 3-22 Alternative 2 Added Housing Units



Traffic and Parking

With a broad rezone of unincorporated Pierce County's UGA, Alternative 2 would result in growth and density beyond that permitted under the proposed action (Alternative 1) and No Action Alternative. Greater traffic volumes would result from Alternative 2, as shown in Table 3-18 Alternative 2 Future (2040) Roadway Congestion (V/S). On Canyon Road East from 112th Street East to 128th Street East, Alternative 2 causes the roadway to exceed capacity. However, the 1.4 percent increase in daily traffic volume compared to the No Action scenario is not considered significant. Further, as with Alternative 1, Alternative 2 does not result in any significant capacity impacts on other roadway segments.

Table 3-18 Alternative 2 Future (2040) Roadway Congestion (V/S)

Name	Limits	2015 Traffic V/S	No Action V/S	Alt 2 V/S
122ND AV E	136 ST E TO 144 ST E	18,250/17,600 1.03	28,529/33,000 0.86	28,979/33,000 0.87
122ND AV E	144 ST E TO 145 ST E	17,850/17,600 1.01	27,337/33,000 0.82	27,833/33,000 0.84
122ND AV E	145 ST E TO 152 ST E	18,375/17,600 1.04	28,155/33,000 0.85	28,644/33,000 0.86
160TH ST E	70 AV E TO 74 AV E	16,952/22,000 0.77	22,395/22,000 1.01	22,883/22,000 1.04
CANYON RD E	SR 512 EB ON/OFF RAMP TO 112 ST E	52,500/66,000 0.79	66,354/66,000 1.00	67,200/66,000 1.01
CANYON RD E	112 ST E TO 128 ST E	50,729/66,000 0.76	65,224/66,000 0.98	66,383/66,000 1.00
CANYON RD E	128 ST E TO 136 ST E	49,625/66,000 0.75	67,882/66,000 1.02	69,114/66,000 1.04
PIONEER WY E	TACOMA C/L TO WALLER RD E	19,825/22,000 0.90	25,831/22,000 1.17	26,147/22,000 1.18
SPANAWAY LOOP RD S	TULE LAKE RD S TO 138 ST S	28,200/33,000 0.85	33,839/33,000 1.02	34,491/33,000 1.04
SPANAWAY LOOP RD S	138 ST S TO MILITARY RD S	28,575/33,000 0.86	34,054/33,000 1.03	34,783/33,000 1.05
SPANAWAY LOOP RD S	154 ST S TO 174 ST S	26,022/22,000 1.18	31,929/33,000 0.96	32,110/33,000 0.97

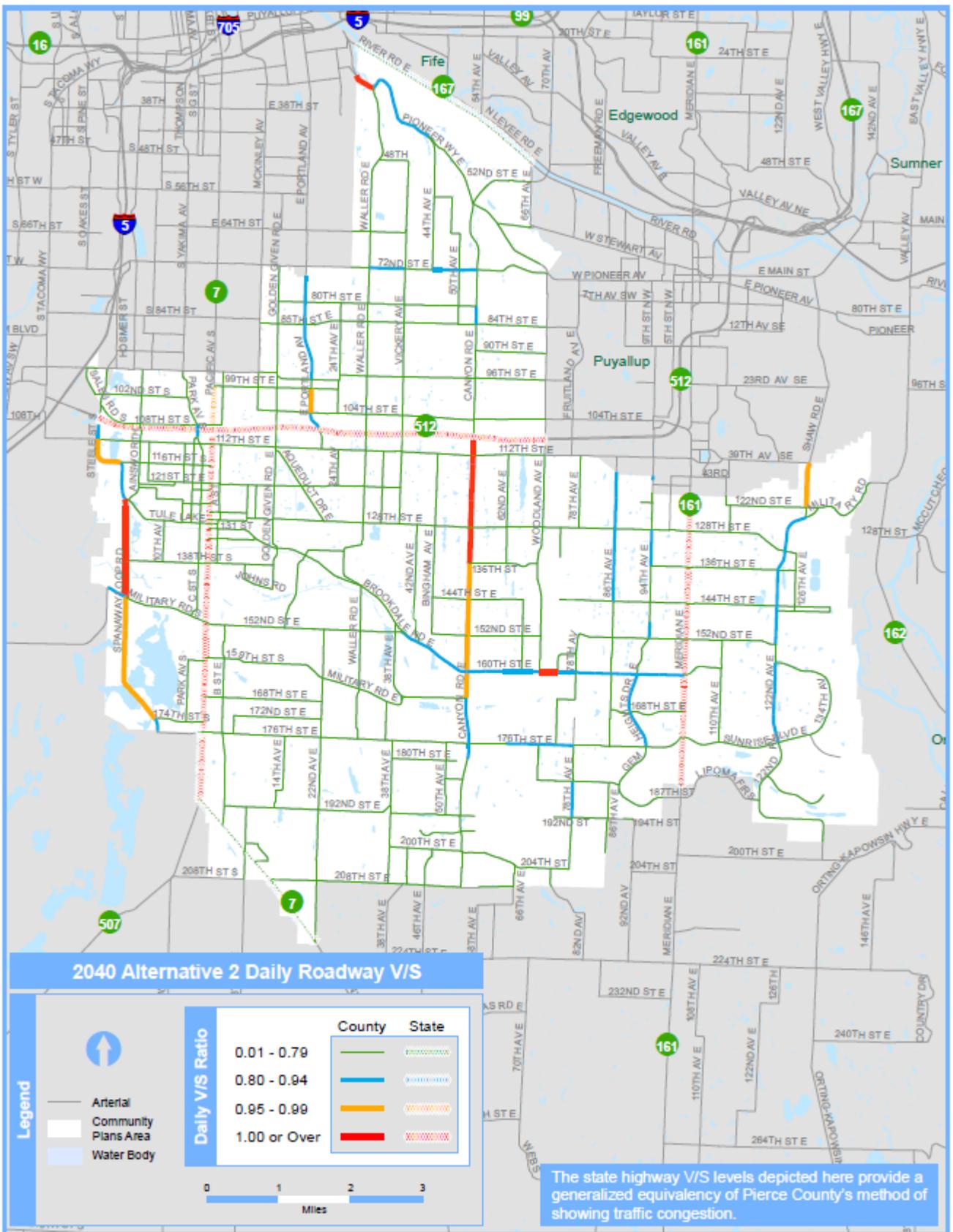
Note: Highlighted cells indicate roadway segments exceeding the V/S concurrency threshold.

As with County roadways, State highways are affected under the No Action Alternative, as previously discussed. Alternative 2 would contribute no more than 3-4 percent of traffic to existing roadways, an insignificant impact compared to the no action scenario.

While the traffic analysis shows major arterials to be absorbing most of the additional traffic, it is possible that other areas, such as Portland Avenue, may experience significant growth which is not modeled here. But like the major arterials, these roadways are not expected to experience significant increases in traffic beyond 3-4 percent. Therefore, no additional significant adverse impacts would result from Alternative 2.

As would be expected with increases in traffic and housing, demand for parking is also expected to increase. However, existing and proposed regulations require all new development to provide parking with new development. Notably, residential parking requirements for Centers and Corridors zones in Alternative 2 would be slightly reduced; however, that loss of parking is expected to be offset by the Alternative's potential to encourage walking, biking, and transit use. Therefore, no significant adverse impacts on parking are expected to result from Alternative 2.

Figure 3-23 Alternative 2 Future (2040) Roadway Congestion (V/S)



Transit and Active Transportation

In addition to traffic, pedestrian, bicycle, and transit trips are expected to increase due to future growth under Alternative 2. There are gaps in the transit service and active transportation infrastructure in the community plan areas. Sidewalks exist sporadically along major corridors and public transit service is infrequent or nonexistent. Because the proposed rezones have a broad geography, it is difficult to pinpoint areas that would grow under the proposed action and determine where insufficient infrastructure exists. However, it can be said generally that at present inadequate pedestrian, bicycle, and transit facilities exist to serve future growth.

New sidewalks, bicycle facilities, crosswalks, traffic signals, and other pedestrian and bicycle improvements will likely be made in the future as part of future transportation projects discussed previously. New development will provide walkways and other active transportation amenities as appropriate. With regional transit becoming more critical to mobility for those residents commuting outside Pierce County, future growth will need to be accommodated by those services. ST, WSDOT, and other service providers are commensurately investing heavily in regional rail and bus systems like Amtrak and ST Express. Finally, Alternative 2 would result in a denser and more mixed land use pattern that is conducive to walking, biking, and transit ridership. As a result, no significant transit and active transportation impacts are expected to result from Alternative 2.

Alternative 3

The proposed alternative is expected to add less growth than that assumed under Alternative 1 or 2.

Traffic and Parking

While the traffic analysis shows major arterials to be absorbing most of the additional traffic from Alternatives 1 and 2, it is possible that other areas, such as Portland Avenue, may experience significant growth which is not modeled here. But like the major arterials, these roadways are not expected to experience significant increases in traffic beyond 3-4 percent. As such, no significant traffic impacts would result from Alternative 3.

As would be expected with increases in traffic and housing, demand for parking is also expected to increase. However, existing regulations require all new development to provide sufficient parking to accommodate expected demand. Therefore, no significant adverse impacts on parking are expected to result from Alternative 3.

Transit and Active Transportation

As with the No Action Alternative, Alternative 3 will continue to spread growth across the community plan areas, resulting in more transit trips. Transit operators monitor and adjust services as needed. Future population and economic growth in the area will likely allow improvements to transit service and coverage. However, low residential density and space-intensive commercial and industrial development presents challenges to transit. A more dispersed, lower-frequency system is needed to serve such development patterns. With regional transit becoming more critical to mobility for those residents commuting outside Pierce County, future growth will need to be accommodated by those services. ST, WSDOT, and other service providers are commensurately investing heavily in regional rail and bus systems. Therefore, Alternative 3 is not expected to result in significant adverse impacts on transit.

Pedestrian and bicycle trips are expected to increase due to future growth under Alternative 3. As previously discussed, pedestrian and bicycle facilities are limited in the community plan areas. However, new sidewalks, bicycle lanes, crosswalks, traffic signals, and other pedestrian and bicycle improvements will be made in the future. New development will provide walkways and other active transportation amenities as appropriate. As a result, no significant adverse impacts are expected to result from Alternative 3.

Alternative 4

Alternative 4 reflects what would result by 2040 if no action were to be taken (namely adding 18,180 housing units to the existing 75,640 units and 29,206 jobs to the 66,163 existing jobs).

Traffic and Parking

The study area's population and job growth are expected to create additional demand on the County's transportation system. Average daily vehicle trips to and from Pierce County are expected to increase by approximately 33 percent by the year 2040. Similarly, the construction of transportation facilities has not kept up fully with such demand, leading to increased auto congestion, delay, and longer travel times. Thus, the capacity of multiple roadways in the study area would be exceeded by 2040, regardless of whether any action is taken (Table 3-19 Alternative 4 Future (2040) Roadway Traffic Congestion (V/S)).

As provided in Figure 3-14 Existing (2015) Roadway Traffic Congestion (V/S), state highways in the study area currently exceed capacity, specifically most of those sections of Pacific Avenue South (SR-7) from SR-512 to 174th Street East, Meridian Avenue East (SR-161) from SR-512 to 160th Street East, and SR-512 from Pacific Avenue South to SR-161. Table 3-19 Alternative 4 Future (2040) Roadway Traffic Congestion (V/S) Table 3-19 shows congestion worsening under the No Action Alternative, specifically resulting in additional segments of SR-7 and SR-161 exceeding capacity: SR-7 from 176th

Street East to the Roy Y, and SR-161 from 160th Street East to 200th Street East. Specific traffic volumes on individual segments of the state highway system are provided in Appendix D: Traffic Volume Service Ratios.

Under this alternative, residential growth is expected to continue as it has historically: in the form of low-density single-family home and apartment development. By retaining existing density and use limitations across the community plan areas, minimal walkable, transit-oriented, development is expected to occur. And with these low-density residential uses separated from areas with commercial uses, a high level of vehicle travel is expected to continue.

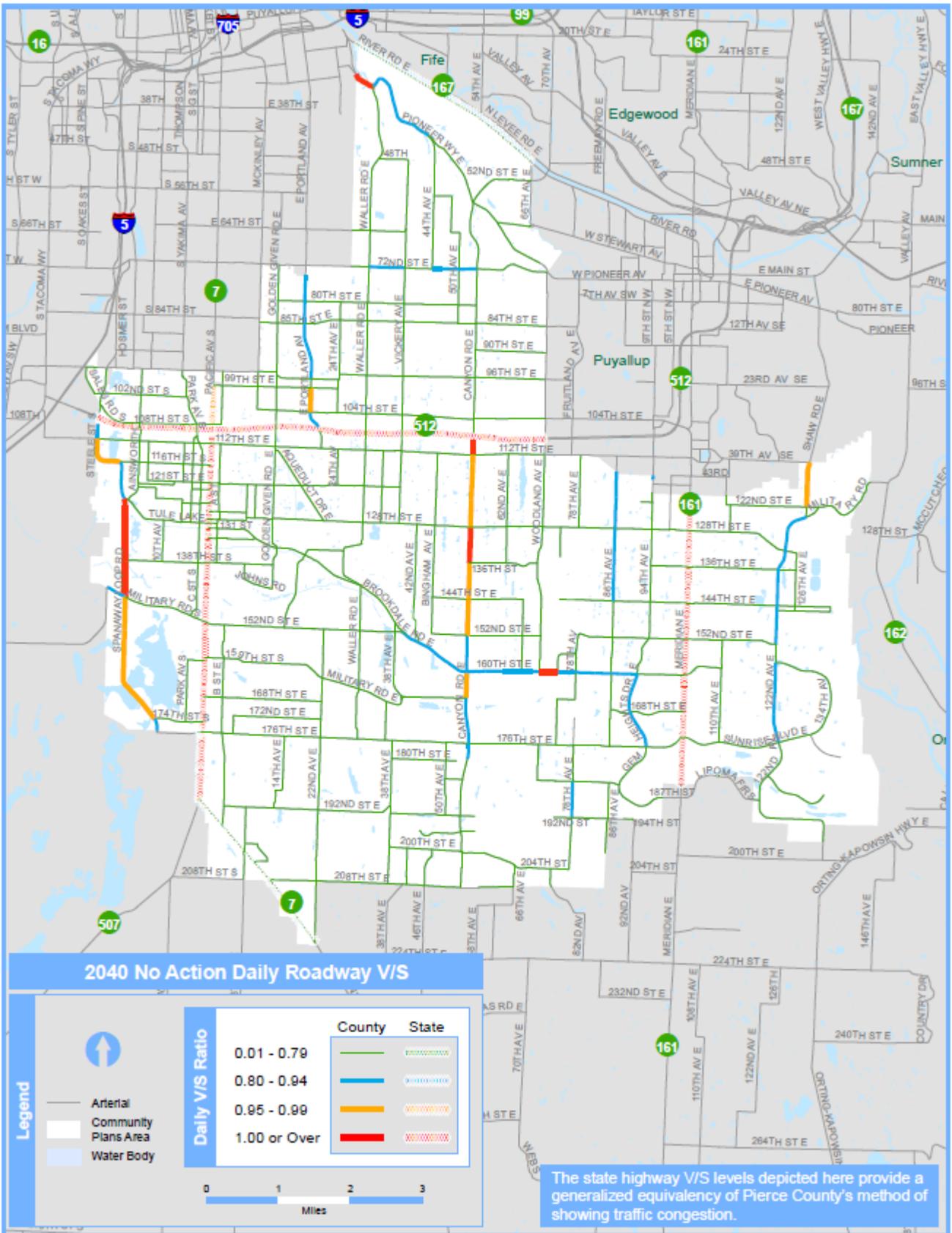
As would be expected with increases in traffic and housing, demand for parking is also expected to increase. However, existing regulations require all new development to provide parking to new development. Therefore, no significant adverse impacts on traffic and parking are expected to result from the No Action Alternative.

Table 3-19 Alternative 4 Future (2040) Roadway Traffic Congestion (V/S)

Name	Limits	2015 Traffic V/S	No Action V/S
122ND AV E	136 ST E TO 144 ST E	18,250/17,600 1.03	28,529/33,000 0.86
122ND AV E	144 ST E TO 145 ST E	17,850/17,600 1.01	27,337/33,000 0.82
122ND AV E	145 ST E TO 152 ST E	18,375/17,600 1.04	28,155/33,000 0.85
160TH ST E	70 AV E TO 74 AV E	16,952/22,000 0.77	22,395/22,000 1.01
CANYON RD E	SR 512 EB ON/OFF RAMP TO 112 ST E	52,500/66,000 0.79	66,354/66,000 1.00
CANYON RD E	112 ST E TO 128 ST E	50,729/66,000 0.76	65,224/66,000 0.98
CANYON RD E	128 ST E TO 136 ST E	49,625/66,000 0.75	67,882/66,000 1.02
PIONEER WY E	TACOMA C/L TO WALLER RD E	19,825/22,000 0.90	25,831/22,000 1.17
SPANAWAY LOOP RD S	TULE LAKE RD S TO 138 ST S	28,200/33,000 0.85	33,839/33,000 1.02
SPANAWAY LOOP RD S	138 ST S TO MILITARY RD S	28,575/33,000 0.86	34,054/33,000 1.03
SPANAWAY LOOP RD S	154 ST S TO 174 ST S	26,022/22,000 1.18	31,929/33,000 0.96

Note: Highlighted cells indicate roadway segments exceeding the V/S threshold.

Figure 3-24 Alternative 4 Future (2040) Roadway Congestion (V/S)



Transit and Active Transportation

With development continuing to be spread across the community plan areas and beyond, some more transit trips are expected. Transit operators monitor and adjust services as needed. Future population and economic growth in the area will likely allow improvements to transit service and coverage. However, low residential density and space-intensive commercial and industrial development presents challenges to transit. A more dispersed, lower-frequency system is needed to serve such development patterns. With regional transit becoming more critical to mobility for those residents commuting outside Pierce County, future growth will need to be accommodated by those services. ST, WSDOT, and other service providers are commensurately investing heavily in regional rail and bus systems. Therefore, the No Action Alternative is not expected to result in significant adverse impacts on transit.

Pedestrian and bicycle trips are expected to increase due to future growth under the No Action Alternative. As previously discussed, pedestrian and bicycle facilities are limited in the community plan areas. However, new sidewalks, bicycle lanes, crosswalks, traffic signals, and other pedestrian and bicycle improvements will be made in the future. Further, new development will provide walkways and other active transportation amenities as appropriate. As a result, no significant adverse impacts are expected to result from the No Action Alternative.

3.3.3 Mitigation Measures

Existing Programs and Incorporated Plan Features

While new growth—including that forecasted from the alternatives—would somewhat worsen traffic conditions, typical mitigating solutions usually involve expanding roadway capacity. This could include adding turn lanes or increasing the number of lanes through roadway expansions. Future development that occurs under the proposed development regulations would be subject to Traffic Impact Fees that support roadway capacity improvements. Further, Pierce County is required by the GMA and the Pierce County Code to maintain roadway levels of service through roadway expansion or similar means. In the short-term, these solutions are effective at removing bottlenecks and slowdowns on a roadway that may be affected by added growth.

Emerging traffic research^{15,16} is showing that the traffic benefits of roadway capacity expansions are short-lived. Wider roads temporarily alleviate traffic congestion and improve travel times, but more

¹⁵ Litman, T. April 24, 2018. Generated Traffic and Induced Travel: Implications for Transport Planning. Victoria, Canada: Victoria Transport Policy Institute. <http://www.vtpi.org/gentraf.pdf>

¹⁶ Handy, S. October 2015. Increasing Highway Capacity Unlikely to Relieve Traffic Congestion. Davis, CA: National Center for Sustainable Transportation. http://www.dot.ca.gov/research/researchreports/reports/2015/10-12-2015-NCST_Brief_InducedTravel_CS6_v3.pdf

vehicle trips are made to take advantage of those travel times—either because of drivers shifting from alternate routes, people driving more frequently, or new vehicles from increased development taking advantage of the improved travel times.

As such, it's necessary to consider additional solutions beyond adding travel lanes. Alternatives 1 and 2 provide the foundation for those solutions. The preferred action encourages and concentrates growth and land uses in central areas and along major corridors. Substantially more density and a greater mix of uses would be permitted, creating neighborhoods that contain housing, employment, services, and businesses. Research has shown that neighborhoods with high densities, a mix of land uses, and proximity to other developments allow residents and workers to drive less.¹⁷ So while gross population growth would worsen traffic and increase demand for parking, per capita auto travel is likely to decrease as a result of the densities and mixed land uses associated with Alternatives 1 and 2. For those that continue to travel by personal vehicle, businesses, services, jobs, and housing would be located closer together, reducing the distance necessary to travel and potentially offsetting the added time spent in traffic.

Concentrating population growth along major corridors has another benefit: increasing access and ridership on public transit. While existing transit is limited in many portions of the community plan areas, an added population in compact areas along major corridors would provide a strong basis for future transit enhancements.

In addition, subsequent development resulting from the proposed action would provide new pedestrian and bicycle infrastructure through sidewalks, curb ramps, and bicycle parking. The community plans include policies to plan and construct transportation infrastructure (including roads, transit, pedestrian, and bicycle facilities) throughout the plan areas and on the major travel corridors that would see increased growth under the proposed action. Consistent with these policies and the adopted Complete Streets Ordinance, the County continues to direct public investment into improving alternative transportation infrastructure. Further, each community plan includes a list of future transportation projects that may alleviate demand that the alternatives add on the transportation system.

Finally, Pierce County has a Commute Trip Reduction program that requires employers with 100 or more employees to implement certain transportation demand management strategies that reduce driving alone for commute trips. The CTR program requires the distribution of information about alternative modes of transportation and available incentives, a provision of emergency ride home services, and other measures.

¹⁷ Cervero, Robert. October 1, 1995. *Mixed Land-Uses and Commuting: Evidence from the American Housing Survey*. Berkeley, CA: University of California Berkeley Department of City and Regional Planning.

Existing and proposed development regulations would also require parking to be constructed with any new development, commensurate with the amount of parking demand expected.

Other Mitigation

Beyond the plan features and existing programs and regulations, other mitigation measures should be considered. Transit service, including High Capacity Transit, should be provided or expanded in high-density areas in the community plan areas, including on Pacific Avenue, Meridian Avenue East and other major travel corridors. Centers and Corridors will support the development of the Pierce Transit proposed Bus Rapid Transit (BRT) system on Pacific Avenue. Transit providers could explore partnerships with on-demand transit service providers to provide better connections to existing regional transit service at Tacoma Dome Station, Lakewood Station, and Puyallup Station. Pierce County could create a transit plan that supports and informs future transit improvements by Pierce Transit.

Pedestrian and bicycle facilities should be prioritized and constructed in the proposed high-density zones as part of any capital project. Implementation of interim pedestrian and bicycle improvements should be considered as part of any routine roadway maintenance or resurfacing activity. Any County roadway project should incorporate pedestrian- and bicycle-friendly design, such as traffic calming and geometric elements that reduce vehicle speeds. The County should prepare updated transportation plans for active transportation emphasizing a highly-connected, urban transportation system consistent with the proposed high-density growth.

Existing non-contiguous roads should be extended as practicable to connect with other roadways. The County's roadway design manual should be revised to support and encourage dense and walkable roadway networks. Future large-scale development should incorporate Transportation Demand Management Strategies to lessen vehicle trip generation.

In addition, Pierce County should improve its capital facilities planning process to ensure transportation improvements are prioritized in areas where significant future growth is expected or desired, including in the Centers and Corridors zones as well as along Portland Avenue. To further encourage high-density growth that reduces the need for vehicle trips, the County should create regulatory incentives such as conducted Planned Action environmental reviews and highlighting designated Federal Opportunity Zones.

3.3.4 Significant Unavoidable Adverse Impacts

No significant unavoidable transportation impacts are anticipated under any Alternative.

3.4 Public Services and Utilities

The GMA requires cities and counties to develop and adopt comprehensive plans, which includes planning for future public service and utility needs. A Capital Facilities Plan (CFP) and a Utilities Element are required under GMA. The CFP is required to have an inventory of existing facilities showing locations and capacities, forecasts of future needs, proposed locations and capacities of new or expanded facilities, and a financing strategy (RCW 36.70A.070(3)). The Utilities Element is required to describe the existing and proposed locations of all utilities and their capacity (RCW 36.70A.070(4)).

The affected environment includes the Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill Community Plan areas. Specifically, the proposed area within each community plan heading south on SR-7, then east on 176th Street East to SR-161, then north to 128th Street East. The northern boundary of the proposal area travels along 112th Street East and the ECOR zone runs from the intersection of Canyon Road and 176th Street East up to the intersection of 112th Street East and Canyon Road.

This section analyzes the affected environment, impacts, mitigation, and significant unavoidable impacts related to Public Services and Utilities. Public Service and Utilities include Fire Services, Parks and Recreational Facilities, Police Services, Public Water Supply, Sanitary Sewer, Schools, and Solid Waste.

3.4.1 Fire Services

Affected Environment

Fire protection is provided either by departments within municipal government or by special districts set up independently of local governments. Financial support for fire protection services is provided by tax revenues. The fire districts also use bonds and levies to build new facilities. Many fire districts rely on volunteer firefighters to supplement the work of professional firefighters. Pierce County currently has 31 fire departments within the county.

The four Community Plan areas are served by three fire districts: Central Pierce Fire and Rescue, Riverside Fire District, and Graham Fire and Rescue.

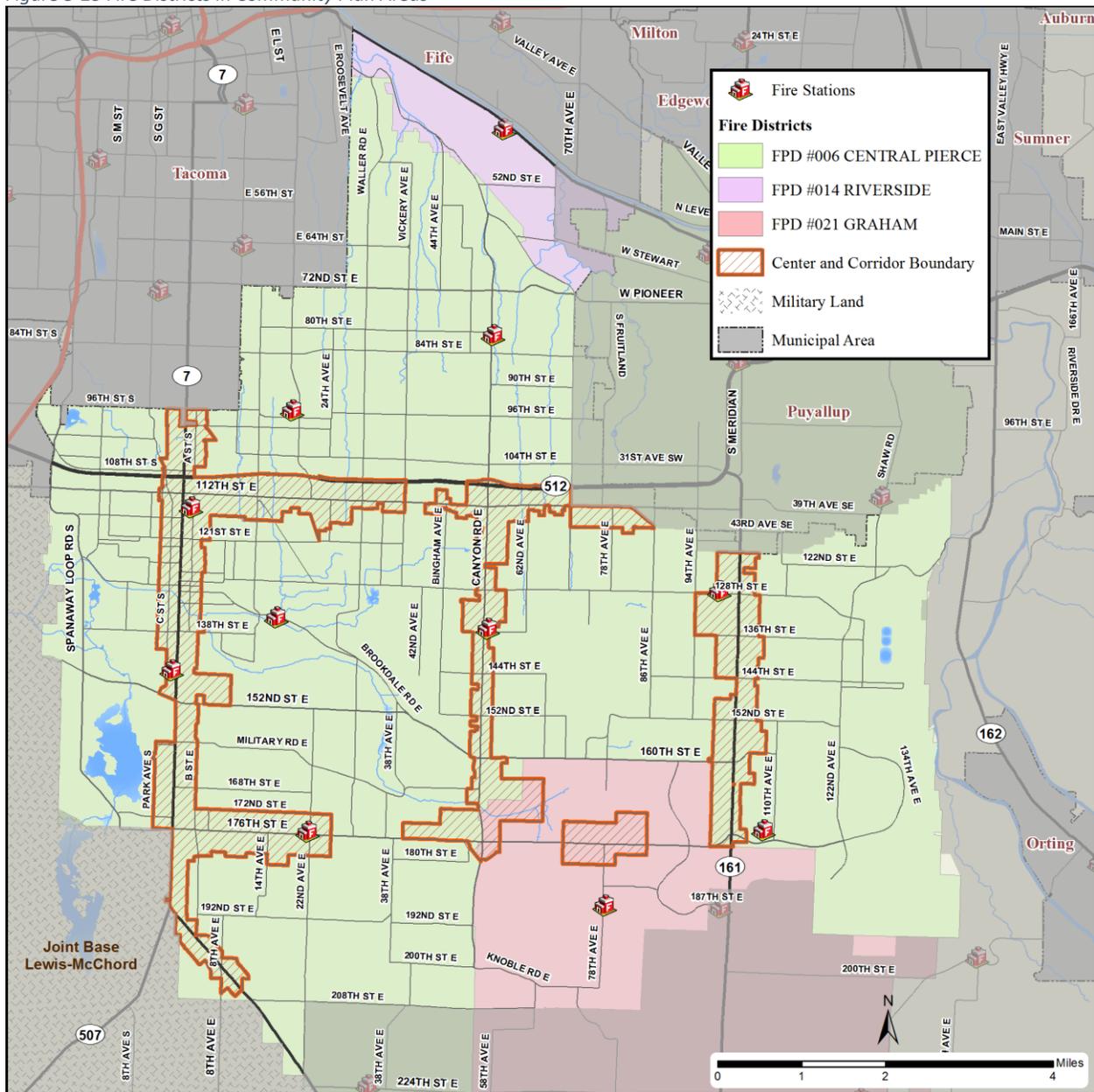
Central Pierce Fire and Rescue serves the majority of the community plan areas. Likewise, most of the land use changes, including the Centers and Corridors proposal and RR/SF to MSF rezone, are located within the Central Pierce Fire and Rescue service area. Central Pierce Fire and Rescue has 9 stations within the community plan areas.

Graham Fire and Rescue serves the southwest portion of South Hill and southeast portion of Frederickson. A segment of the Centers and Corridors proposal is located along 176th Street between

Canyon Road East and Meridian Avenue East. Graham Fire and Rescue has one station near the easterly boundary of the Frederickson Community Plan area.

The Riverside Fire District serves the northernmost portion of the Mid-County Community Plan area and is largely unaffected by the Community Plan Updates. The District is located in an area that is designated as rural, and it would remain rural. There are no proposed changes to densities or heights for development in this service area. Riverside Fire District has one station located near the northerly boundary of the Mid-County Community Plan area.

Figure 3-25 Fire Districts in Community Plan Areas



Impacts

Impacts Common to Alternative 1 and Alternative 2

Increased Service Calls

Alternatives 1 and 2 will increase the density, heights, and intensity of uses within Centers and Corridors designations, some single-family areas under the RR/SF to MSF rezone, the Portland Ave rezone and the other property specific rezone requests. Fire districts determine station locations and response areas and times based on the distribution of residential and commercial areas. The increase in allowed densities and heights will increase the number of residential units within the communities and the number of fire and emergency calls that the districts receive.

Increased Heights and Densities

The TCTR and UCOR zones will both allow for unlimited densities and increase the minimum density to 20 and 12 units per acre, respectively. The maximum density of the NCOR will increase to 25 units per acre and will significantly increase the density from the Moderate-Density Single-Family zoning adjacent to the Corridors. Alternatives 1 and 2 will also increase the allowable height in the TCTR zone, which will be higher than the zones it is replacing.

Required Equipment

Fire Districts are concerned about having adequate equipment and training to fight fires or attend to medical emergencies in 5 or 6-story buildings. The Fire Districts have indicated there is a significant increase in equipment requirements for structures over 75 feet tall. The 65 feet in height respects this threshold and mitigates potential impacts and burdens that significantly higher buildings have on the districts.

Increase Traffic and Response Times

Alternatives 1 and 2 will increase traffic in the community plan areas (see Chapter 3.3 Transportation). Fire Districts have noted that increases in traffic from additional density in the Centers and Corridors, and in the community plan areas in general, may affect response times.

Financial Impacts

Fire Districts have added personnel and fire stations, in response to growth, using tax revenues and bonds and levies. With continued growth in the community plan areas, Fire Districts indicate the need to provide additional services and should receive fire impact fees to offset initial impacts of new development. As Districts determine levels of service standards and develop CFPs which indicate the

facilities and equipment need to address growth, the Districts can work with the County towards an impact fee program like that for schools, parks, and roads.

Facility Planning

The Community Plan Update, including the Centers and Corridors proposal, will continue to promote growth along the major highways of the four communities. Current fire stations have been located to serve these major corridors as well as suburban and rural areas. As the Centers and Corridors designations see additional growth, districts will need to adjust plans for facility location to consider the concentration of high-density residential along the Corridors. The County has provided one scenario of how growth may occur in the Centers and Corridors as provided in Chapter 3.4 – Transportation, however it's possible growth may occur in a different manner than currently predicted. Similar to other service providers, the districts will need to monitor development over time and determine the best locations for facilities.

Building Construction and Fire Codes

Fire districts have expressed concern in maintaining existing access requirements, fire flow requirements and building distance separations. In single family areas, the preference is for maintaining the 5-foot setback with offset openings and exit windows from the front and rear of the home and a maximum of 35 feet in height. The districts are also concerned about increased heights in the Centers and Corridors designations allowing up to 65 feet. If 65 feet is approved, preference is for maintaining access within 20 feet of the building on all four sides.

Alternative 3

Alternative 3 will also increase service calls because of the RR/SF to MSF rezone, the Portland Corridor rezone and the other zoning requests that will increase density. The types of impacts of Alternative 3 will be similar to Alternatives 1 and 2; however, they will be more localized to the specific zone changes and less in overall intensity than the impacts of Alternatives 1 and 2.

Alternative 4

Alternative 4, the No Action Alternative, will also provide for continued growth and demand for fire services under the densities and heights of existing development regulations. Increases in traffic, and accordingly emergency response times, will also occur under current growth but will be less impactful than the other alternatives.

Mitigation Measures

Mitigation Common to all Alternatives

Tax revenue from new development would increase funds available to the fire districts. Fire districts may prepare capital facilities plans (CFPs) to address the need for fire impact fees to cover initial impacts from new development. There will be incremental increases in demand for fire services, including the need for facilities, personnel, and equipment.

New development would be constructed in compliance with the County's zoning, fire and building codes including the International Building Code. The Community Plan Updates does not propose any changes or reductions to any fire code or building code regulations. Buildings built to new building heights must meet required access, separation, interior fire access and escape, and construction materials requirements. Fire districts will need to maintain and augment equipment that currently serves buildings with additional height such developments as Garfield Station in the Parkland area and other 4 to 5-story buildings located within the City of Puyallup.

Developments should maintain single-family home setback separations and require offset openings and exit windows from the front and rear of the home and a maximum of 35 feet in height. Over time, more fire stations will be built in or around the Centers and Corridors areas and closer to the higher intensity residential developments which will mitigate response times.

Finally, some mode shift away from automobile transportation is expected, which will help reduce the impacts of traffic on emergency response times.

Mitigation Common to Alternative 1 and Alternative 2

Building heights could be reduced to mitigate the need for specialized equipment for taller buildings. Fire districts have indicated a preference for a maximum of 65 feet. The concentration of residential and commercial development along the major corridors will allow fire districts to locate stations in these areas to maximize the service to more people within smaller areas.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to fire services are anticipated.

3.4.2 Parks and Recreation

Affected Environment

Pierce County Parks and Recreation Department owns 5,039 acres of parks, open space, and recreation facilities at 52 sites across the county. Over 700 acres are located within the communities of Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill. A robust parks, open space, and recreation system is an important component of a livable community. The Pierce County system includes a variety of parks, natural areas, and recreation facilities. These facilities are operated by both public and private providers.

The County categorizes its properties as Regional Parks, County Parks, Local Parks, Special Use Facilities, Resource Conservancy Parks, and Linear Parks/Trails. The definition of each type of park is available in Table 3-20 Types of Park Facilities.

Table 3-20 Types of Park Facilities

Type	Definition
Regional	<ul style="list-style-type: none"> • Provide access to significant ecological, cultural, or historical features • Attract visitors from throughout the entire region • Often exceed 200 acres with a variety of recreation opportunities
County	<ul style="list-style-type: none"> • Support a wide range of recreation opportunities • Typically attract residents from more nearby communities • Active and passive recreation opportunities • May incorporate natural open space
Local	<ul style="list-style-type: none"> • Include playfields, neighborhood parks, and small community parks that have more limited facilities than Regional or County Parks • Typically include a playground, sports field, tennis or basketball courts, internal pathway, and supporting amenities
Special Use	<ul style="list-style-type: none"> • Include standalone recreation facilities not located within larger parks • Single-purpose sites
Resource Conservancy	<ul style="list-style-type: none"> • Conservation areas designed to protect unique or significant natural features, e.g. rivers and streams, wetlands and marshes, environmentally sensitive areas, and wildlife habitats
Linear & Trails	<ul style="list-style-type: none"> • Include built or natural corridors that provide non-motorized transportation connections within the county and green buffers between communities

There are parks outside the County’s jurisdiction and outside the plan area available to residents as a regional resource. Additionally, properties owned by Metro Parks Tacoma and Forterra are located within the plan area or along its borders. City, state, and national parks are also located throughout the county. This analysis focuses on County-owned sites in the affected community plan areas.

The community plan areas include each type of park, except for “special use” parks such as Steilacoom Golf Course, Lakewood Community Center, and Purdy Sand Pit.

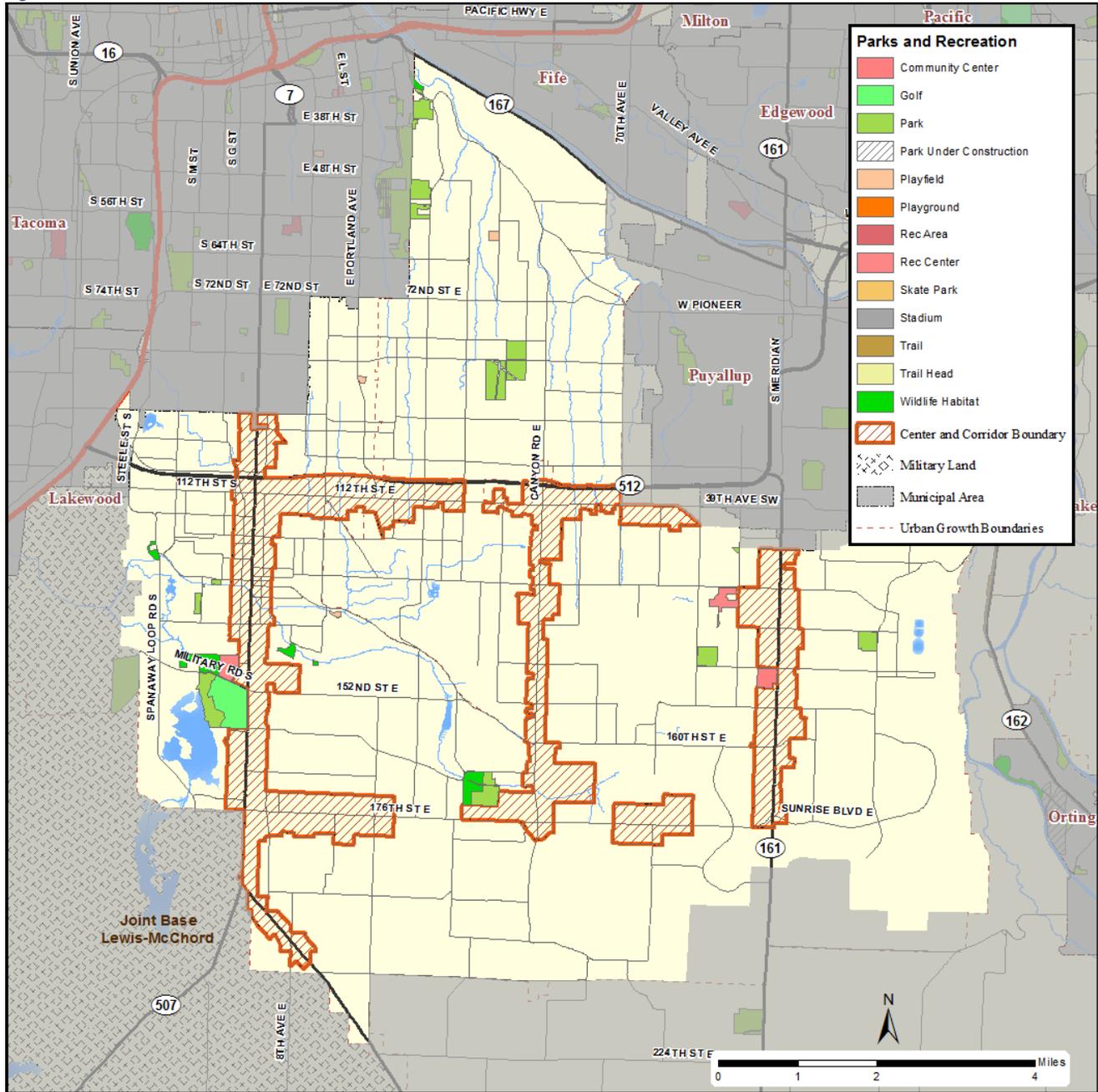
Resource Inventory

Pierce County Parks and Recreation owns 17 properties within the community plan areas, accounting for almost one-third of the County’s park properties. Table 3-21 Park Facilities lists each park, its acreage, classification, and the community plan area in which it’s located; the physical locations are shown in Figure 3-26 Park Facilities. Classification type is based on the Parks, Recreation, and Open Space (PROS) plan.

Table 3-21 Park Facilities

Community	Parks and Recreation Site	Acres	Type
Frederickson	Cross Park	64.0	County
Mid-County	Lidford Playfield	9.8	Local
	Orangegate Park	146.6	County
Parkland-Spanaway-Midland	Bresemann Forest	65.9	Regional
	Dawson Playfield	5.1	Local
	Gonyea Park	12.4	Local
	Lake Spanaway Golf Course	128.8	Regional
	Mayfair Playfield	4.6	Local
	Parkland Prairie	4.9	Resource Conservancy
	Spanaway Park	88.9	Regional
	Sprinker Recreation Center	43.8	Regional
South Hill	Half Dollar Park	2.4	Linear/Trail
	Heritage Recreation Center	46.9	County
	Hopp Farm	38.8	Local
	Meridian Habitat Park	35.7	County
	Nathan Chapman Memorial Trail	1.6	Linear/Trail
	South Hill Community Park	39.6	Local
Total		739.8	

Figure 3-26 Park Facilities



2014 Parks, Recreation, and Open Space Plan

The key planning document for Parks and Recreation is the PROS Plan. It supplements and implements the goals, objectives, and policies of the Comprehensive Plan. The PROS Plan lays out a vision for an innovative, inclusive, and interconnected system of parks, recreation, programs and services that promote recreation, health, and environmental conservation. The focus of the PROS Plan is shaped by input from staff and community members.

The Pierce County Council adopted the 2014 PROS Plan on February 18, 2014, through Ordinance 2014-03. The PROS Plan builds on the foundation created by the 2008 PROS Plan. It details the long-term vision for the Pierce County parks system covering 2014 to 2030. The plan provides information on the existing park inventory; needs assessment; vision, goals, and objectives; implementation; and the regional trails plan.

The current capital improvement program has projects identified for each facility within the study area. This includes a range of projects from development of a new master plan for Spanaway Regional Park to addressing deferred maintenance at Heritage Recreation Center, Mayfair Playfield, and South Hill Community Park. Upcoming projects also include design, construction permitting, and preparation of new facilities at Cross Park and Orangegate.

Level of Service

The level of service (LOS) policy helps determine the type, location, and number of parks and facilities offered to Pierce County residents. It can be expressed numerically or through the types of facilities and services provided.

In 2016, Pierce County Parks and Recreation used the amended Comprehensive Plan to move to an investment per capita methodology for LOS, instead of acreage per person. This method acknowledges that adequate recreational opportunities include a wide array of facilities beyond just access to open land. The new LOS has been incorporated into the Parks Impact Fee adopted by the County.

Impacts

Population growth creates higher demand for parks and recreation facilities. The increased usage would require more maintenance and potentially more parks, recreation, and open space land. Meeting increased demand will need to be addressed by the Parks and Recreation and Planning and Public Works departments.

Impacts Common to All Alternatives

Growth is expected in the affected area under all four alternatives. Increased housing and commercial space could contribute to higher use of parks, recreation facilities, and open space. The Parks and Recreation Department will need to respond to change based on their own adopted LOS standards and planning priorities. Development and redevelopment in the area could result in a corresponding increase in funding available from impact fees. The fees are intended to help offset some of the effects of growth.

Alternative 1

Under Alternative 1, there would be an increase in multifamily housing and more commercial and other employment space. The growth would occur gradually, and changes could be integrated into planning efforts as trends emerge over time. With increased population, capital improvements may need to be reassessed and reprioritized.

Alternative 2

Alternative 2 proposes zoning that would allow for more intense uses than Alternative 1 and could result in high-density housing in the Centers and Corridors. Change would likely occur incrementally, but would result in increased need for parks, recreation, and open space opportunities. Like Alternative 1, Alternative 2 could potentially require capital improvement projects to be reviewed in order to meet LOS standards.

Alternative 3

Alternative 3 is based on individual requests for zone changes. The changes in the affected area would be more moderate than Alternatives 1 and 2. Growth patterns moving forward would likely remain similar to current patterns. Parks and Recreation planning efforts would likely continue to be appropriate for the area's population.

Alternative 4

Under Alternative 4, the No Action alternative, growth patterns would follow current patterns as planned for in the adopted PROS Plan.

Mitigation Measures

Pierce County Parks and Recreation will continue to update the PROS plan to identify the needs of the community based on the adopted Community Plan Updates. Planning for parks includes both a 15-year assessment of needs and a 6-year program for improvements. The two approaches allow for the department to consider both short-term and long-term needs. Improvements are scheduled based on need, resources, and policy decisions. Having two processes for planning can provide a way to ensure responsiveness.

Since 2008, the Parks and Recreation Department develops plans using the Adaptive System approach. This model intends to distribute opportunities for active and passive recreation in a variety of locations throughout the county. Furthermore, it considers local park needs, especially in areas with higher densities, where demand for parks and recreation facilities is greater. Using this approach allows the Department to respond to changing conditions in the face of high population growth rates.

Continuing to follow the adaptive system method into the future will help the County be able to respond to increased development at any level, including that analyzed under the alternatives.

Pierce County Parks and Recreation will continue to evaluate and adjust appropriate revenue sources to fund future needs. The 2017 Parks and Recreation Annual Report described the importance of increased revenue from park impact fees for the department's design and development program. Beyond impact fees and the county general fund, Parks and Recreation funding includes a parks sales tax, real estate excise tax, motor vehicle fuel tax, and grants.

It will be key for Planning and Public Works and Parks and Recreation to continue to coordinate to meet the needs of Pierce County residents. Coordination between Planning and Public Works and Parks and Recreation can provide a way to anticipate the population's needs related to open space and recreation. This may require the reevaluation of how current sites are used and the consideration of new ways to develop sites that best serve the community.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to parks and recreation services are anticipated.

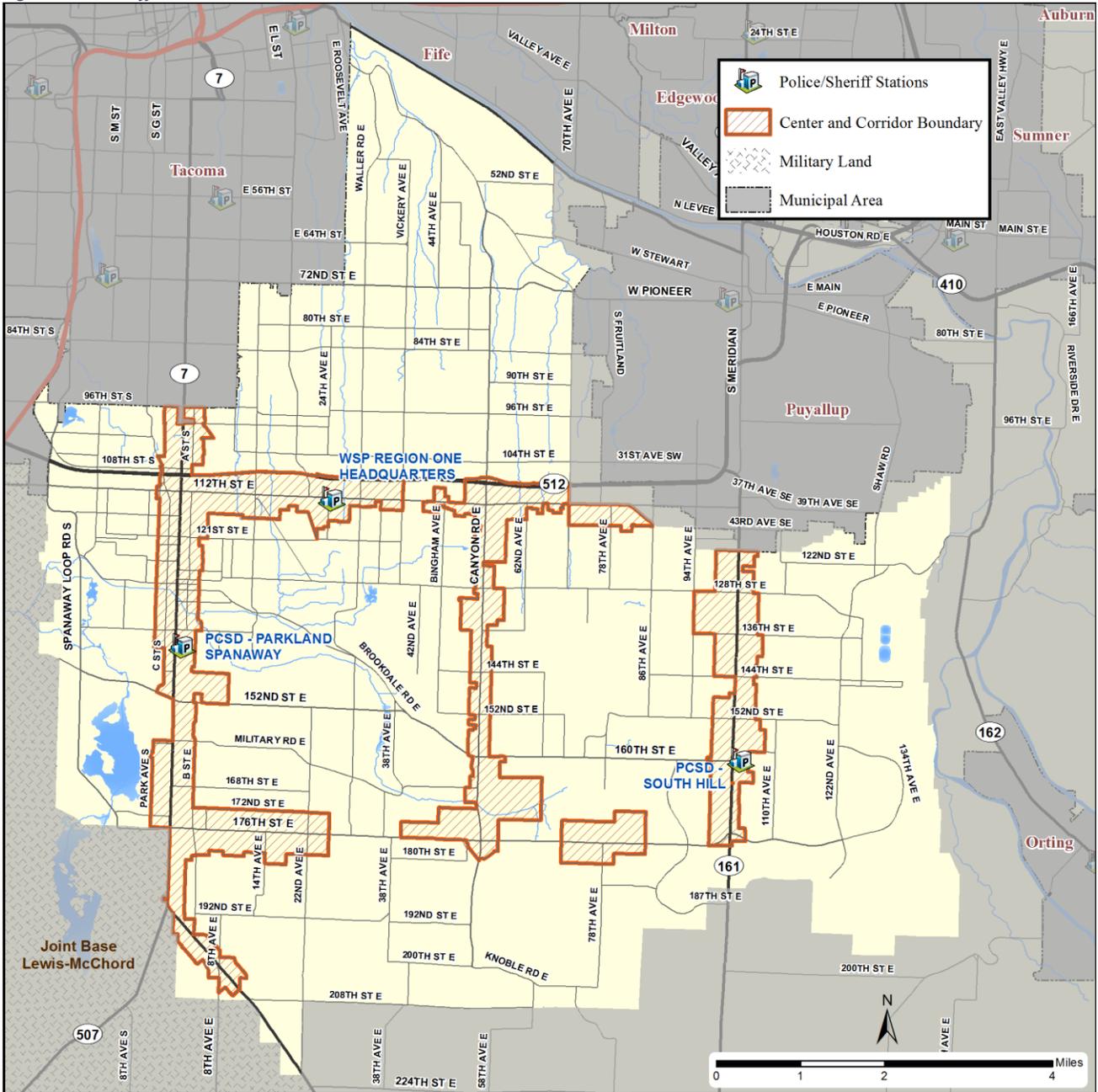
3.4.3 Police Services

Affected Environment

Jurisdictions in the region rely on the Pierce County Sheriff and municipal police departments for police services. The County Sheriff's Department serves unincorporated areas, while local municipal police departments typically serve incorporated cities and towns. Sometimes cities contract with the County to provide this service locally. Many local fire and police agencies now have mutual response agreements, which allow public safety responsibilities to be shared across jurisdictional boundaries.

The community plan areas are served by the Pierce County Sheriff's Department. As shown in Figure 3-27 Sheriff Substations and Centers and Corridors, there are currently two Sheriff precincts located within the community plan areas, one located on Pacific Avenue/SR-7 in the Spanaway area and the other on Meridian Avenue East in the South Hill area. Both stations would be located within Centers and Corridors designated areas. Approximately 200 officers serve out of the two substations on a 24-hour basis with 3 shifts. The substations and officers service the central Pierce County urban area. Other officers and substations service other rural areas of the County.

Figure 3-27 Sheriff Substations and Centers and Corridors



Impacts

The Sheriff's Department indicates that the proposals under the Community Plan Updates will increase the need for additional deputies over time. The two precincts would be enough to handle the facilities needs, even with increased deputies.

The need for additional deputies would be required primarily from the increase in the number of service calls from criminal activity, traffic accidents, and other emergencies. The Community Plan

Updates will increase the densities and population particularly in the Centers and Corridors areas and will require more responses.

The concentration of development along the main corridors may also increase traffic which could affect the response times for Sheriff personnel. With an increase in traffic, the potential increases for traffic collisions requiring Sheriff response for traffic management at accident scenes.

The plans would have a high likelihood of increasing the fiscal burden of the Sheriff's Department. The need for overlapping patrol hours, officers, and equipment concurrency would increase in line with the population increase. Also, the need for housing of criminals would be impacted to a slight degree from the proposed actions.

Impacts Common to Alternative 1 and Alternative 2

Increased Service Calls

Alternatives 1 and 2 will increase the density, heights, and intensity of uses within the Centers and Corridors. The increase in the allowed densities and heights will increase the number of residents living and will increase the number of emergency calls that the Sheriff's Department receives.

Required Equipment and Staffing

The Sheriff's Department is concerned about having adequate equipment, training, and deputies to continue to provide the same level of service.

Increase Traffic and Response Times

Alternatives 1 and 2 would also increase traffic in the community plan areas (see Chapter 3.3 Transportation). Increases in traffic from additional density in the Centers and Corridors, and in the community plan areas in general, may affect response times.

Alternative 3

Impacts from increased density and population increases would be limited to those areas where zone changes are proposed and would be spread across the Community Plan Updates area. There would be increases in Sheriff response calls and impacts to traffic and response times, however these would be localized to the zone change areas and would be less than the impacts of Alternatives 1 and 2.

Alternative 4

Current levels of service would not be affected as no changes to zoning or policies would occur under Alternative 3. Increased demands for Sheriff services would continue with growth under current policies and zoning.

Mitigation Measures

Sheriff services are funded from the general fund of Pierce County. Increases in development would increase funds raised through property taxes, which would be allocated to the Sheriff's Department through the Pierce County budget. Allocation of budget funds for additional deputies and equipment would mitigate for additional demands on services.

By increasing density in concentrated and centralized Centers and Corridors zones, the Sheriff's Department can more efficiently deploy services in overlapping patrols and focus their patrols in specific areas. Reducing sprawl in Pierce County and focusing development within a largely urban area would result in more efficient provision of current and future services.

The focus on growth within the main corridors would also provide an opportunity for Sheriff and fire services to look at creating public safety facilities which would provide both fire and Sheriff services for the area.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to the Sheriff's Department response services are anticipated.

3.4.4 Public Water Supply

Affected Environment

Existing Water Providers

Tacoma Water

Tacoma Light and Water Company incorporated in 1884. Tacoma Public Utilities, a City of Tacoma department, is comprised of Tacoma Power, Tacoma Rail, and Tacoma Water. Tacoma Water provides wholesale service to 13 water purveyors in Pierce and King Counties. Tacoma currently has 20 emergency interties¹⁸ as well as 23 metered wholesale connections to 16 local water purveyors. 26 Group A public water systems border Tacoma Water. There are approximately 162,249 equivalent residential units¹⁹ (ERUs). Tacoma Water services the eastern portion of South Hill, as well as the majority of Fredrickson and south Mid-County. Tacoma Water serves several areas adjacent to the City and the central and easterly areas of the community plan areas.

¹⁸ An "intertie" is an interconnection permitting passage between two or more utility systems.

¹⁹ An Equivalent Residential Unit is that portion of a facility's use that is equivalent to that used by a single family residence.

Parkland Light and Water

The Parkland Light and Water Company is the oldest mutual electric cooperative company in the nation. Water service began in the early 1920's with water purchased from the City of Tacoma. The Tacoma intertie was removed in 1945 after Parkland Light and Water Company's first well and water tank were put into operation. The number of water meters continued to grow as the Parkland and Spanaway communities expanded into the Parkland Light and Water Company service area. Parkland Light and Water Company generally services Parkland, Spanaway, and Midland.

Spanaway Water Company

Spanaway Water Company (Spanaway Water) is a non-profit mutual corporation. At the end of 2015 Spanaway Water provided service to approximately 330 businesses, 9,850 customer connections, or 11,166 ERUs at 284 gallons per day. Water supply for Spanaway Water is provided by 11 groundwater wells located at 9 sites throughout the service area. Spanaway Water services the southern section of the Parkland-Spanaway-Midland plan area as well as the west Fredrickson area.

Fruitland Water Company

The Fruitland Water Company resulted from the collapse of the Woodland Water Company in 1945. Fruitland serves (as of December 2013) 5,419 units via 3,532 service meters. The area served is located eight miles east-southeast of Tacoma. The service area is within the South Hill area, including some of that which lies within Puyallup city limits. Fruitland services the south hillside of the Puyallup valley from the bottom of the hill to the uplands. The total service area is 5.4 square miles and is confined on all sides by adjacent water purveyors, including Tacoma Public Utilities, the City of Puyallup, and Summit Water and Supply Company.

Firgrove Water Company

Firgrove Mutual Water Company is a private, non-profit, Group A public water utility serving a population of approximately 23,000 through an estimated 8,300 water service connections (9,900 ERUs) in central Pierce County. Firgrove's retail service area consists of approximately ten square miles of Pierce County, south of the City of Puyallup and west of the City of Orting. Firgrove's retail service population is expected to reach 37,000 by the year 2030. Providing water supply of approximately 4.7 million gallons of water consumed per day.

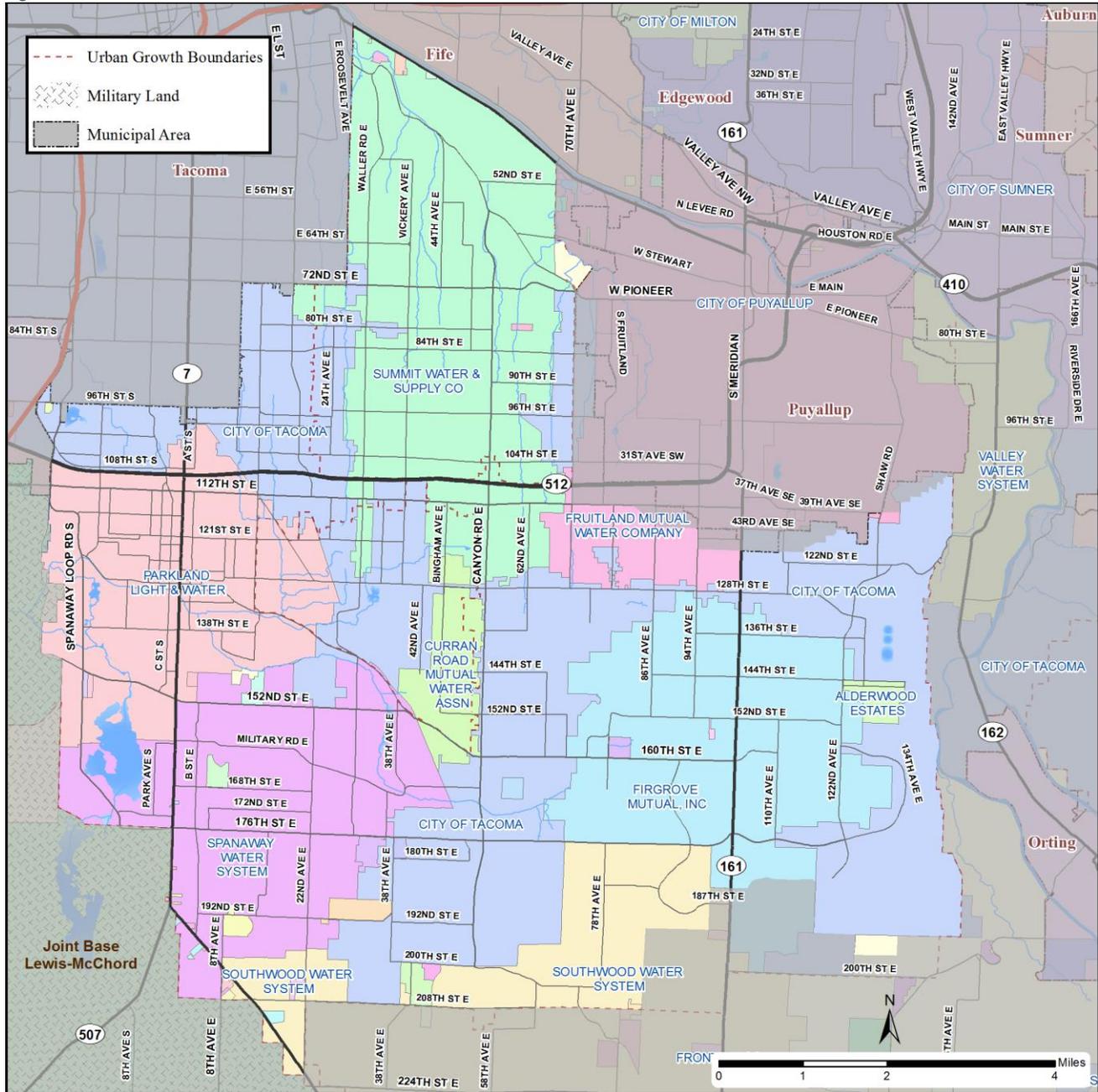
Rainier View Water Company

Rainier View Water Company is located in south central Pierce County. Rainier View acquired the Southwood Water system which is located within the Community Plan Updates area.

Summit Water and Supply Company

Summit Water & Supply Company is a water purveyor located in east Tacoma, in unincorporated Pierce County. It has been in business since 1923 and currently has about 5,180 connections serving roughly 7,100 ERUs. Summit Water's system source water is supplied through groundwater sources and a wholesale connection (intertie) with Lakewood Water District. Along with the aforementioned sources of water, Summit Water also maintains three (3) emergency interties with Tacoma City Water and one (1) with Fruitland Water as emergency sources of water. Current system storage consists of three (3) standpipe tanks and two (2) ground level tanks for a combined storage capacity of approximately 7.1 million gallons. The current Lakewood Water wholesale contract allows for a maximum transfer of 2.0 million gallons per day (MGD). Summit Water is currently in discussions with Lakewood Water in an effort to secure an additional 1.0 MGD, which would bring the wholesale contract to a total of 3.0 MGD and a maximum flow of nearly 2,100 gallons per minute.

Figure 3-28 Water Districts



Water Supply Planning

There are many common factors in how each Water District plans to provide for future water supply demands.

Near Term Demands

Each District has sufficient water supply to provide for the near term up to 20 years of demand or have interties or are negotiating interties that would provide sufficient water for the planning

horizon. Planning for demand beyond 20 years is discussed under “Future Water Supply Sources” below.

Fire Flow Demand

One of the keys for providing for future demand is building water supply facilities that provide for fire flow. Building the water systems and accommodating for fire flow provides a system that can accommodate higher population growth and fluctuations and increases in development activity, such as under the Community Plan Updates.

Future Water Supply Sources

The Districts are working to provide for future needs in the following three ways, by order of priority:

1. Obtain additional water rights through State authorized programs.
2. Participate in the extension of new regional water trunk line from the City of Lakewood Water.
3. Create interties with the City of Tacoma.

Expanded Water Rights

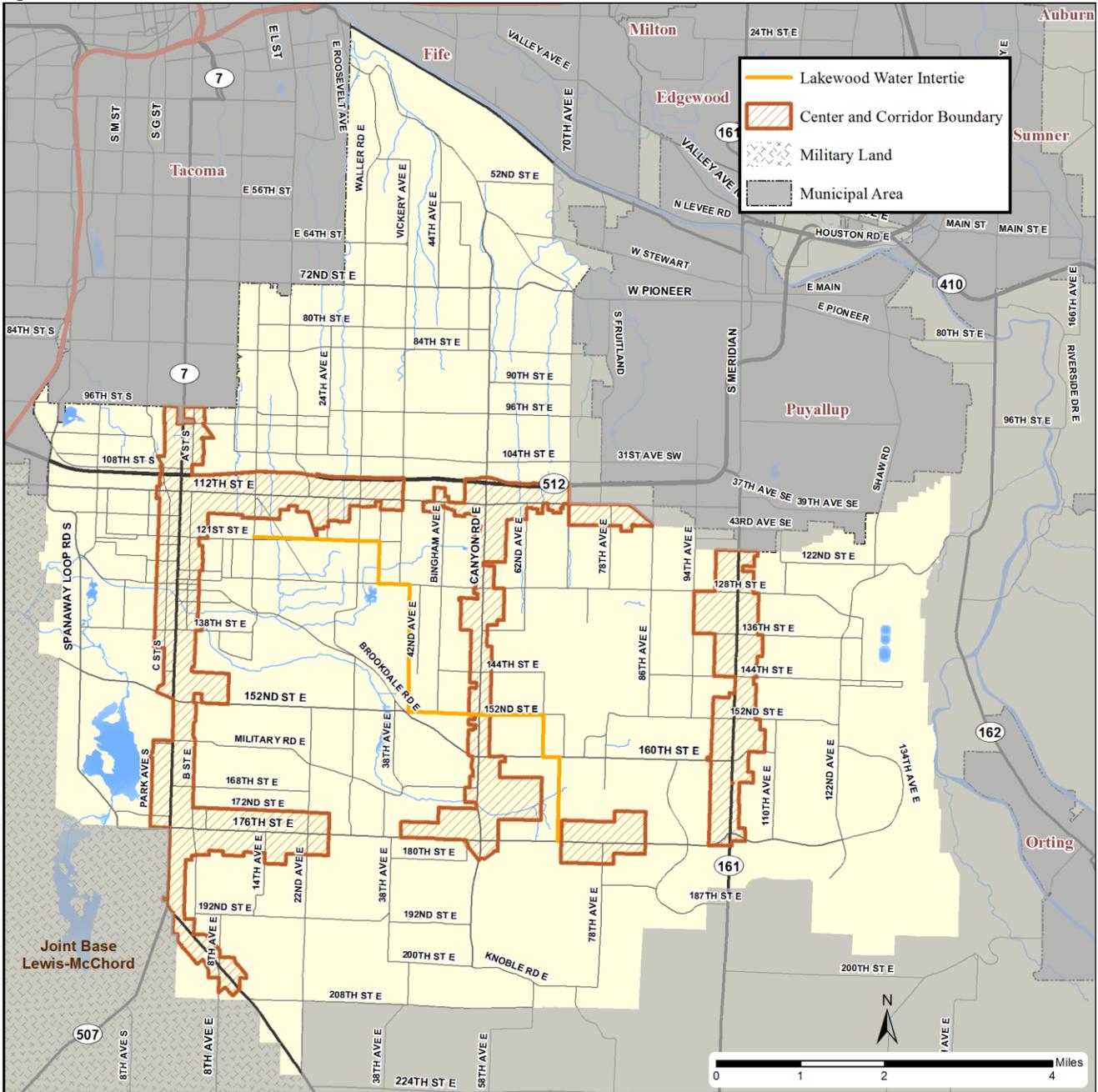
The State Legislature has passed recent legislation that provides a path for local districts to acquire additional water rights. Some districts are working to acquire these additional rights in order to provide for future water supply within the District. Additional water rights will allow for additional wells and capacity to serve their systems.

Water System Interties

Lakewood Water District Intertie

In concert with several of the Water Districts, the Lakewood Water District is proposing the extension of a major water line through the Community Plan Updates area and allowing interties with the Districts to provide for future needs. The proposed Wholesale Transmission Main Extension is a Lakewood Water District water main project to provide additional water to several water districts in Pierce County. The partnering districts are Firgrove Mutual Water Co., Summit Water Co. (pump stations only), and Rainier View Water Co. The project involves about 6.8 miles of 20-inch diameter and 0.8 miles of 16-inch diameter water pipe within Pierce County road right-of-ways and private easements. The alignment is shown in Figure 3-29 Lakewood Water Intertie. Additionally, a new booster pump station will be constructed near the start of the project (121st Street East & 20th Avenue East) and an existing pump station will receive some modification. The project is currently under design and permitting with construction expected to commence in April 2019. The Lakewood Water District has sufficient water to supply the participating districts with water that would meet the demands of Alternatives 1, 2, and 3.

Figure 3-29 Lakewood Water Intertie



Tacoma Water Interties

Tacoma Water serves homes, commercial, and industrial areas within the community plan areas, but is also a wholesale water provider for Pierce County. Tacoma Water is a participant in the Regional Water Supply System formed by the City of Tacoma, Lakehaven Utility District, the City of Kent, and the Covington Water District. Tacoma Water sources its water primarily from the surface waters of

the Green River and groundwater sources in the Green River watershed²⁰. Tacoma Water indicates that it has sufficient supplies to accommodate the water supply demands of the districts serving the Community Plan Updates area, including the additional growth considered in Alternatives 1, 2, and 3.

Impacts

Tacoma Water

Tacoma Water indicates that with the water rights and interties that are a part of its system, it can accommodate the future development proposed by the alternatives in the Community Plan Updates. Tacoma Water also has sufficient water to supply the other water districts in the areas also at levels that could accommodate future development proposed by the alternatives.

Parkland Light and Water

The Parkland Light and Water Company indicates that it has sufficient water availability to accommodate the future development under the Community Plan Updates alternatives. Parkland Light and Water Company has maintained a surplus of water availability as it has maintained a system to meet growth in its services area even though much of the growth has occurred in surrounding areas particularly Spanaway.

Parkland Light and Water Company indicates that the primary impact will be the need to enlarge water mains locally to service future development. In addition, they have concerns regarding development regulations which may conflict with utility requirements. Parkland Light and Water Company has a requirement that all utilities be undergrounded. Current regulation, landscaping, parking, and building placement may conflict with this undergrounding requirement.

Spanaway Water Company

Spanaway Water Company indicates that with current water supplies, possible additional water rights and interties with Tacoma Water and Lakewood Water, it will have sufficient water to accommodate future development under the alternatives. Spanaway Water has sufficient water for approximately 2000 connections at this time and is under contract to receive 1 million gallons of additional capacity through the future intertie with Lakewood Water.

Fruitland Water Company

The Fruitland Water Company has sufficient water rights to supply water for the next 20 years and has an existing intertie with the City of Tacoma. Fruitland Water has indicated that it will have

²⁰ Tacoma Mall Neighborhood Subarea Plan EIS

sufficient water to service the proposed future growth under the Community Plan Updates in all the alternatives.

Firgrove Water Company

Firgrove Mutual Water Company is currently providing a water supply with the objective of meeting fire flow requirements. By providing fire flow, the district would have sufficient water supply to meet the demands of future development under all the alternatives. Firgrove is further augmenting its water supply by utilizing the State authorized program to find additional water rights as well as investing in the new intertie with Lakeland Water Company.

Rainier View Water Company

Rainier View Water System has sufficient water to meet the needs of future development under the proposed alternatives and will further augment its water supply with investment in the Lakeland Water Company intertie. The intertie will allow the water system to expand from 16,000 to 28,000 water connections.

Summit Water and Supply Company

Summit Water & Supply Company is in the process of updating its Water System Plan and when completed anticipates being able to assess and comment on potential fire flow requirements and future growth on its system with respect to the Community Plan Updates alternatives. Summit Water is also negotiating their participation in the construction of a second Booster Pump Station, which is part of the Lakewood Water's Wholesale Transmission Main Extension Project. This Booster Pump Station will allow for the transfer of up to 10.0 MGD with 3.0 MGD being supplied to Summit Water.

Impacts Common to all Alternatives

All alternatives will result in additional residential, commercial, and industrial demand for water. Alternatives 1, 2, and 3 would have higher growth resulting from the zoning changes and would result in a higher demand for water. Each water district has indicated that through existing and future water supply sources, they have sufficient capacity to accommodate the growth outline in Alternatives 1, 2, and 3.

Future growth will require the upgrade of local distribution lines to meet the needs of specific development projects.

Mitigation Measures

There are no proposed mitigation measures regarding future water supply for any of the alternatives, as all water providers have indicated that, through their water supply planning, they will be able to accommodate water demand for each of the alternatives.

Local distribution lines will need to be upgraded to meet the needs of specific development projects.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts are anticipated related to public water supply.

3.4.5 Sanitary Sewer

Affected Environment

The purpose of a sanitary sewer system is to move wastewater from its source to a treatment facility. Gravity sewer systems are currently the preferred method of conveying wastewater in Pierce County. When topographic obstacles do not permit gravity sewer systems to function properly, a sewage pump station is incorporated into the system. Treatment and discharge of wastewater is the final stage in the system.

The Pierce County Sewer Utility is the primary sewer provider for central unincorporated Pierce County, as well as for the Cities of University Place, Lakewood, DuPont, and Milton. Sewer lines extend from the Chambers Creek Regional Wastewater Treatment Plant (WWTP) throughout the County's UGA. Pierce County Sewer Utility also serves the Tehaleh Master Planned Community with the Cascadia WWTP.

The Chambers Creek Facility uses a combination of physical and biological treatment processes to treat residential and commercial wastewater and is one of two plants operated by Pierce County, the other is the aforementioned Cascadia WWTP in the Tehaleh Master Planned Community.

The Chambers Creek Facility is located on a 180-acre reserve within the Chambers Creek Properties in the City of University Place. Chambers Creek has a daily treatment capacity of 38.46 MGD with a 6.79 MGD reserve for a total capacity rating of 45.25MGD with average daily flows in 2018 of 21MGD.

The Sewer Service Basin consists of a 117-square mile service area that corresponds with the County's UGA. The Sewer Service Basin is made up of 20 individual sub-basins corresponding with the growth around the cities of Tacoma, DuPont, Fife, Lakewood, Milton, Puyallup, and in and around the Town of Steilacoom and a small area in the City of Edgewood. The Sewer Service Basin also includes

the unincorporated urban areas of Frederickson, Parkland, Spanaway, South Hill, Graham, Brown's and Dash Points, and Fife Heights.

The Tehaleh Master Planned Community is a Sewer Service Basin area to itself and is serviced by the Cascadia WWTP. Covering 36 percent of urban Pierce County, this is the bulk of Pierce County's urban sewer service area.

There is a small rural service area located in the southern end the Sewer Service Basin. New connections, not vested through past land use decisions or Tacoma-Pierce County Health Department connection requirements, are prohibited in any rural area.

Figure 3-30 - Pierce County Sewer Utility Service Area details the central area of the Sewer Service Basin and excludes the cities of Lakewood, University Place, DuPont, Town of Steilacoom and Tehaleh.

-
- Biological Process Phase 2
 - Fermenter
 - Centrate Treatment
 - Utilidor Development Phase 2
 - Electrical System Upgrades
 - 2029-2034:
 - Primary Sedimentation Expansion
 - Solids Thickening Expansion Phase 2
 - Disinfection System Expansion Phase 3
 - Digester Expansion Phase 2
 - Biological Process Expansion Phase 3
 - Utilidor Development Phase 3
 - 2036-2045:
 - Electrical System Upgrades
 - FMF Expansion Phase 2
 - Advanced Treatment Implementation

Major Trunk Lines

As with the expansion phasing, the upsizing of major trunk lines (18" diameter - 84" diameter) serving the sewer service areas have been planned based on 2% growth throughout the service area.

Local Sewer Lines

Local sewer lines extend sewer service into neighborhoods and commercial areas. These lines are sized and improved in response to development needs.

Unified Sewer Plan

The County's planning document for sewer facilities is the Unified Sewer Plan (USP). The USP was last updated in 2010/2012 and outlined many of the improvements that have been constructed at the WWTP. The County is beginning the next update of the USP which will consider densities and development patterns of the Community Plan Updates area and will provide more specific detail and timeframes needed for future improvements and expansions.

Impacts

Sewer Treatment Plant

The County has planned through the Sewer Improvement Program for 2% annual growth in the service area. The proposed land use changes within the Community Plan Updates may increase that to approximately 3.5% annual growth over 20 years. This could result in flows that would arrive 75% earlier to the Chambers Creek Facility than were originally projected. This would then see expansion projects planned for the next 5 years out to 2024 would need to be moved up 2 years sooner to 2022. Those expansion projects planned 10 years out in 2029 would need to be moved up 4 years sooner to

2025, with expansion projects planned for 17 years out in 2036 being moved up 7 years sooner to 2029.

More restrictive regulations by the Department of Ecology could also affect and change these timeline estimates. This and other possibilities will be evaluated as part of the upcoming USP update.

Major Trunk Lines

There are several major trunk lines that serve the Community Plan Updates area and the Centers and Corridors zones that are planned to be upsized in the next 20 years. Similar to the WWTP, the proposed land use changes of the Community Plan Updates may require the timing of proposed trunk line projects to be accelerated accordingly. These projects and their timing for inclusion into the CFP will be reevaluated as part of the USP update.

Local Sewer Lines

Local sewer lines (8" diameter - 18" diameter) may need to be upsized depending on the specific location of increased densities over the next 20 years. In general, the smaller in diameter that a local line is, the more sensitive it is to density increases.

Sewer Connection and Service Charges

The acceleration of the Sewer Improvement Program projects could require increases to the connection charges and/or monthly sewer rates over and above the standard 2.5% and 3.3% per year, respectively.

Mitigation Measures

Sewer Treatment Plant

The proposed land use changes of the Community Plan Updates may not change the needed expansions outlined in the Existing Conditions section but would rather accelerate them several years depending on the speed of the buildout in these areas and the rest of the UGA.

Major Trunk Lines

The major trunk line projects and their timing will all be reevaluated as part of the USP update. Increased discharge regulations may make it more feasible to decentralize treatment by possibly constructing a satellite treatment facility in some areas which could eliminate the need for some major trunk line projects.

Local Sewer Lines

Local sewer lines could be upsized as part of development projects or proactive sewer line improvements as capital facilities planning and funding is aligned with the land use changes proposed by the Community Plan Updates.

Sewer Connection and Service Charges

Increases in connection charges will be paid by new residential, commercial, and industrial connections and do not impact the general sewer monthly rate. Annual sewer rate increases may increase over time and are reviewed and approved by Pierce County Council based upon the needs of the Division to pay for new projects, expansions, maintenance, and operations of the WWTP and collection system and to meet the requirements of the WWTP's NPDES permit.

Significant Unavoidable Adverse Impacts

There are no significant unavoidable adverse impacts related to sewer service.

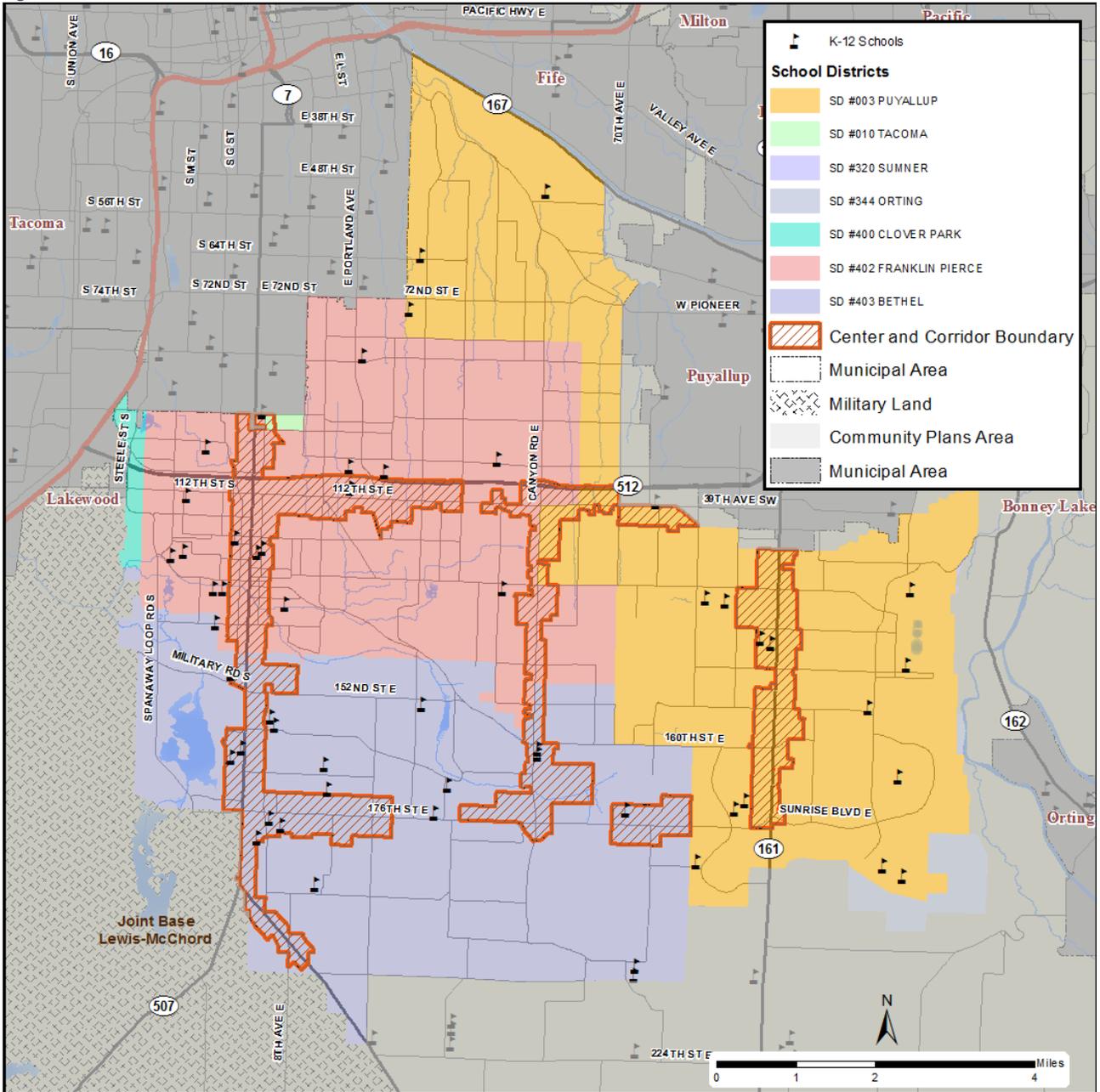
3.4.6 Schools

Affected Environment

Existing Conditions

Three school districts serve most of the four Community Plan areas involved in the update. Bethel, Franklin Pierce, and Puyallup Schools serve the majority of students in the communities, along with a variety of private schools. Small pockets in two of the plan areas fall within the boundaries of other districts. In Parkland-Spanaway-Midland, part of the Midland area is served by Tacoma Public schools, and the western edge of Parkland currently lies within the boundary for Clover Park School District. In South Hill, the southeastern corner is currently served by Orting Public Schools. Each school district maintains their own CFP detailing ways to meet future needs.

Figure 3-31 School Districts



School Inventory

Bethel School District

The Bethel School District²¹ covers over 215 square miles in southeast Pierce County. Most of the district is located in unincorporated Pierce County and a small portion in the City of Roy.

The district serves both urban and rural areas of the county, with the UGA boundary dividing the district at 208th Street East. Frederickson and parts of the Parkland-Spanaway-Midland Community Plan area lie within the District’s boundary. The District also covers the Graham Community Plan area. Bethel is the 16th largest district in the State with an estimated enrollment of approximately 20,000 students.

Bethel consists of 16 elementary schools, six middle schools, three comprehensive high schools, and one alternative high school, an elementary learning academy, and a school of choice. There are 14 Bethel schools plus a district-wide shared facility within the plan areas, shown in Table 3-22 Bethel School District Facilities and Capacity. The district also owns the Pierce County Skills Center, which serves 10 Pierce County districts. The Bethel School Board sets boundaries to maintain comparably-sized schools allowing for equal educational and extracurricular opportunities.

Table 3-22 Bethel School District Facilities and Capacity

Community Plan Area	School or Facility Name	Address	Capacity
Elementary Schools (Kindergarten – Grade 5)			
Frederickson	Clover Creek Elementary School	16715 36th Ave E, Tacoma, WA 98446	484
Frederickson	Frederickson Elementary School	17418 74th Ave E, Puyallup, WA 98375	413
Frederickson	Naches Trail Elementary School	15305 Waller Rd E, Tacoma, WA 98446	413
Frederickson	Pioneer Valley Elementary School	7315 Eustis Hunt Rd, Spanaway, WA 98387	460
Parkland-Spanaway-Midland	Camas Prairie Elementary School	320 176th St E, Spanaway, WA 98387	440
Parkland-Spanaway-Midland	Evergreen Elementary School	1311 172nd St E, Spanaway, WA 98387	391
Parkland-Spanaway-Midland	Spanaway Elementary School	412 165th St S, Spanaway, WA 98387	278

²¹ Bethel School District. November 2017. Bethel School District Capital Facilities Plan 2017-2022. Bethel Schools: Spanaway, WA. https://www.bethelsd.org/cms/lib/WA01918819/Centricity/Domain/4840/2017_CFP_adpoted_11-14-17.pdf

Community Plan Area	School or Facility Name	Address	Capacity
Parkland-Spanaway-Midland	Thompson Elementary School	303 159th St E, Tacoma, WA 98445	500
Middle Schools (Grade 6 – Grade 8)			
Frederickson	Liberty Middle School	7319 Eustis Hunt Rd E, Spanaway, WA 98387	990
Parkland-Spanaway-Midland	Cedarcrest Middle School	19120 13th Ave Ct E, Spanaway, WA 98387	758
Parkland-Spanaway-Midland	Spanaway Middle School	15701 B St E, Tacoma, WA 98445	983
High Schools (Grade 9 – Grade 12)			
Frederickson	Pierce County Skills Center*	16117 Canyon Rd E, Puyallup, WA 98375	286
Parkland-Spanaway-Midland	Challenger High School	18020 B St E, Spanaway, WA 98387	N/A
Parkland-Spanaway-Midland	Spanaway Lake High School	1305 168th St E, Spanaway, WA 98387	1581
Other District Facilities			
Frederickson	Central Kitchen and Transportation Center	5625 192nd St E, Puyallup, WA 98375	N/A
Parkland-Spanaway-Midland	Bethel Acceleration Academy	516 176th Street East Spanaway, WA 98387	N/A
Parkland-Spanaway-Midland	Bethel Early Learning Center	21813 38th Ave E, Spanaway	N/A
Parkland-Spanaway-Midland	Bethel Support Annex: Information Service Center, Operations, Print Shop Warehouse	5410 184th St E, Bldg. C, Puyallup	N/A
Parkland-Spanaway-Midland	Transitions Lab (Learning Assessment Building)	220 175th St S, Spanaway	N/A

*Pierce County Skills Center serves multiple districts

Bethel does not include portables in capacity calculations. However, Challenger High School consists entirely of portable classrooms and is considered to not have permanent capacity.

Franklin Pierce School District

The Franklin Pierce School District²² is located south of Tacoma and west of Puyallup. It includes parts of the Mid-County and Parkland-Spanaway-Midland Community Plan areas with the communities of Midland, North Clover Creek Collins, Parkland, Summit View, and Summit-Waller. The district borders

²² Franklin Pierce Schools. 2018. Franklin Pierce Schools Six-Year Capital Facilities Plan 2018-2024. Tacoma, WA.

Tacoma, Bethel, Puyallup, and Clover Park school districts. It is the only district to lie entirely within the plan update area.

Franklin Pierce consists of one early learning center, eight elementary schools, two middle schools, three high schools, including one alternative high school, and a district farm. Preschool including Head Start, ECEAP, and district preschool programs are housed at the Dr. Frank Hewins Early Learning Center. The district also owns three support facilities, as well as several small undeveloped properties.

Table 3-23 Franklin-Pierce School District Facilities and Capacity

Community Plan Area	School Facility	Address	Capacity
Elementary Schools (Kindergarten – Grade 5)			
Mid-County	Central Avenue Elementary School	4505 104th Street East, Tacoma, WA 98446	419
Mid-County	Collins Elementary School	4608 128th Street East Tacoma, WA 98446	416
Mid-County	Midland Elementary School	2300 105th Street East, Tacoma, WA 98445	519
Parkland-Spanaway-Midland	Brookdale Elementary School	611 132nd Street South, Tacoma, WA 98444	403
Parkland-Spanaway-Midland	Christiansen Elementary School	10232 Barnes Lane Tacoma, WA 98444	360
Parkland-Spanaway-Midland	Elmhurst Elementary School	420 133rd Street East, Tacoma, WA 98445	466
Parkland-Spanaway-Midland	Harvard Elementary School	1709 85th Street East, Tacoma, WA 98445	451
Parkland-Spanaway-Midland	James Sales Elementary School	11213 Sheridan South, Tacoma, WA 98444	460
Middle Schools (Grade 6 – Grade 8)			
Parkland-Spanaway-Midland	Morris E. Ford Middle School	1602 104th Street East, Tacoma, WA 98445	870
Parkland-Spanaway-Midland	Perry G. Keithley Middle School	12324 12th Avenue South, Tacoma, WA 98444	895
High Schools (Grade 9 – Grade 12)			
Mid-County	Franklin Pierce High School	11002 18th Avenue East, Tacoma, WA 98445	1318
Parkland-Spanaway-Midland	GATES High School	813 132nd Street South, Tacoma, WA 98444	154
Parkland-Spanaway-Midland	Washington High School	12420 Ainsworth South, Tacoma, WA 98444	1148
Other District Facilities			
Parkland-Spanaway-Midland	Administration Complex	315 129 th Street South Tacoma, WA 98444	N/A

Community Plan Area	School Facility	Address	Capacity
Parkland-Spanaway-Midland	Dr. Frank Hewins Early Learning Center	12223 "A" Street Tacoma, WA 98444	160
Parkland-Spanaway-Midland	Natural Science Resource Center (The Farm)	9516 Waller Road East Tacoma, WA 98446	60
Parkland-Spanaway-Midland	Support Services/Nutrition Services/Purchasing/Facilities/Information Technology	11807 24 th Avenue East Tacoma, WA 98445	N/A
Parkland-Spanaway-Midland	Transportation Complex	10824 18 th Avenue East Tacoma, WA 98445	N/A

Franklin Pierce includes portable classrooms in the capacity calculations.

Puyallup School District

The Puyallup School District²³ is the second largest district in Pierce County and the eighth largest in the State. The District serves almost 23,000 students and employs over 3,000 staff. It is located six miles east of Tacoma and comprises approximately 54 square miles. In addition to the City of Puyallup, the District boundary covers most of South Hill and parts of Mid-County. Portions of the cities of Edgewood, Fife, and Sumner fall within the District as well. The District coordinates with each jurisdiction for impacts.

As of the 2019-20 school year, Puyallup School District will operate 22 elementary schools, seven junior high schools, three comprehensive high schools, and one alternative high school. Within the plan area, there are 17 schools: eleven elementary schools, three junior high schools, and three high schools. One of the high schools provides alternative programming.

Table 3-24 Puyallup School District Facilities and Capacity

Community Plan Area	School Name	Address	Capacity*
Elementary Schools (Kindergarten – Grade 6)			
Mid-County	Waller Road Elementary School	6312 Waller Rd, Tacoma 98443	264
South Hill	Brouillet Elementary School	17207 94th Ave E, Puyallup 98375	493
South Hill	Carson Elementary School	8615 184th St E, Puyallup 98375	720

²³ Puyallup School District. October 1, 2018. 2018-2023 Capital Facilities Plan. Puyallup School District: Puyallup, WA.

https://puyallupsd.ss11.sharpschool.com/UserFiles/Servers/Server_141067/File/Departments/Facilities/Planning/2018-2023%20Capital%20Facilities%20Plan/2018-2023%20CFP%20Plan%20-%20Final.pdf

South Hill	Dessie Evans Elementary School**	7911 144th St E, Puyallup 98375	1,030
South Hill	Edgerton Elementary School	16528 127th Ave Ct E, Puyallup 98374	672
South Hill	Firgrove Elementary School	1398 Meridian South, Puyallup 98373	720
South Hill	Hunt Elementary School	12801 144th St E, Puyallup 98374	756
South Hill	Pope Elementary School	15102 122nd Ave E, Puyallup 98374	492
South Hill	Ridgecrest Elementary School	12616 Shaw Rd E, Puyallup 98374	480
South Hill	Woodland Elementary School	7707 112th St E, Puyallup 98373	528
South Hill	Zeiger Elementary School	13008 94th Ave E, Puyallup 98373	510
Junior High Schools (Grade 7 – Grade 9)			
South Hill	Ballou Junior High School	9916 136th St E, Puyallup 98373	754
South Hill	Glacier View Junior High School	12807 184th St E, Puyallup 98374	813
South Hill	Stahl Junior High School	9610 168th St E, Puyallup 98375	738
High Schools (Grade 10 – Grade 12)			
South Hill	Emerald Ridge High School	12405 184th St E, Puyallup 98374	1,277
South Hill	Rogers High School	12801 86th Ave E, Puyallup 98373	1,380

*Capacity does not include portable classrooms

**Opens for 2019-2020 school year

Most support facilities for the district are located within the City of Puyallup, with one facility in the City of Edgewood. Several undeveloped properties are located in unincorporated Pierce County.

School District Facilities Plans

Planning efforts for the school districts have been analyzed in terms of meeting LOS standards at the elementary, middle or junior high, and high school level. Each district prioritizes their own capital facility needs based on student needs and available funding. The districts are required to complete a CFP under the GMA. The districts also incorporate their CFP into the Pierce County's CFP, which is instrumental in the establishment of school impact fees.

Bethel School District

Bethel School District published their most recent CFP in 2017. In the years leading up to the capital improvement update, Bethel completed several projects using funding from a 2006 bond. Between 2006 and 2010, the District built two new elementary schools, a new middle school, and modernized Spanaway Lake High School. Between 2010 and 2015, projects included the replacement of Clover

Creek Elementary and Spanaway Elementary. Bethel has plans to expand multiple sites and add to their school inventory. While the district's actions have been limited for several years due to a lack of funding sources, a recent bond approval will allow improvements moving forward.

The recently-passed bond will be used to build a new elementary school located on Waller Road. It is expected to open with the 2021-2022 school year. A new Bethel High School is slated to open in 2023. The old BHS building will then be used as a "swing school" while other schools are updated, depending on funding. The district currently plans for students and staff from Cedarcrest, Evergreen, and Naches Trail to be housed at the facility while construction takes place at each property.

Previously, the 2001 bond included replacement of two elementary schools and one middle school and the construction of a one new high school and a new middle school. The 2006 bond included the design and construction of two new elementary schools (Nelson and Frederickson), a new middle school (Liberty), the replacement of two existing elementary schools (Clover Creek and Spanaway). It also provided for the modernization of Spanaway Lake High School and Shining Mt. Elementary and the renovation of Elk Plain School of Choice. The bond funded the construction of a central kitchen and transportation center and opening of the Bethel Learning Center. Both bonds funded smaller projects throughout the district, as well.

Franklin Pierce School District

The six-year enrollment projections for Franklin Pierce are based on two primary factors: historical enrollment statistics and proposed future developments for single-family and multifamily housing. Housing development was affected by the recession, but new construction experienced a revival in the last few years. Recent trends have shown a significant influx of new residents to Pierce County. The District expects this change to affect its schools. Franklin Pierce projects a moderate increase in elementary school enrollment while middle school enrollment is expected to increase steadily. High school enrollment is expected to remain steady.

Franklin Pierce does not provide long-term forecasts in their CFP due to potential uncertainty. The accuracy of enrollment projections can diminish year-by-year, so the District focuses on six-year estimates instead. The calculations predict successive school year enrollment by incorporating the previous year's data, proposed housing development data, and cohort survival factors.

The District uses a space allocation model to meet the GMA requirements for school districts to report on LOS. The typical methods used to determine LOS are the practical or program capacity model and the space allocation model. The practical capacity model measures LOS by focusing on the number of students the school is designed to accommodate. The space allocation model measures service based on the number of square feet per student.

The District owns several small undeveloped sites. The largest is a 5-acre site located between Washington High School and Keithley Middle School. It is expected the site will eventually be used as an athletic field.

Capital improvements are in progress using a 2016 bond initiative. Five elementary schools (Brookdale, Central Avenue, Collins, Harvard, and James Sales) are scheduled for replacement. Ford Middle School, Franklin Pierce High School, and Washington High School will be renovated as part of the program.

Puyallup School District

Puyallup uses LOS standards to help determine their capital facilities planning. The District maintains a LOS standard for elementary students and secondary students. Adopted LOS standards are based on a combination of factors. For grades K-3, LOS is based on class size reduction efforts outlined in the 2017-2018 District budget. For fourth through sixth grade, class size targets are based on collective bargaining agreements. The targets are averaged to get the LOS for elementary school students. The adopted LOS for the elementary school level is 24 students per general education teaching station. The LOS for secondary education is based in the District-wide average of number of students per classroom in secondary schools during the 2016-2017 school year. The adopted LOS for secondary school students is 28 students per general education teaching station. The District then uses a program capacity model to calculate student capacity. They do account for portables in this model, but portable classrooms are used to ease pressure when population exceeds capacity.

The District uses enrollment forecasts to anticipate future student populations. The forecasts consider the same factors as the other two Districts. Like Franklin Pierce, Puyallup focuses on shorter enrollment projections in their CFP. The short-term forecast means the underlying assumptions should be more accurate.

Voters approved a \$292.5 million bond in November 2015. The bond will be used to finance major capital projects, all at the elementary level (Firgrove, Northwood, and Sunrise). The District plans to replace existing buildings, construct a new school (Dessie Evans Elementary), remodel and expand Pope Elementary, and add an addition to Hunt Elementary.

Impacts

Impacts Common to All Alternatives

Growth is expected to occur under all four alternatives. School districts will need to plan to accommodate increased student populations.

Impacts Common to Alternative 1 and Alternative 2

Both Alternative 1 and Alternative 2 allow for more multi-family housing units in the affected area. Historically, multi-family units have not generated as many students as single-family units. The effect of increasing multi-family housing will need to be monitored for its effects over time.

Impacts Common to Alternative 1, Alternative 2, and Alternative 3

Alternatives 1, 2, and 3 include a rezone of RR/SF to MSF, which has the potential increase the density of single-family development in portions of each of the four Community Plan areas. The MSF change may lead to a greater impact on schools by allowing more single-family residences to be built in the area. In all three districts, this form of housing has generated more students than other types of housing.

Alternative 2

Alternative 2 has the potential for the highest level of development. This Alternative would primarily impact the Pacific Avenue and Meridian Avenue Corridors where most of the expanded UCOR zone would be located. It would allow for higher density, potentially leading to a greater increase in student enrollment compared to other alternatives.

Mitigation Measures

Impact fees would be required from both single-family and multifamily housing development. Impact fees are charges assessed once to help pay for new or expanded public facilities to address the increased demand created by new development. School impact fees in Pierce County are calculated per single-family and per multi-family dwelling unit. Districts are required to calculate student generation rates for each type of housing to account for the different impacts on school facilities.

School district CFPs will continue to determine the level of service and future facility needs. The regular review and update of district needs can allow affected districts to adjust their plans in response to growth patterns. The county requires districts to maintain at least a six-year forecast of needs and a six-year plan for funding to benefit from impact fees.

Growth typically does not affect schools evenly. Districts may choose to reconsider the attendance areas for schools. It provides a way to balance enrollment, support efficient transportation, and provide equitable opportunities to students.

Districts plan for future expansion through property acquisition and new facility construction. This provides a way to plan for future school sites or expand existing sites to consider long-term growth. Depending on planning and funding with other districts, building new facilities can ease the impacts of growth.

State law currently requires a 60 percent majority vote to pass a school construction bond. For several school districts this has made it difficult to pass bonds and obtain needed funds for new school construction.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to schools are anticipated.

3.4.7 Solid Waste

Affected Environment

RCW Chapter 70.95.020 requires the establishment of a Statewide comprehensive program. Each county should develop and implement a Comprehensive Solid Waste Management Plan to assure effective programs throughout the State. The purpose of the plan is to ensure solid waste and disposal capacity over the next 50 years. The Washington State Department of Ecology approves waste management plans, establishes solid waste rules, and provides financial and technical assistance. County departments of public health enforce solid waste rules, issue operating permits for local solid waste facilities and collection vehicles, monitor historic landfills, and screen waste for any special handling needs. Three companies hold five solid waste permits within Pierce County: Murrey's Disposal, Harold LeMay Enterprises, and University Place Refuse.

Solid waste services within the community plan areas are provided by Murrey's Disposal and LeMay Enterprises. Weekly curbside garbage pickup is provided by both companies, as well as biweekly recycle and yard waste pickup. These solid waste service providers contract with Pierce County for disposal services at the County's landfill at 304th Street East and Meridian Avenue in south Pierce County.

Impacts

Impacts Common to All Alternatives

All four alternatives will increase housing and population, causing an increase in demand for solid waste services. Alternatives 1, 2, and 3 will increase the demand more than Alternative 4, with Alternative 2 causing the highest increase. Solid waste providers will need to augment equipment and personnel to accommodate increased demand. Alternatives 1, 2, and 3 will also increase disposal at the County landfill and shorten the projected life of the landfill. Pierce County would need to plan for future landfill needs sooner.

Mitigation Measures

Solid waste providers will need to adjust equipment, personnel and rate structures to service additional customers. With the increase in multifamily units within the Centers and Corridors designations under Alternatives 1 and 2, providers will be able to service many more customers at single stops and reduce travel times and equipment replacement. With the adoption of the Community Plan Updates including Centers and Corridors and other zoning changes, Pierce County may be able to project solid waste demands and plan for additional future landfill needs. Under all alternatives, Pierce County will continue to educate residents on the benefits of recycling and yard waste collection programs to reduce the waste stream and prolong the life of the landfill.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts are anticipated related to the projected growth in solid waste service needs within the community plan areas.

3.5 Air Quality

3.5.1 Affected Environment

Introduction

Air pollution describes the presence of various substances in the air. The emissions that cause pollution are a result of a range of sources including agriculture, industry, and transportation. Pollution has the potential to harm human health and the environment, which may include animals, plants, visibility, and the built environment. Air quality is regulated at the federal level by the Clean Air Act (CAA). Under this law, pollutants are regulated as “criteria pollutants” or “air toxics,” also known as “hazardous air pollutants (HAPs).” Regulations depend on the classification.

Geography and Climate

The air quality in Pierce County is affected by a variety of factors, including geography and climate. Three key features strongly influence the area’s climate: terrain, the Pacific Ocean, and semi-permanent high- and low-pressure regions located over the northern Pacific²⁴.

The central unincorporated UGA lies to the west of the Cascade Mountains and east of Puget Sound. The surrounding mountains can create challenges for air quality in the Puget Sound region. The Cascades to the east and the Olympics to the west, along with rolling hills throughout the region, create a bowl where pollution accumulates. However, the region’s location along the water can also allow clean ocean air to disperse pollutants.

Weather can affect which pollutants are most prevalent. The region is characterized by mild, wet, and cloudy winters and relatively cool and dry summers. The weather in Pierce County and the Puget Sound region is influenced by Pacific onshore wind patterns.

The region is prone to inversion, a weather pattern with the potential to worsen air quality, which typically occurs during winter months. When inversion occurs, the warm air, high in the atmosphere, acts like a lid, trapping pollutants in place. The inversion layer can be dispersed by wind or warm air rising as the ground heats up.

²⁴ Western Regional Climate Center. n.d.. Climate of Washington. Reno, NV: Western Regional Climate Center. <https://wrcc.dri.edu/narratives/WASHINGTON.htm>

Criteria Pollutants

The CAA outlines the National Ambient Air Quality Standards (NAAQS), which require the regulation of criteria pollutants. Six common pollutants known to cause harm: carbon monoxide²⁵, lead²⁶, nitrogen dioxide²⁷, ozone²⁸, particulate matter (coarse and fine)²⁹, and sulfur dioxide³⁰. Each criteria pollutant can contribute to reduced air quality individually, but they have the potential to undergo chemical reactions to create other criteria pollutants. For example, nitrogen oxides will often contribute to the formation of ozone or fine particle pollution.

Table 3-25 Criteria Pollutants

Pollutant	Description	Sources	Select Health Effects	Select Environmental Effects
Carbon Monoxide	Colorless, odorless gas	Motor vehicle exhaust, kerosene, wood burning stoves	Disrupts blood cells' ability to carry oxygen through the body	Contributes to smog, reacts with other molecules to form GHGs like CO ₂
Lead	Heavy metal	Ore and metals processing, leaded aviation fuel, waste incinerators, utilities, lead-acid battery manufacturing	Toxic to cardiovascular, neurological, immune, renal, reproductive systems	Can interrupt the growth and reproductive cycles of plants and animals. Like humans, vertebrates can experience neurological impacts. Stays in soil indefinitely
Nitrogen Dioxide	Reddish brown highly reactive gas	Motor vehicles, electric utilities	Respiratory irritant	Contributes to the formation of smog, acid rain, water quality deterioration. High levels can be harmful to vegetation.

²⁵ EPA. September 8, 2016. Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution. Washington, D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution>

²⁶ EPA. November 29, 2017. Basic Information about Lead Air Pollution. Washington, D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution>.

²⁷ EPA. September 8, 2016. Basic Information about NO₂. Washington, D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/no2-pollution/basic-information-about-no2>

²⁸ EPA. October 31, 2018. Ground-level Ozone Basics. Washington, D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>

²⁹ EPA. November 14, 2018. Particulate Matter Basics. Washington, D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>

³⁰ EPA. June 28, 2018. Sulfur Dioxide Basics. Washington, D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics>

Pollutant	Description	Sources	Select Health Effects	Select Environmental Effects
Ozone*	Colorless gas that acts as a pollutant in the troposphere**	Cars, power plants, gas stations, refineries, and chemical plants Secondary pollutant from other chemicals in the atmosphere including NO _x and Volatile Organic Compounds	Airway inflammation, coughing, wheezing, reduced lung function, lung damage, exacerbates chronic disease including asthma, bronchitis, and emphysema	Ecosystem damage through disease sensitivity, reduced
Sulfur Dioxide ‡	Colorless gas	Burning of fossil fuels by power plants & other industrial facilities, metal extraction, locomotives, ships, and other heavy equipment	Respiratory irritant, exacerbates asthma, chronic bronchitis, and other respiratory & cardiovascular conditions	Contributor to acid rain, decreased visibility, damage to plants, decreased water quality
Particulate Matter (PM)	Small particles of soot, dust, or other materials. Measured at two levels: diameter below 10 micrometers (µm) and below 2.5 µm	Wood smoke, fuel combustion, emissions from cars, buses, and factories, dust from agriculture & construction, outdoor burning, industrial facilities, wildfires	PM ₁₀ Irritates the eyes, nose, and throat	Contributes to regional haze, reduced visibility. Can affect physiology of both plants and animals
			PM _{2.5} Coughing, shortness of breath, tightness of the chest, and eye irritation, exacerbate or contribute to the development of respiratory illness	

*"Ground-level" ozone

**Ozone provides protective layer in the stratosphere

‡Sulfur Dioxide contributes to secondary pollutants

Source: Environmental Protection Agency 2016, 2017

Regulatory Framework

Federal Regulatory Situation

Clean Air Act

The Clean Air Act of 1970³¹ sets the framework for air quality control efforts in the United States. Laws regarding air quality had been passed previously; however, the CAA was the first to provide enforcement powers. The Act established the National Ambient Air Quality Standards (NAAQS) and State Implementation Plans (SIPs). A State Implementation Plan sets out the documents and

³¹ EPA. August 24, 2017. Summary of the Clean Air Act. Washington D.C.: U.S. Environmental Protection Agency. <https://www.epa.gov/laws-regulations/summary-clean-air-act>

regulations used by each state to implement, maintain, and enforce NAAQS³². Major amendments were added to the CAA in 1977 and 1990.

The 1990 Amendments to the CAA gave broader control to the federal government. The update focused on addressing four major threats to human health and the environment: acid rain, urban air pollution, air toxics, and stratospheric ozone depletion. Prior to 1990, the CAA lacked specific details for regulating or reducing air toxics, but the update provided specific guidance on reduction and allowable emissions. It also provided a schedule to examine if risk levels changed over time. The law was designed to be updated as new science and technology emerges and allows for better management.

National Ambient Air Quality Standards

The CAA established NAAQS to provide a way to prioritize six outdoor air pollutants for control efforts. These pollutants are known as “criteria pollutants” and are known to be harmful to human health and the environment³³. The six criteria pollutants are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide.

The NAAQS are used to assess if an area meets air quality requirements. Within the NAAQS, there are two types of air quality standards: primary and secondary. **Primary standards** intend to protect public health with an adequate margin for safety. **Secondary standards** intend to protect public welfare from adverse impacts; public “welfare” introduces concern from environmental harm to the equation. The secondary standards involve the effects of air quality on soil, water, crops, vegetation, man-made materials, animals, weather, visibility, climate, damage to property, transportation hazards, economic values, and personal comfort and well-being.

NAAQS Designation and Implementation Process

When the EPA sets a new National Ambient Air Quality Standard or revises existing standards for criteria pollutants, the CAA requires the EPA to determine if areas across the country meet the new standards. States and tribes submit recommendations for attainment classification are based on air quality data collected from monitors in both urban and rural areas and other information, such as modeling.

If the air in a given area is cleaner than the NAAQS requirement for a pollutant, it is called an “attainment” area. If levels of a criteria pollutant exceed the standard, they are classified as

³² EPA. 2017. Basic Information about Air Quality SIPs. Washington, D.C.: United States Environmental Protection Agency. <https://www.epa.gov/sips/basic-information-air-quality-sips>

³³ EPA. December 20, 2016. NAAQS Table. Washington, D.C.: United States Environmental Protection Agency. <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

“nonattainment” areas. Nonattainment areas are required to take corrective action to reach acceptable levels. Depending on the designation, states and tribes must submit plans to the EPA outlining how air quality will be maintained to remain or exceed the federal standard or be improved to meet requirements.

The CAA requires states to develop plans detailing how they intend to attain and maintain air quality standards. In the case of nonattainment areas, a specific plan for attaining the new air quality standard must be provided. The State Improvement Plan is completed by states and local air quality management agencies and submitted to the EPA for approval. The SIP has two main purposes:

1. To demonstrate the state has the basic air quality management program component in place to implement new or revised NAAQS; and
2. To Identify the emissions control requirements the state will rely upon to either maintain or attain and later maintain primary and secondary NAAQS.

State Regulatory Situation

Washington State has its own regulations in place related to air quality. The regulations are set out in the Washington Administrative Code (WAC) and the Revised Code of Washington (RCW). The State is responsible for maintaining air quality, but site-specific analysis is often the responsibility of individual actors through SEPA.

Washington Clean Air Act

Washington State Clean Air Act (RCW 70.94) is the State law for outdoor air pollution. It establishes the system of regional air pollution control authorities in the State. The Department of Ecology works with each agency, as well as tribal governments, to ensure clean air across the State. Pierce County is under the jurisdiction of PSCAA, along with King, Kitsap, and Snohomish Counties.

Washington State Department of Ecology

The Washington State Department of Ecology oversees State and federal guidelines for air quality. The policy supporting Ecology’s efforts is part of the WAC. Some details are the same as federal regulations, but other rules are specific to the State.

Puget Sound Clean Air Agency

As the local air quality authority for Pierce County, PSCAA works with the Department of Ecology to monitor air quality in the region with a focus on protecting public health, improving neighborhood air quality, and reducing the region’s contribution to climate change. The Agency’s work involves air quality administration, planning, and education through:

- Following mandates of the federal CAA and Washington Clean Air Act;
- Adopting and enforcing air quality regulations;

-
- Monitoring air pollution;
 - Sponsoring voluntary initiatives; and
 - Educating people and businesses about clean air and climate-friendly choices.

PSCAA publishes an annual review of air quality for the region overall, as well as each county under its jurisdiction. The Agency also completes its own multi-year strategic plan detailing goals and actionable efforts. Under the current plan, the Agency prioritizes reduction of fine particle pollution and air toxics.

Existing Conditions

Particulate matter is one of the main concerns for the region. In 2009, the EPA classified Tacoma, the surrounding cities, and parts of unincorporated Pierce County as a nonattainment area for particulate matter measuring less than 2.5 micrometers.

While the areas have been recategorized as a maintenance area, PSCAA continues to monitor some areas more closely than others if they have previously held nonattainment status. In the Agency's latest strategic plan, there is a focus on air quality in the area. In one policy, PSCAA states, "Meet requirements of legacy maintenance plans from former nonattainment areas, including transportation conformity requirements."

Nonattainment Designation

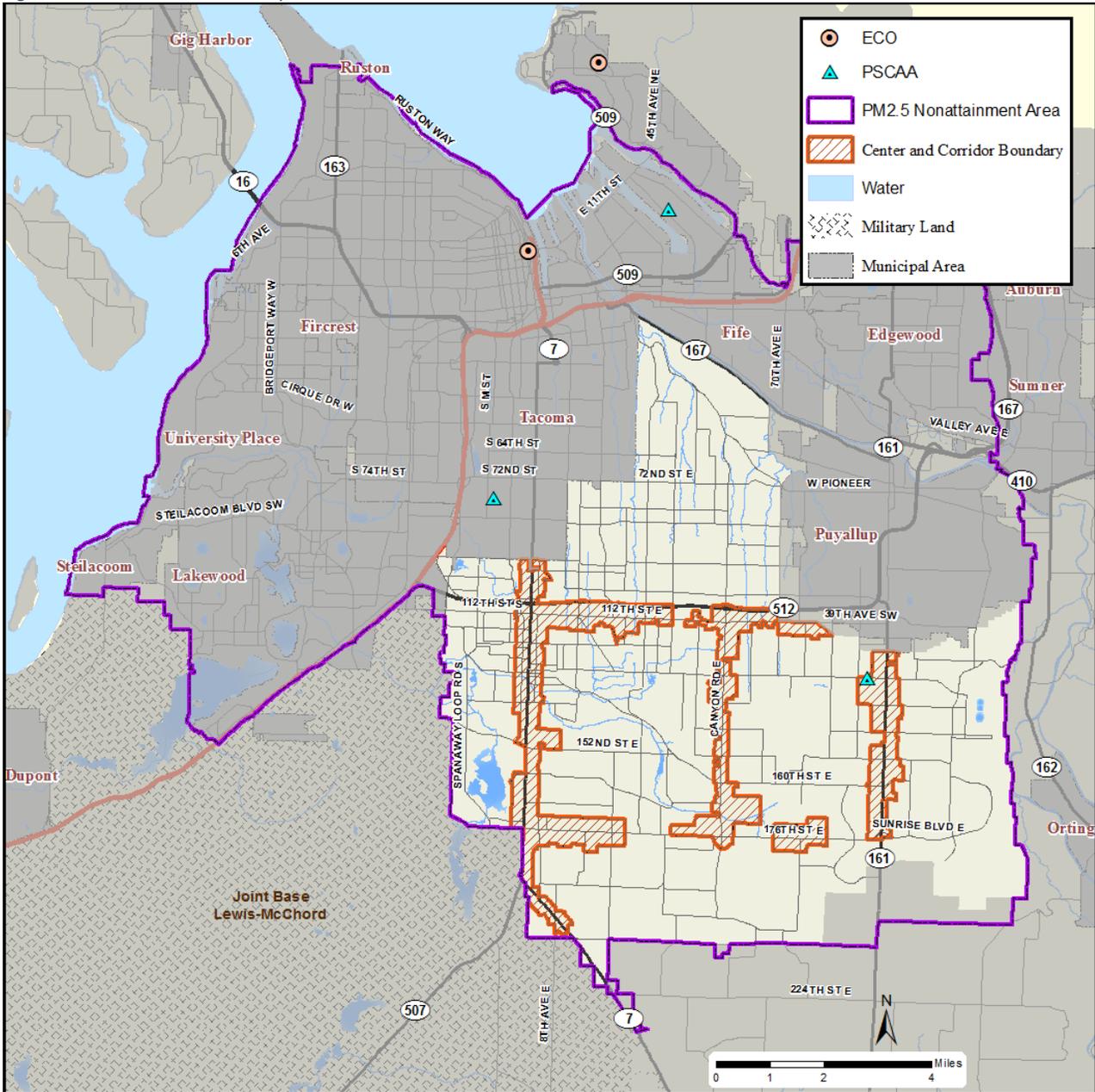
In 2009, the EPA designated Tacoma, its neighboring cities, and the unincorporated Pierce County communities of Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill as a nonattainment area for 2.5 micrometer particulate matter. The map in Figure 3-32 Tacoma-Pierce County Nonattainment Area shows the boundaries of the Tacoma-Pierce County nonattainment area. The designation was the result of unhealthy levels of PM_{2.5} between 2006 and 2008³⁴.

There were two key contributing factors to the designation:

- The EPA set a stronger air pollution limit in 2006.
- Fine particle pollution levels spiked during the fall and winter to exceed 24-hour limit.

³⁴ Ogulej, D. 2010. Sources of Fine Particles in the Wapato Hills-Puyallup River Valley PM_{2.5} Nonattainment Area. Olympia, WA: Department of Ecology Air Quality Program.
<https://fortress.wa.gov/ecy/publications/documents/1002009.pdf>

Figure 3-32 Tacoma-Pierce County Nonattainment Area



The designation was based on multiple years of data collected at the Tacoma—South L Street air monitoring site. The EPA sets two NAAQS standards to determine compliance for particle pollution: 24-hour (daily) standard and annual standard. In 2006, the agency strengthened the daily standard for fine particles from 65 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 35 $\mu\text{g}/\text{m}^3$. Tacoma-Pierce County exceeded the new standards because of the 2006-2008 design value of 44 $\mu\text{g}/\text{m}^3$. The design value is an average for three consecutive years.

The Washington State Department of Ecology and PSCAA created a nonattainment plan to outline the actions needed to return to acceptable PM_{2.5} levels³⁵.

PSCAA analyzed the sources of fine particle pollution in the area and worked with the local community to reduce pollution levels. Wood smoke was the biggest source of PM_{2.5} pollution. This smoke is the result of burning wood in stoves and fireplaces. During the winter, wood smoke contributed over half the PM_{2.5}. Weather would often exacerbate the problem by trapping smoke close to the ground causing higher concentrations of pollution.

In 2012, PSCAA implemented a new program with three key components: enhanced enforcement of burn bans and a lower threshold for burn bans, removal of uncertified wood stoves by September 30, 2015, and public education and outreach. The efforts by PSCAA were supported by the State Legislature in Substitute House Bill 2236 Chapter 219, Laws of 2012.

Ecology and PSCAA created motor vehicle emissions budgets for the area. The motor vehicle emissions budgets shaped future transportation planning by PSRC through setting a limit on total emissions by on-road vehicles. Planning by PSRC and the U.S. Department of Transportation would then be used to make transportation conformity determinations.

Reclassification as an Attainment Area

The area attained the federal standard in 2011 based on data collected between 2009 and 2011. The EPA issued a Clean Air Determination in 2012. This did not lead to a re-designation, but it eased planning requirements on the State, as long as the area continued to meet the standard. Since 2011, fine particles have remained below the 24-hour ambient air quality standard.

CAA Section 107 (d) (3) outlines specific requirements a state must meet for the nonattainment area to be re-designated to attainment. The Tacoma-Pierce County Nonattainment area needed to meet the 2006 24-hour PM_{2.5} NAAQS; the improvement is the result of permanent and enforceable reductions in emissions; the area has a fully-approved implementation plan under CAA section 110 (k); the area has a fully-approved maintenance plan which ensures attainment of the NAAQS for 10 years beyond re-designation; and the area must meet the requirements of CAA section 110 and part D. The PSCAA and Department of Ecology needed to fully explain how each of these requirements were met in the re-designation request.

³⁵ State of Washington Department of Ecology with Puget Sound Clean Air Agency. 2014. Proposed State Implementation Plan: Tacoma-Pierce County PM_{2.5} Redesignation. Olympia, WA: Department of Ecology.
<https://fortress.wa.gov/ecy/publications/documents/1402021.pdf>

The State later requested to be re-designated as an attainment area by the EPA. The following year, the Tacoma-Pierce County nonattainment classification was removed. The area will remain under a maintenance plan for PM_{2.5} through mid-March 2035. Nonattainment areas must be re-designated as maintenance areas for a minimum 10 years.

The maintenance period requires ongoing planning and monitoring efforts. The 20-year maintenance plan for Tacoma-Pierce County, approved in early 2015, provides information and actions for the first 10 years of the planning cycle. It will be revised in the future for the following second 10-year period, providing a way to respond to changing conditions while maintaining acceptable PM_{2.5} levels.

3.5.2 Impacts

Impacts Common Across Alternatives

The population is expected to increase in all four Community Plan areas over the next several years. With changes to land use activity and increased population and traffic, the associated emissions may increase as well. In all four alternatives, PSCAA and Department of Ecology would continue to oversee emissions levels in the planning area.

Impacts of Alternative 2

Alternative 2 would have the potential for the most significant impacts because it would be the largest shift from current use in the area. The higher intensity of land uses, and increased traffic would have the potential to contribute to higher emissions.

3.5.3 Mitigation Measures

Air quality concerns related to the former nonattainment area are included in ongoing planning efforts from other agencies. The Maintenance Plan submitted with the re-designation request includes contingency plans for maintaining healthy air quality levels. Ecology and PSCAA developed measures to take prompt corrective action if there is a violation for the 2006 24-hour PM_{2.5} NAAQS in the area. A warning level and action level have been outlined to anticipate future challenges. At the warning level, if 98th percentile of the 24-hour average daily concentration of PM_{2.5} reaches 35.5 µg/m³ or greater during a single calendar year, PSCAA will evaluate and determine the reason behind the heightened levels. The evaluation will consider air quality data, meteorological data, evaluation of the wood smoke programs, unusual weather events (e.g. wildfires and winter power outages), along with other data to determine the reason for the exceedance. Based on the findings, PSCAA will strengthen existing control measures. If additional steps are needed, PSCAA would have the opportunity to adopt and implement new measures within 18 months. The Action Level is based on the two-year to three-year average of the 98th percentile of the 24-hour average daily PM_{2.5} level reaching 35.5 µg/m³ or greater. The plans for the warning level and action level provide agencies a

chance to mitigate air quality concerns for particulate matter as they may arise and continue implementing the PM_{2.5} maintenance plan.

The ongoing focus on the area through the maintenance plan is part of PSCAA's responsibilities as the region's air pollution control authority. The Agency will continue to implement its goals, policies, and objectives. Woodstoves have been cited as a specific concern; any stoves installed will have to meet EPA regulations for particulate matter pollution. Burn bans will continue to be implemented as necessary.

Regulations are also in place to prevent transportation from creating further challenges from improving air quality in the area. Vehicles must continue to meet state standards for emissions. The Department of Ecology uses Motor Vehicle Emissions Budgets outlining an acceptable range for pollution from vehicles. Finally, by encouraging walking, biking, and transit use, fewer car trips may occur thereby reducing harmful pollutants from traveling.

Individual projects will have to undergo SEPA review for specific air quality concerns related to development.

3.5.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to air quality are anticipated as a result of the alternatives.

3.6 Groundwater and Surface Water, Shorelines, Wetlands, and Flooding

This section evaluates the water resources within the community plan areas, including groundwater, surface water, wetlands, shorelines, and flooding. The entire planning area is located within a sole source aquifer and aquifer recharge area and has a significant wetland and shoreline resources such as the Puyallup River, Spanaway Lake, Clarks Creek and Clover Creek, which crosses through the center of the communities. The major corridors slated for future growth in as well as the other zoning changes of the Community Plan Updates, intersect with these resources. This section will review these resources, as well as the impacts and required mitigation measures needed to preserve and protect them.

3.6.1 Groundwater and Surface Water

Affected Environment

Introduction

This section addresses the impact of the Community Plan Updates proposals on surface and groundwater resources. Both surface water and groundwater issues involve quantity and quality of water. With surface water, quantity has to do with the management of surface water to protect areas from flooding (too much water) and erosion, while quality has to do with protecting surface water from pollutants that flow into streams and rivers. With groundwater, quantity has to do with assuring that enough water is infiltrated into the ground to maintain subsurface aquifers that supply drinking water wells in the area. Water quality has to do with assuring water that is infiltrated meet standards that will prevent the pollution of groundwaters.

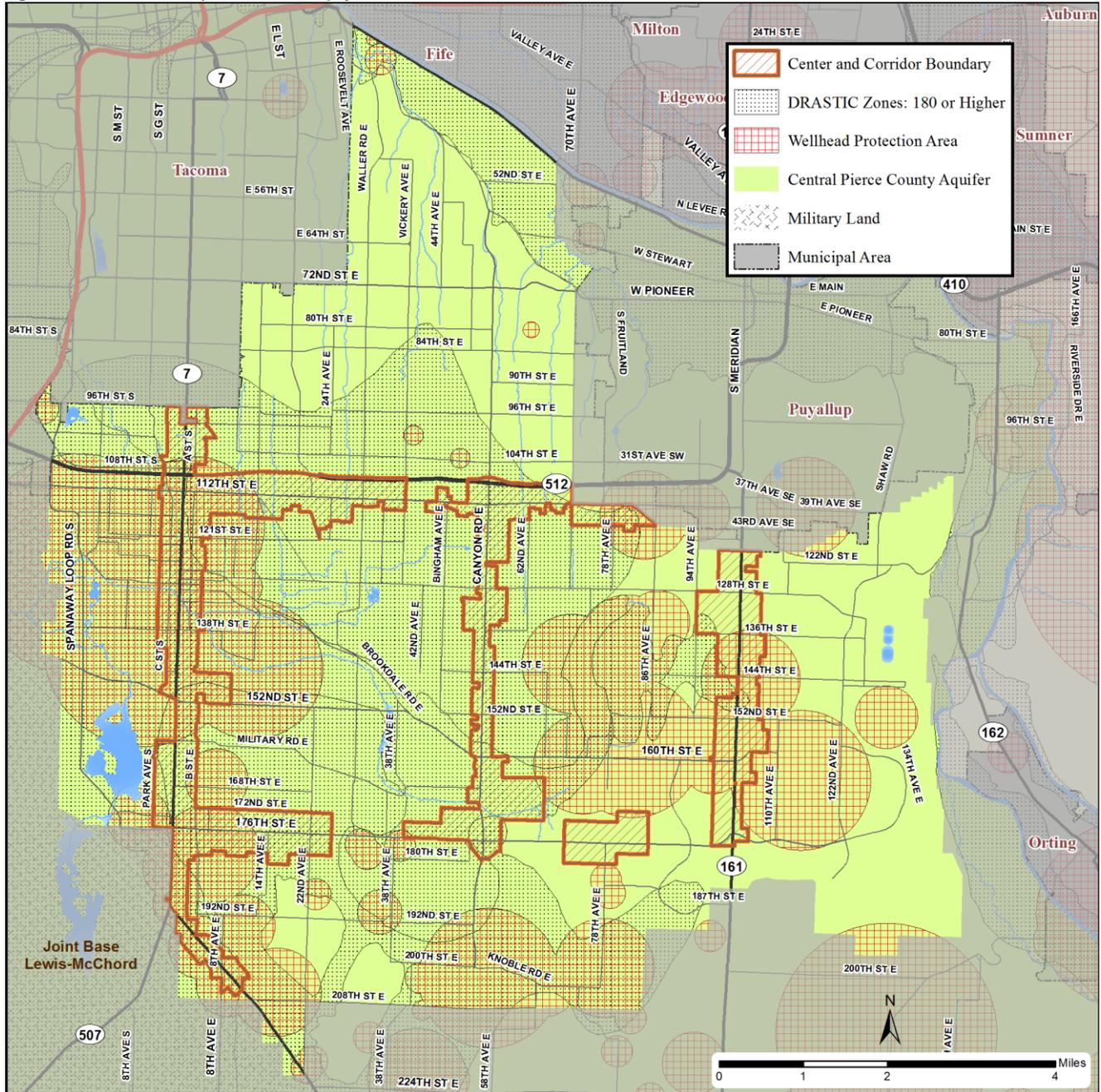
Pierce County's Sole Source Aquifer

The entire Community Plan Updates area is located within the aquifer recharge area as designated by Pierce County³⁶ (See Figure 3-33 Pierce County Sole Source Aquifer). The aquifer is termed a “sole source” aquifer, as it is the sole source for drinking water that is obtained from the aquifer. The entire Community Plan Updates area is a part of the Pierce County aquifer as shown in green in the figure. Areas of higher infiltration where the soils are such that water can infiltrate very quickly and have a very high potential for pollution of the aquifer (shown as DRASTIC Zones: 180 or Higher) are shown in light cross-hatch and area located more in the central and westerly areas of the community plan

³⁶ Environmental Impact Statement by Brown and Caldwell entitled, Map of Groundwater Quality Problem Areas and Associated Sensitivity Clover/Chambers Creek Basin Groundwater Management Program and EIS dated 1990

areas. In addition, areas shown in orange cross-hatch are areas of Wellhead Protection (i.e. areas where water is withdrawn for local water systems and are protected and regulated to prevent pollutants from entering the groundwater).

Figure 3-33 Pierce County Sole Source Aquifer



Regulatory Setting

Regulations addressing the aquifer fall into three categories: 1) Regulations to protect the water quality of the aquifer, 2) Regulations to preserve the infiltration of surface water to replenish the aquifer, and 3) Regulations to govern the amount of water withdrawn from the aquifer.

1. Water Quality

Regulations addressing water quality include:

- Tacoma-Pierce County Health Department, Environmental Health Code, Chapter 2 regulates the design, installation, and operation of onsite sewage systems to ensure there are adequate soils for infiltration and separation from groundwater.
- The Pierce County Stormwater Management and Site Development Manual (Manual) requires that stormwater be treated to reduce the impacts to water quality from pollution generating surfaces. Treatment of stormwater runoff is required for pollutants of concern including, but not limited to, dissolved metals, suspended solids and oil products. Treatment is achieved through the use of various water quality Best Management Practices (BMPs) including natural vegetated BMPs and manufactured water quality treatment systems.

2. Infiltration

- The Pierce County Stormwater Management and Site Development Manual also requires that all stormwater systems comply with LID requirements that promote stormwater infiltration to simulate predevelopment conditions and return as much water to the aquifer as close as possible to where it falls. The Manual promotes the use of LID methods to reduce the amount of impervious areas and maximize the amount of water infiltrated into the ground, significantly reducing the need to release water offsite. Other stormwater methods, including ponds, are designed to reduce offsite impacts, including flooding and erosion.
- Pierce County Development Regulations, including Title 18A Development Regulations – Zoning, Title 18E – Development Regulations Critical Areas, and Title 18J – Development Regulations -Design Standards, provide elements for the preservation of open space or landscaped areas where water can continue to infiltrate into the aquifer. Title 18A requires setbacks to provide for open areas around buildings. Title 18E has specific regulations for development in the aquifer recharge area, including a maximum impervious area in certain zones. Title 18J requires landscaping as well as tree retention and replacement requirements.

3. Withdrawal

- Tacoma-Pierce County Health Department, Environmental Health Code, Chapter 3, regulates the design, installation, operation, and decommissioning of on-site wells to protect groundwater.
- WA State Department of Ecology regulates water rights, which determine the amount of water that can be withdrawn from the aquifer, either by a water utility or a private well.

Existing Conditions

Impervious Areas in Centers and Corridors

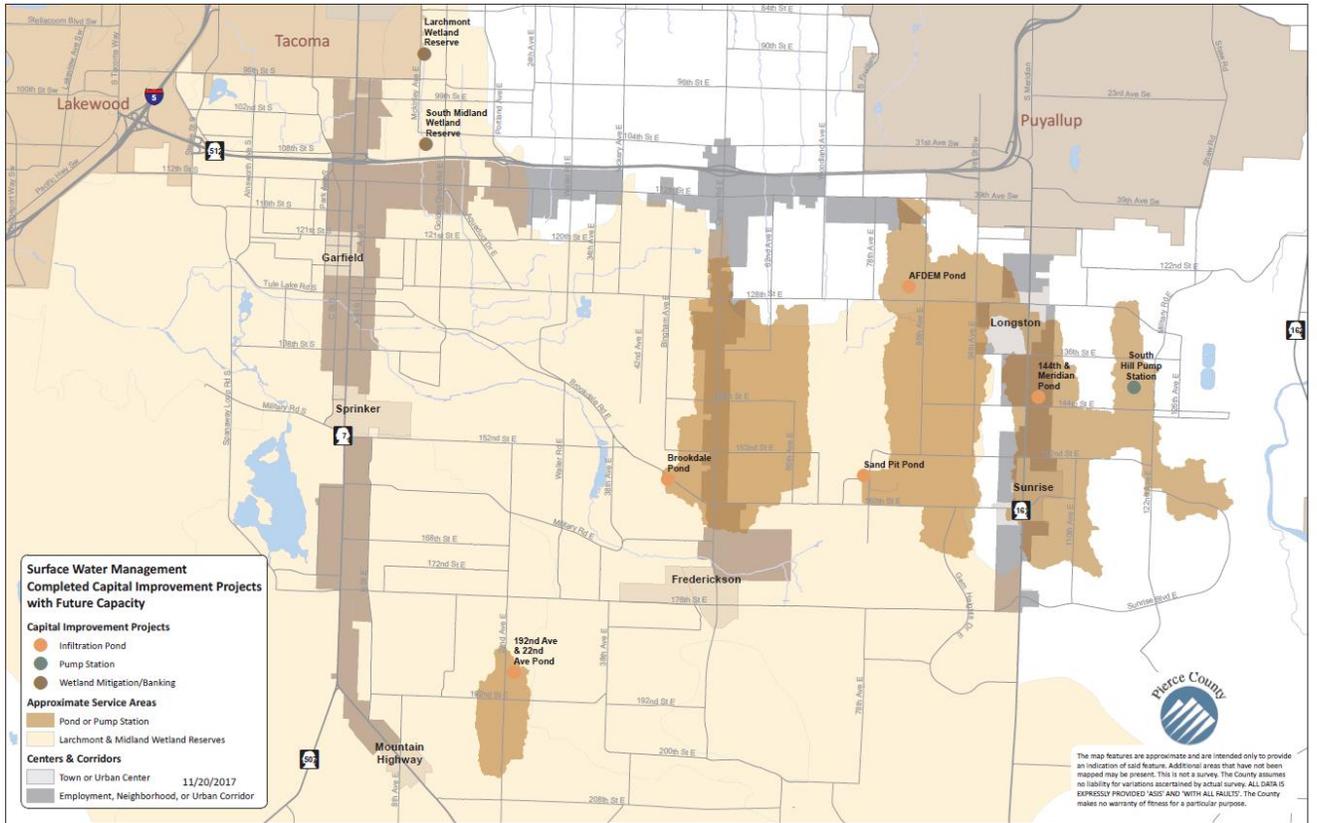
Impervious surfaces, or hard surfaces where water cannot infiltrate into the ground, lead to increases in stormwater runoff, but also prevent water from infiltrating into the ground and replenishing the aquifer. Water quality may also be impacted as pollutants, including grease and oils, are washed off impervious surfaces.

The Centers and Corridors zones will concentrate future development within areas that have already been developed and use the existing infrastructure, including water, sewer, roads, and transit, more efficiently. Another result is that development that occurs in Centers and Corridors zones will largely occur in areas that already have vast areas of impervious surfaces. While one of the main concerns with new development is the creation of more impervious surfaces, new development in Centers and Corridors zones will need to meet the surface water and groundwater protection regulations that are in effect now and which require the use of LID techniques whenever possible to minimize impervious areas surfaces and maximize infiltration.

Stormwater Infrastructure

Pierce County has developed regional stormwater management facilities within the community plan areas, shown in Figure 3-34 Stormwater Facilities. These facilities are mainly located in the central and easterly portions of the area. These facilities are multi-purpose in function; however, are primarily designed to mitigate flooding problems. In some cases, these regional facilities have the capacity to accommodate stormwater flows from future development. As CFPs are adjusted to address growth resulting from Centers and Corridors rezones, projects may be identified that will connect the TCTRs and UCORs with these regional facilities.

Figure 3-34 Stormwater Facilities



Impacts

Impacts Common to All Alternatives

Future development within the community plan areas under all alternatives may increase effective impervious area with potential impacts to groundwater and surface water quantity and quality.

Under all alternatives, sewer service will continue to be expanded within the urban areas. This will reduce the amount of water infiltrating into the aquifer from on-site sewage systems while, at the same time, reducing the potential for groundwater contamination from those systems.

Future development under all alternatives may increase the amount of surface water runoff with the potential for downstream flooding. In addition, runoff from future development may increase levels of pollutants.

Impacts Common to Alternatives 1 and 2

Future development within the Centers and Corridors zones will provide the opportunity to construct regional stormwater conveyance pipelines to the regional stormwater facilities, utilizing the capacity of these facilities for water quality and quantity management.

The concentration of higher-density development within Centers and Corridors zones and the redevelopment of areas that were developed under older stormwater management standards may reduce impacts, as impervious areas may be reduced and opportunities for infiltration increased.

Mitigation Measures

Impacts to groundwater and surface water would be mitigated by adherence to local, state, and federal regulations and standards, as found in the following:

- **Pierce County Stormwater Management and Site Development Manual**
 - Prioritizes LID which requires water quality treatment and infiltration to maximize recharge of the aquifer
 - Requires the use of BMPs, including LID
 - Requires the use of the best areas of onsite soils for infiltration
 - Protects downstream properties by managing surface water runoff
 - Protects downstream water bodies through water quality treatment designs and methods
- **Chapter 18E.50 – Aquifer Recharge and Wellhead Protection Areas**
 - Protects critical aquifer recharge and wellhead protection areas from degradation or depletion resulting from new or changed land use activities
 - Places limits on effective impervious areas
 - Regulates hazardous uses, underground and above ground tanks, and agricultural activities that utilize chemicals such as pesticides, fertilizers
- **Title 18J – Development Regulations – Design Standards**
 - Outlines requirements for open space and landscaping, including tree retention and tree replacement
- **Tacoma-Pierce County Health Department – Onsite Sewage Regulations – Environmental Health Code, Chapter 3**
 - Regulates the design, installation, operation, and decommissioning of onsite sewage systems to protect surface and groundwater resources
- **Title 18A – Development Regulations – Zoning**
 - Outlines requirements for open space and landscaping, including tree retention and tree replacement
- **Tacoma-Pierce County Health Department, Environmental Health Code, Chapter 3**
 - Regulates the design, installation, operation, and decommissioning of wells to protect groundwater quantity and quality
- **State Department of Ecology** regulates water rights, which determine the amount of water that can be withdrawn from the aquifer either by a water utility or a private well

Other Mitigation Measures

Alternative 1 will allow for the more effective use of land within the UGA by concentrating new growth within areas of existing infrastructure and availability of transportation. This land use approach, referred to Centers and Corridors, will allow for other areas of the UGA to continue to build at lower residential densities with commensurate reductions in impervious areas and increases in land where water can infiltrate into the aquifer.

Centers and Corridors will promote growth within areas of existing development and roads (i.e. areas with existing high percentages of impervious surface). The development and redevelopment of these areas will allow for implementation of the current stormwater management and water quality standards, thereby improving water quality compared to today. This may reduce impervious surfaces or allow for roads and parking lots to be constructed with pervious materials. Impervious surface areas would be mitigated by increasing infiltration where feasible.

The concentration of higher-intensity development in the Centers and Corridors may facilitate the use of regional water management facilities when onsite stormwater controls are not feasible and allow for more onsite area to be used as housing or commercial development.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts are anticipated related to groundwater or surface water within the community plan areas.

3.6.2 Shorelines

Washington State Shoreline Management Act

The Shoreline Management Act (SMA) requires all counties and most towns and cities with shorelines to develop and implement Shoreline Master Programs. The SMA was passed by the Washington Legislature in 1971 and adopted by voters in 1972. Its overarching goal is, "to prevent the inherent harm in an uncoordinated and piecemeal development of the State's shorelines." The SMA's three main policy directions, by order of priority, are 1) protection of shoreline environmental resources, 2) protection of the public's right to access, and 3) shoreline use.

The Act requires that, "uses shall be preferred which are consistent with control of pollution and prevention of damage to the natural environment or are unique to or dependent upon use of the State's shorelines." The SMA is intended to protect shoreline natural resources and the lands, vegetation, wildlife, and waters of the State.

Pierce County Shoreline Development Regulations

Within unincorporated Pierce County, Title 18S - Development Policies and Regulations – Shorelines, implements the SMA in Pierce County. Title 18S has the general purpose of implementing the SMA (Chapter 90.58 RCW) and Washington State Department of Ecology Rules (Chapters 173-18, 20, 22, 26 and 27 WAC) that guide, along with the Act, the required contents of the Master Program. Its more specific purpose is to regulate the development of shorelines, protect critical areas from the impacts of development, protect development from the impacts of hazard areas, achieve no net loss of ecological functions of shorelines, and promote the public health, safety, and general welfare of the community.

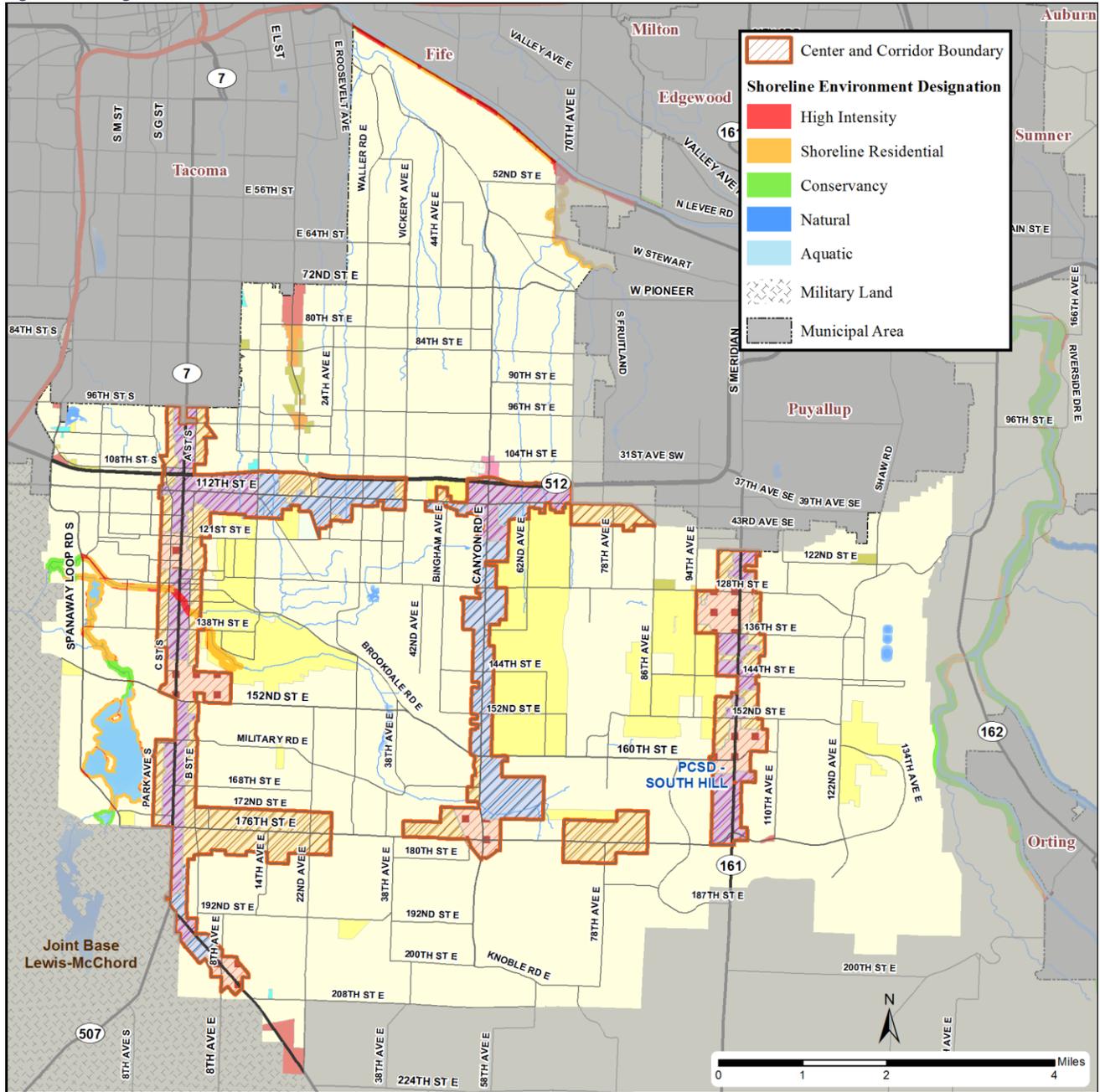
Affected Environment

Spanaway Lake, Spanaway Creek, Tule Lake, Clover Creek, Clarks Creek, and the Puyallup River are the five shoreline features regulated by the SMA within the community plan areas. All are regulated shorelines under Pierce County Code Title 18S Development Policies and Regulations - Shorelines. Shorelines are regulated according to Shoreline Environment designations. Shoreline designations are provided in Table 3-26 Pierce County Shoreline Designations.

Table 3-26 Pierce County Shoreline Designations

Community Plan	Designated Shoreline
Parkland-Spanaway-Midland	<p>Spanaway Lake: Shoreline Residential.</p> <p>Spanaway Creek between Spanaway Lake and Clover Creek: Shoreline Residential with a segment of Conservancy within Bresemann Forest.</p> <p>Tule Lake: Shoreline Residential.</p> <p>Clover Creek from the vicinity of Johns Road East and 111th Avenue East west to the JBLM boundary: Primarily Shoreline Residential with a segment of High Intensity as it crosses Pacific Avenue, then turning to Conservancy as it enters the large wetland west of Spanaway Loop Road.</p> <p>Clarks Creek from the City of Puyallup city limits to the Puyallup River: Shoreline Residential with a small segment of High Intensity where it meets River Road.</p>
Mid-County	Puyallup River segment on the northerly boundary of the Mid-County Community Plan area: Conservancy.
South Hill	Puyallup River segment on the easterly boundary of the South Hill Community Plan area: Conservancy.

Figure 3-35 Regulated Shorelines



The Puyallup River and Clarks Creek are located along the northern boundary of the Mid-County Community Plan area and are regulated by the SMA. Their shorelines are designated as High Intensity and Residential Designations. The Residential Shoreline Environment Designation has a strong preference for single-family residential development and water-related uses. The High Intensity Residential Shoreline Environment Designation provides some opportunity to develop water-oriented commercial that fosters economic development, while still protecting the ecological functions. No changes to the Residential Shoreline Environment Designation are proposed in the Community Plan Updates.

Spanaway Lake, Tule Lake, Spanaway Creek, and Clover Creek are located in the southwest portion of the Parkland-Spanaway-Midland Communities Plan area. This system of interconnected waterways and lakes is predominantly designated as Residential Shoreline Environment Designation. Some short sections of Clover Creek are designated High Intensity, generally in areas where the waterways cross major roads. Small sections of this system have also been identified as Conservancy Shoreline Environment Designation, which aims to conserve and manage existing natural resources. Within the areas identified as Conservancy, there are greater buffer requirements and stricter land use regulations with shoreline jurisdiction. As parts of Clover Creek cross Pacific Avenue, this water system is within one of the proposed Corridor zones. It would likely be minimally affected, because new development would be regulated under Title 18S, which is much stricter than regulations that controlled development along shorelines before 2018. The stricter review criteria and bulk regulations would be sufficient to provide needed site-specific mitigation that would preserve or repair ecologic function.

Shorelines and Community Plan Updates Proposals

This section discusses how the designated shorelines in the four Community Plans generally intersect with the proposals of the update, such as Centers and Corridors designations, the RR/SF to MSF rezone, and the other requested zoning changes.

There are no proposals included in the Community Plan Updates that impact the Spanaway Lake, Tule Lake, Spanaway Creek, Puyallup River, or Clarks Creek. Spanaway Lake, Tule Lake, and Spanaway Creek are located to the west and outside of the Centers and Corridors area along Pacific Avenue. Clarks Creek and the Puyallup River, in the Mid-County Community Plan area will not be affected, as the northerly area of the plan will remain rural, and no zoning changes are proposed. Likewise, the Puyallup River on the easterly boundary of the South Hill Community Plan area is located to the east of the Meridian Avenue Centers and Corridors designations and other zoning change proposals.

Clover Creek

Only Clover Creek has shoreline designated areas that intersects with the proposals of the Community Plan Updates, including the Centers and Corridors zones and the RR/SF to MSF rezone.

Clover Creek crosses the Centers and Corridors designations near 132nd Street East and 133rd Street East and Pacific Avenue. It crosses through an area with UCOR and NCOR zones in Alternative 1 and UCOR under Alternative 2. The shoreline designation of Clover Creek in the area is High Intensity. The shoreline designation would provide additional development regulations which would alter the development allowed under Centers and Corridors.

The segment of Clover Creek from Johns Road East and 111th Avenue East to Pacific Avenue is located in an area which is proposed to change from RR to MSF. This segment is primarily designated as

Residential Shoreline under the Shoreline Environment Designations. The Residential Shoreline designation would be controlling within 200 feet of the Creek along this segment and would impact setbacks and density in the shoreline area.

Impacts

Impacts Common to All Alternatives

Under all alternatives, development activity could occur within the shoreline area of Clover Creek where it crosses the Pacific Avenue corridor. Development within this area is required to meet Title 18S – Development Regulations – Shorelines, which may restrict the uses, densities, and heights allowed, in addition to other land use and environmental regulations.

Impacts Common to Alternatives 1 and 2

Alternatives 1 and 2 would introduce higher-intensity land use designations for the area along Pacific Avenue where Clover Creek crosses. No significant shoreline impacts are anticipated as any development or redevelopment will be required to comply with the SMA and the Stormwater Management and Site Development Manual.

Alternative 3

Additional impacts may result from the development of single-family homes at a higher density as proposed in the RR/SF to MSF rezone, including increased roads, houses and infrastructure.

Alternative 4

The No Action Alternative does not propose any changes that would increase density or activity over what is allowed in current regulations.

Mitigation Measures

Impacts to shorelines will be mitigated by adherence with Pierce County regulations and standards as found in the following:

- **Chapter 18S-Development Regulations – Shorelines**
 - Chapter 18S Development Regulations – Critical Areas: Title 18S is the Pierce County Code that is the controlling regulation for shorelines
 - The current 18S provides a more stringent regulatory pattern for shorelines
 - The 18S regulations ensure that shoreline development is established in a manner that protects ecological function and ecosystem processes

-
- The areas of the Centers and Corridors proposal that are regulated under 18S will have much stricter development criteria to protect the overall ecological function of the shoreline, than areas developed prior to 2018

Significant Unavoidable Adverse Impacts

Due to current regulations which provide mitigation and protection of shorelines, this proposal would not generate significant unavoidable adverse impacts for the shoreline environment.

3.6.3 Wetlands

Affected Environment

Currently, the community plan areas overlap with a multitude of verified and possible wetland and stream areas, with Spanaway Lake, Clover Creek and Clarks Creek being the major hydrologic features (See Figure 3-37 Wetlands). Numerous other small streams cross the Community Plan Updates area and have associated wetlands. Of the wetlands within these areas that have been delineated, their ratings range from a category I wetland to a category IV wetland. Verification and delineation dates of the wetlands range from 1996 to 2017. The current 2014 Washington State Wetland Rating System, effective since 2015, uses water quality, hydrologic, and habitat function to rate wetlands. This rating system determines the importance each wetland holds and the protection that it needs. For example, wetlands that are assigned a rating of III or IV need less buffer width around them than wetlands assigned a I or II.

Pierce County Code, Title 18E Development Regulations – Critical Areas, is in place to protect critical areas, such as wetlands, streams, and rivers. Specifically, with increased development comes an increase to the buffer width of all categories of wetland to reduce the impacts of development. As wetlands increase in rating, other protections are put into place other than increased buffer such as no additional discharges of surface water and no septic systems within 300 feet.

With any type of development near wetland areas, there is the concern for the health and intactness of the wetland. The possible risks associated with increased development are diverse. One possible risk is an increase in drainage within the surrounding areas due to increased impervious surfaces. Wetlands help take on the excess water that does not absorb into the ground. However, an increase in that water can cause overflow and/or flooding. With that increase in water runoff, there is also the risk of increased pollutants in storm water that can drain into the wetlands. Another possible pollutant risk is through increased use of onsite sanitary systems. Onsite systems can leach harmful waste into the ground that can travel from the groundwater into the surrounding wetlands.

Under 18E, all regulated development activities in wetlands or buffers must be mitigated. As shown in Figure 3-36 Mitigation Sequencing for Wetland Protection, the highest priority for mitigation is to

avoid the impacts altogether. When that is not feasible, minimizing the impacts is appropriate. All new development is required to follow the mitigation sequencing when development is proposed in a wetland or wetland buffer. Many of the impacts that would arise from development are required to be mitigated under 18E. Reservation of vegetation related to ecological function or wetland habitat is of extremely high priority.

Figure 3-36 Mitigation Sequencing for Wetland Protection

Mitigation Sequencing	
<p>Higher Priority</p>  <p>Lower Priority</p>	Avoid the impact altogether by not taking a certain action or parts of actions.
	Minimize impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts.
	Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
	Reduce or eliminate the impact over time by preservation and maintenance operations.
	Compensate for the impact by replacing, enhancing, or providing substitute resources or environments.
	Monitor the impact and compensation of projects and take appropriate corrective measures.

The Centers and Corridors zones proposed along Canyon Road East and 112th Street East have more wetlands located within the Corridor designation area. Along Canyon Road East, the north-south oriented wetlands parallel the road and constrain the developable area along this Corridor. The north-south wetlands also intersect with the designated Corridor designation within this area, especially between 112th Street East and SR-512.

Residential Resource and Single Family to Moderate-Density Single Family Rezone Areas

Clusters of wetlands exist in the RR areas that are proposed to be designated as MSF. The wetlands, and in some cases, streams were the original basis for designating these areas with the lower-density RR zoning. These areas were designated in the original community plans, when the critical area ordinances were being developed, or were relatively new. The approach was to provide some additional protection of the wetland areas by requiring lower density.

Title 18E - Critical Area Ordinance, adopted in 2005, has now been in use for many years and provides a rigorous level of regulatory controls for protection and preservation of wetlands and streams including the requirement of substantial buffers. Flood hazard regulations also in 18E further limit development within any floodway areas. Added to the critical area regulations are the Design Standard found in Title 18J which limits site clearing and requires the retention of vegetation on development sites. Single family residential over 1 unit per acres is considered a High Intensity and requires the maximum percentages of vegetation retention. Title 18J requires 25% retention of existing vegetation in areas zoned RR while requiring 20% for MSF and SF zoned areas. These controls, along with the surface water regulations that regulate the quantity and quality of surface flows into wetlands, provide an added measure of protection to the wetlands, regardless of the density of the land use.

Portland Avenue Rezones

There are several areas of wetlands that are located in the areas proposed for rezoning along Portland Avenue particularly along the northerly extent of the rezone area.

Requested Rezones

Other zone change requests are spread throughout the community plan area, and many intersect with identified or possible wetland areas.

Significant Impacts

Impacts Common to All Alternatives

As growth occurs within the Community Plan Updates area, impacts to wetlands from development and surface water runoff could increase. Impacts to the wetlands could include runoff from new roads and the increase of impervious surfaces, in general, which would potentially create increased untreated runoff. Removal of vegetation would destroy habitat and decrease the ecological function of wetlands within the proposed area. Inadequate surface water management could reduce downstream flows with impacts to wetland hydrologic regimes.

Mitigation Measures

Where Community Plan Updates proposals intersect with wetlands, future development based on the changes will need to meet Title 18E Critical Areas requirements. Impacts to wetlands will be mitigated by adherence to Pierce County regulations and standards as found in the following:

- **Chapter 18E.30 – Wetlands**
 - Chapter 18E Development Regulations – Critical Areas: Title 18E is the Pierce County Code that is the controlling regulation for wetlands.
 - The purpose of the regulations is to protect critical areas of Pierce County from the impacts of development and protect development by establishing minimum standards for development of sites that contain or are adjacent to critical areas.
 - The regulations are intended to avoid impacts arising from land development and other activities affecting wetlands, and to enhance the biological and physical functions and values of wetlands with respect to water quality maintenance, stormwater and floodwater storage and conveyance, fish and wildlife habitat, primary productivity, recreation, education, and historic and cultural preservation.
 - In appropriate circumstances, it may be necessary to minimize, rectify, reduce, or compensate for wetland impacts.
- **Pierce County Stormwater Management and Site Development Manual**
 - Prioritizes LID which requires water quality treatment for any surface waters released to streams or wetlands.
 - Requires the use of BMPs, including LID.
 - Requires the use of the best areas of onsite soils for infiltration.
 - Requires maintaining the pre-project wetland hydroperiod.
 - Protects downstream properties by managing surface water runoff.
- **Tacoma-Pierce County Health Department – Onsite Sewage Regulations – Environmental Health Code, Chapter 2**

-
- Regulates the design, installation, operation, and decommissioning of onsite sewage systems to protect surface and groundwater resources, including wetlands.

Significant Unavoidable Adverse Impacts

Due to current regulations which provide mitigation and protection of wetlands, this proposal would not generate significant unavoidable adverse impacts on wetlands.

3.6.4 Flood Hazards

Affected Environment

Flood Hazard areas are distinguished from surface waters in that surface waters are runoff from development and other generally impervious surfaces, whereas flood hazards areas are typically associated with rivers, streams, creeks and groundwater flooding areas. Flood hazard areas are regulated as critical areas, namely, areas where development should be restricted and limited, and protected from developments which would increase flood hazards. These areas are shown on Figure 3-38 Regulated Flood Hazards.

Pierce County regulates several types of flood hazard areas including:

- Floodways. Floodways are extremely hazardous areas due to the depth and/or velocity of floodwaters which carry debris, potential projectiles, and have erosion potential.
- Flood Fringes. All areas subject to inundation by the base flood, but outside the limits of the floodway and the limits of the channel migration zones.
- Coastal Flood Hazard Areas. Areas that are adjacent to Puget Sound marine waters where high water can cause damage.
- Other Areas of Special Flood Hazard including groundwater flooding areas and natural waters/watercourses.

Centers and Corridors

Clover Creek crosses the Centers and Corridors designated area in the vicinity of 132nd Street East and 133rd Street East and Pacific Avenue. It crosses through an area with UCOR and NCOR zones in Alternative 1 and UCOR under Alternative 2.

Residential Resource and Single Family to Moderate-Density Single Family Rezone Areas

The segment of Clover Creek from Johns Road East and 111th Avenue East to Pacific Avenue is located in an area which is proposed to change from RR to MSF.

Impacts Common to All Alternatives

Under all alternatives, development activity would be restricted or limited in flood hazard areas as regulated by Title 18E.70 – Flood Hazard Areas.

Surface waters that might contribute to flood hazards are regulated by the Pierce County Stormwater Management and Site Development Manual.

Mitigation Measures

Impacts to flood hazard areas will be mitigated by adherence to local, state, and federal regulations and standards, as found in the following:

- **Chapter 18E.70 – Flood Hazard Areas**
 - Protects development from the impacts of flood hazards by establishment of minimum standards for sites which contain or are adjacent to identified flood hazard areas.
 - Minimizes public and private losses due to flood conditions in flood hazard areas and provide criteria necessary for regulated activities located within flood hazard areas in Pierce County
- **Pierce County Stormwater Management and Site Development Manual**
 - Prioritizes LID which requires water quality treatment and infiltration to maximize recharge of the aquifer
 - Requires the use of BMPs, including LID
 - Requires the use of the best areas of onsite soils for infiltration
 - Protects downstream properties by managing surface water runoff
 - Protects downstream water bodies through water quality treatment designs and methods

Significant Unavoidable Adverse Impacts

Due to current regulations which provide mitigation and protection of flood hazard areas, this proposal would not generate significant unavoidable adverse impacts.

3.7 Environmental Health

3.7.1 Human Health and Community Well-Being

Affected Environment

In 2005, language was added to the GMA to emphasize activity as part of maintaining good health: “Wherever possible, the land use element should consider utilizing urban planning approaches that promote physical activity.” (RCW 36.70A.070(1).

The legislation noted: “[t]he legislature finds that regular physical activity is essential to maintaining good health and reducing the rates of chronic disease. The legislature further finds that providing opportunities for walking, biking, horseback riding, and other regular forms of exercise is best accomplished through collaboration between the private sector and local, state, and institutional policymakers. This collaboration can build communities where people find it easy and safe to be physically active. It is the intent of the legislature to promote policy and planning efforts that increase access to inexpensive or free opportunities for regular exercise in all communities around the state.”

This policy direction was further supported by the WAC outlining urban planning approaches that would encourage physical activity (WAC 365-196-405 (2)(j):

(j) Wherever possible, counties and cities should consider urban planning approaches that promote physical activity. Urban planning approaches that promote physical activity may include:

- (i) Higher intensity residential or mixed-use land use designations to support walkable and diverse urban, town and neighborhood centers.
- (ii) Transit-oriented districts around public transportation transfer facilities, rail stations, or higher intensity development along a corridor served by high quality transit service.
- (iii) Policies for siting or colocating public facilities such as schools, parks, libraries, community centers and athletic centers to place them within walking or cycling distance of their users.
- (iv) Policies supporting linear parks and shared-use paths, interconnected street networks or other urban forms supporting bicycle and pedestrian transportation.
- (v) Policies supporting multimodal approaches to concurrency consistent with other elements of the plan.

(vi) Traditional or main street commercial corridors with street front buildings and limited parking and driveway interruption.

(vii) Opportunities for promoting physical activity through these and other policies should be sought in existing as well as newly developing areas. Regulatory or policy barriers to promoting physical activity for new or existing development should also be removed or lessened where feasible.

There are many interrelated factors to consider in understanding regional environmental health policy. Environmental health encompasses a large interdisciplinary approach that considers public policy, sociology, epidemiology, and a variety of BMPs from those fields and more.

High-density urban designs will often increase opportunities for physical activity due to decreased reliance on personal automobiles. Even though pedestrians may experience an increased health benefit from physical activity, the benefits may be negated by the fact that they are being exposed to high levels of particulate matter in the urban environment.

The built environment also has an impact on the mental health of individuals in the community. Walkable and mixed-use communities have been shown to foster a sense of community and provide positive mental and physical health benefits for community members.

Physical activity enabled by a modal shift (i.e. walking and biking instead of driving) can reduce a range of health problems including diabetes, obesity, and cardiovascular disease, as well as others. However, as more people work and live in higher-density urban environments, exposure to noise and air pollution are increased.

Nevertheless, higher-density mixed-use development can mitigate several mental and physical health issues, including obesity. Further, walkable cities produce access to increased food options and entertainment for all socioeconomic ranges.

One of the elements considered under SEPA is Environmental Health. To help more thoroughly incorporate health into environmental review, the Tacoma-Pierce County Health Department has developed “A Guide to Integrating Health into State Environmental Policy Act Review.” This guide provides examples of environmental and health impacts and breaks them down by project actions, non-project actions, or both. This helps integrate Environmental Health throughout the entire review, especially since health is a multi-faceted subject that overlaps with many of the subjects in the Environmental Checklist.

Human Health and the Community Plan Updates

The Community Plan Updates incorporates many of the urban planning concepts that are encouraged to promote human health and activity, including:

-
- Compact communities with higher-density and higher-intensity with greater walkability;
 - Greater connectivity and the development of pedestrian and bicycle facilities;
 - Access to transit and the support of transit;
 - Access to everyday goods and services by walking, biking, and taking transit; and
 - New designs for main streets, including building orientation and access.

Impacts

Impacts Common to Alternatives 1 and 2

Alternatives 1 and 2 would support increased human health and physical activity through urban planning and urban designs that would encourage activity and allow for reduced reliance on the automobile.

Impacts Common to Alternatives 3 and 4

Alternatives 3 and 4 would not overtly support or promote human health and physical activity.

Mitigation Measures

There are no proposed mitigation measures.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts on human health and community well-being are anticipated from the alternatives.

3.7.2 Noise

Affected Environment

The range of perceptible magnitudes is so large that noise levels are generally expressed on logarithmic scale in units called decibels (dB). The human ear can best perceive frequencies on pitches between 1000 and 5000 hertz (Hz). Environmental sounds consist of many frequencies. Frequency weighting combines all of the frequencies into one sound level that simulates how an average person hears sounds. The commonly used frequency weighting for environmental sounds is A-weighted decibels (dBA). Noise levels are affected by a number of variables, including elevation, terrain, distance from the source, and weather. A break in the line of sight between a source and receiver generally reduces sound levels by 5dBA. A 3dB increase is barely perceptible to the human ear. A 5dB increase sounds as if the noise is about one and one-half times as loud. A 10dB increase is perceived as a doubling in noise level to most listeners.

Environmental noise can directly affect human health by causing hearing loss at high levels. Noise is also suspected of causing and aggravating other health problems. Environmental noise affects general human welfare by interfering with thought, sleep, and conversation. According to the Environmental Protection Agency, environmental sound levels below 55dBA at the day/night noise level should protect human health and welfare with a margin of safety for areas with outdoor uses. However, this level is not a standard. Environmental sound levels in most urban environments are greater than 55dBA at day/night levels. Sound levels typical of various environments are shown in Table 3-27 Sound Levels by Environment.

Table 3-27 Sound Levels by Environment

Description of Environments	Ldn (dBA)	Outdoor Locations
City (Downtown Major Metropolis)	75-80	Los Angeles-Downtown with some construction activity
Very Noisy Urban	70	Boston-Row housing on Major Avenue
Noisy Urban	65	Watts-8 miles from touch down at Major Airport
Urban	60	Los Angeles-Old residential area
Suburban	55	
Small Town and Quiet Suburban	45-50	California-Tomato field on farm

Noise levels can have an impact on humans, as well as wildlife. Research on the impacts of noise on ecosystems has produced a range of theories and results, but most experts agree that noise can affect wildlife behaviorally and physiologically. If noise is a constant stress, it can exhaust wildlife, affecting reproductive success and the likelihood of survival.

Regulatory Framework

Federal and State noise regulations and guidance provide a framework for evaluating noise impacts from transportation sources. The Federal Transit Administration, Federal Highway Administration, and Federal Aviation Administration each have established noise exposure measurement procedures and noise impact criteria. The Federal Transit Administration’s criteria apply to federally-funded transit projects and vary depending on project type. For fixed guideway and transit facilities, Federal Transit Administration project exposure criteria apply. The Federal Highway Administration regulates noise associated with busways, access ramps, and other projects connected to roadway systems. The Federal Aviation Administration primarily regulates airport land use and aircraft noise, but also aids airport operators in developing and implementing noise abatements and compatibility programs.

Under Federal Transit Administration transit criteria, a noise impact occurs when a proposed project would cause Ldn³⁷ noise levels to increase the overall noise between 1 and 10 dBA, depending on the

³⁷ The day-night average sound level (Ldn) is the average noise level over a 24-hour period.

existing noise level and land use. The greater the existing noise level, the less a project may increase the overall noise level. Land uses sensitive to noise are divided into three categories. Other uses, such as retail and industrial, are generally not considered noise-sensitive.

Table 3-28 Land Uses Sensitive to Noise Categories

Land Use Category	Description	Examples
1	Buildings or parks where quiet is an essential element of their purpose.	
2	Residences and buildings where people normally sleep. This includes homes, hospitals, and hotels where nighttime sensitivity is of utmost importance.	
3	Institutional land uses with primarily daytime and evening use. This includes schools, libraries, churches, and active parks.	

Source: Federal Transit Administration, 2006

Noise impact levels as defined by the Federal Transit Administration, are presented in Table 3-28 Land Uses Sensitive to Noise Categories. These noise exposure levels include only noise generated by a specific project and no other noise sources that contribute to the overall noise level in the project area. In urban areas with existing Ldn noise levels ranging from 60 to 75 dBA, noise impacts from light rail lines would occur at noise-sensitive locations (such as residences) within 50 to 100 feet of the tracks, depending on local conditions. In suburban areas with existing Ldn noise levels of 50 to 60 dBA, noise impacts within 50 feet of commuter rail lines, with one commuter train per hour.

The Federal Aviation Administration is primarily responsible for the regulation of aircraft noise. According to the FAA regulation, residential and recreational land uses are generally compatible with noise levels below 65 dBA. Most commercial and industrial land uses are compatible with noise levels up to 70 dBA. If any change in airport operations would cause a substantial new noncompatible use or significantly reduce noise over existing incompatible land uses in an area depicted on the noise exposure map, the airport must submit a revised map (14 Code of Federal Register, Part 150). Airports who have submitted acceptable noise maps may develop and submit for Federal Aviation Administration approval, a noise compatibility program (14 Code of Federal Register Part 150.23). The purpose of such programs is to identify existing and future airport noise, reduce noise impacts in surrounding communities, and reduce or eliminate present or future noncompatible land uses in the area. After Federal Aviation Administration approval of an airport's noise compatibility program, the airport is eligible to receive Part 150 noise funds to help implement the program.

Vehicular noise is regulated by local, State, and Federal regulations. Pierce County Code Chapter 8.72, Motor Vehicle, Public Disturbance, and Public Nuisance Noise. Chapter 8.72 place limits on vehicle operation noise. Pierce County Code Chapter 8.73 Noise Pollution Control regulates operating noise levels for land uses. The Pierce County Code limits levels of noise between more intensive and less intensive land uses.

Existing Conditions

Transportation is the largest contributor to ambient noise levels in the urban and suburban landscape. Noise levels from transportation sources vary with the volume, speed, and type of vehicle. Usually an increase in any of these factors increases traffic noise levels. Pierce County Codes place limits on vehicle operation noise.

Building and infrastructure improvement activities occurring under existing regulations cause temporary noise impacts during the construction period. Building construction, site grading, and delivery activities can all cause noise levels that can impact adjacent properties particularly where commercial and industrial areas are located next to residential areas. Pierce County Codes regulate noise levels and hours of the day where construction activities can create higher noise levels for land uses.

Environmental noise from railroad crossings through the proposal area is caused from the locomotive engines and the wheels turning on the railroad track. Airport noise is caused by takeoff and landing aircraft or noise generated along the flight path.

The Parkland-Spanaway-Midland Community Plan area is located immediately adjacent to JBLM and is affected by noise from aircraft and general military operations. As shown in Figure XXX, almost all the PSM area is located in area that is outside more significant noise from aircraft operations. Only a small area on the westerly boundary of the Plan area is within higher noise contours. In addition, as shown in Figure 3-39 JBLM Land Use Study Compatibility Analysis, the Real Estate Disclosure area represents areas of the community plan area impacted by noise from military operations including aircraft activity, tank operations and live fire exercises.

Figure 3-39 JBLM Land Use Study Compatibility Analysis

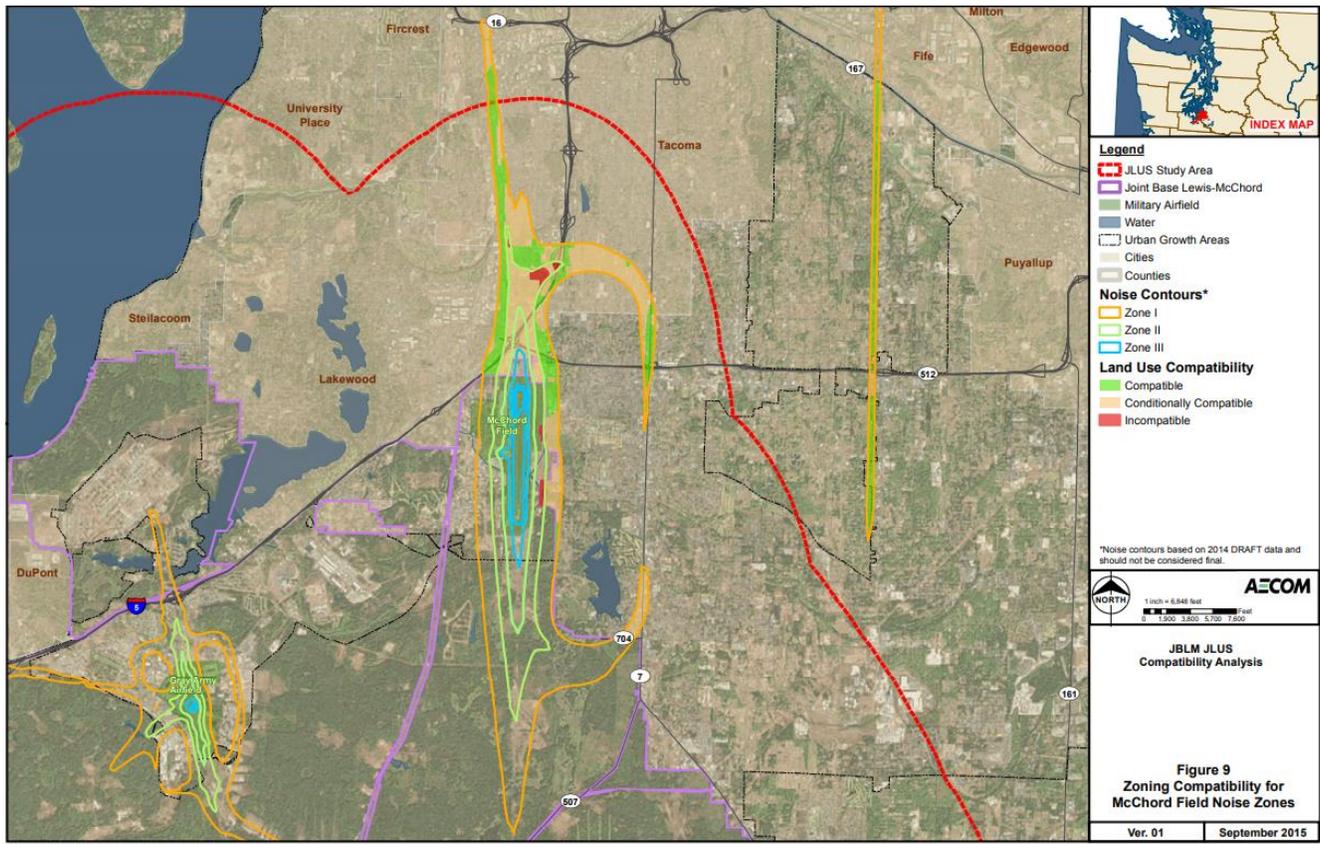
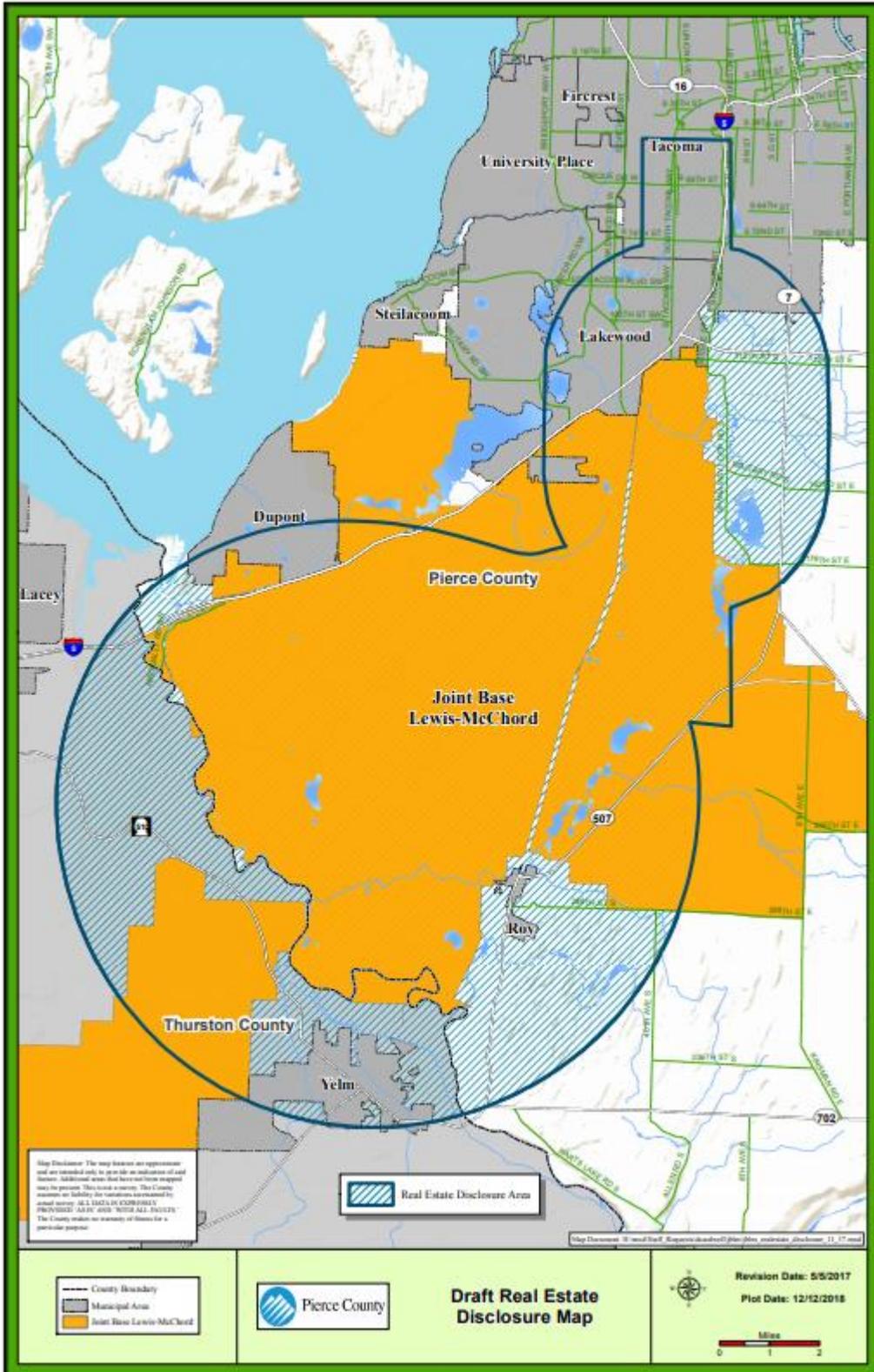


Figure 3-40 Noise Impact Disclosure Area



Impacts

Traffic increases under all the Alternatives may increase noise from added vehicle on the roads.

Construction in the proposal area would likely be gradual over the next 50 years. Noise during construction could be bothersome to nearby residents and businesses. Specific impacts would be analyzed and addressed during future project-level planning and environmental review of individual projects.

The predominant source of noise at most construction sites is the internal combustion engine. Construction equipment, including earthmoving equipment, material-handling equipment, and stationary equipment are all engine-powered. Trucks are also prevalent during most phases of construction and are not confined to the project site. Noise from trucks tend to affect more receptors. Other noise sources include pneumatic, hydraulic, or electric impact equipment and tools such as pile drivers. Noise levels will depend on the type, amount, and location of construction activities.

Areas of the Parkland-Spanaway-Midland Community Plan area are impacted by aircraft noise and noise from military training operations. The alternatives in the Parkland-Spanaway-Midland Community Plan area will increase density along the Pacific Avenue Corridor which is within the Real Estate Disclosure area which represents areas which receive noise from JBLM operations.

Mitigation Measures

- During future project-level planning and environmental review, individual project impacts and the need for mitigation measures can be determined. Where human use occurs, and a lower noise level would have benefits, mitigation may be required.
- Vehicular noise is regulated by local, State, and Federal regulations.
- Pierce County Code Chapter 8.72, Motor Vehicle, Public Disturbance, and Public Nuisance Noise. Chapter 8.72 place limits on vehicle operation noise.
- Pierce County Code Chapter 8.73 Noise Pollution Control regulates operating noise levels for land uses. The Code limits levels of noise between more intensive and less intensive land uses.
- Many uses which generate noise require Conditional Use permits. Conditions of approval can limit noise levels, hours of operation and other measure to reduce noise.

Potential mitigation measures are likely to be necessary in site-specific locations. Future project-level environmental review could determine if applicable noise criteria are exceeded at specific locations. Where this occurs, appropriate mitigation would be evaluated and implemented to address impacts.

Noise can be controlled at the source by using quieter equipment or along the noise path using noise walls, shielding, or distance. A range of mitigation measures could be implemented to reduce noise impacts, as necessary. Different methods of mitigation are appropriate for different noise sources and should be evaluated on a case-by-case basis to determine whether the approach is feasible and reasonable.

Site-Specific Mitigation Measures

- Acoustical Site Planning including providing distance between noise emitters and receptors
- Acoustical Architectural Design
- Acoustical construction
- Barriers
- Earth Berms
- Walls and Fences
- Plantings

Alternatives 1 and 2 propose increased density along Pacific Avenue under the Centers and Corridors proposal. The increased density and intensity of development will not be located closer to JBLM than existing areas of development. Therefore, the alternatives are not expected to increase impacts to residents from JBLM activities.

The County is in the process of adopting a noise disclosure process to notify homebuyers within the operational noise areas shown in Figure 3-40 Noise Impact Disclosure Area of potential noise from JBLM. This would inform homebuyers of the presence of noise from JBLM operations.

Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts from noise are expected from any of the alternatives.

3.7.3 Risk of Explosion

Affected Environment

Pierce County currently has pipelines operated by Pipeline Corporation, Olympic Pipeline Company, and U.S. Oil and Refining Company. These pipelines contain 80.93 miles of natural gas pipeline and 44.68 miles of liquid petroleum product pipeline.

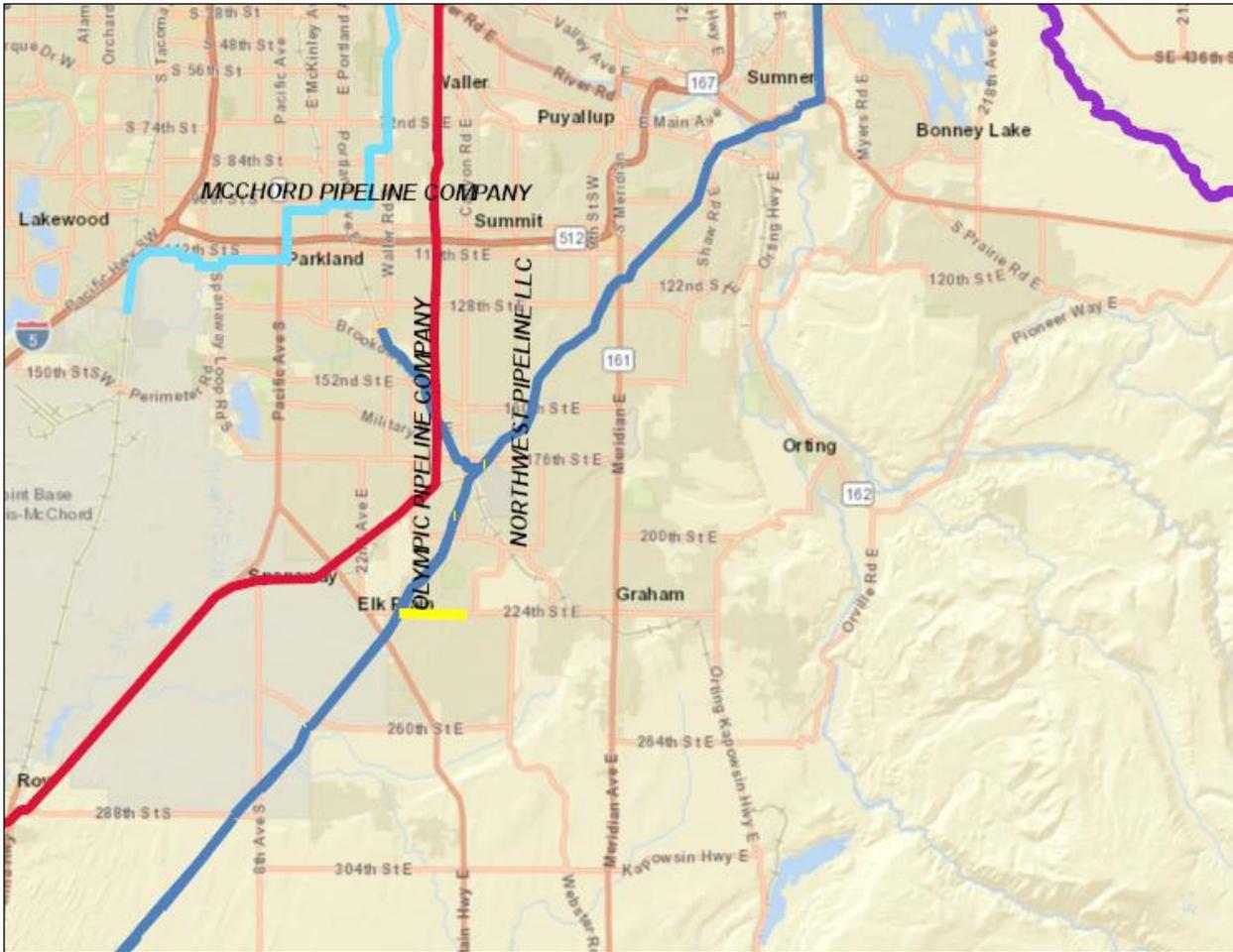
Pipelines are regulated by U.S. Code Title 49 Subtitle VIII Chapter 601. The purpose of this chapter is to provide adequate protection against risks to life and property posed by pipeline transportation and pipeline facilities by improving the regulatory and enforcement authority of the Secretary of Transportation. Also, Pierce County has in place the Department of Emergency Management, which operates the Comprehensive Emergency Management Plan that specifies the purpose, organization,

responsibilities, and facilities of agencies and officials of Pierce County in response to and recovery from emergencies and disasters.

Existing Conditions

Figure 3-41 Major Pipelines in Pierce County shows the alignments of the major pipeline in the County.

Figure 3-41 Major Pipelines in Pierce County



Northwest Pipeline Corporation is a primary conveyer of natural gas to the Pacific Northwest and the Intermountain Region. Up to 960 pounds per square inch (psi) of pressurize natural gas is transported along this pipeline. A subsidiary of Williams Pipeline enters the county as a 30-inch line from the north on the Muckleshoot Indian Reservation. Crossing to the west of Lake Tapps, it skirts the eastern edge of Sumner and the southeastern portions of Puyallup. At 192nd Street East it joins a 36-inch line that replaces an old 26-inch line. It then crosses Meridian Avenue around 122nd Avenue East and continues southwest just east of McKenna, where it crosses the Nisqually River.

The Olympic Pipeline Company has a 14-inch gasoline pipeline that runs through Pierce County coming in from the north along the Interstate 5 corridor, passing through the western edge of Milton

and the southern section of Fife. In Fife, the main line turns south, crosses the Puyallup River, and proceeds to Fredrickson. From there, it changes direction going southwest. It crosses Joint Base Lewis McChord, goes through Roy and crosses the Nisqually River downstream of McKenna. It carries gasoline, diesel, and aviation fuel in Pierce County. The Tacoma Delivery Facility delivers fuel through feeder lines to many points in the Tacoma port/industrial area. And the Spanaway Delivery Facility delivers fuel to Puget Power.

McChord Pipeline is a wholly owned subsidiary of U.S. Oil and Refining Company. At 14.25 miles in length it is the shortest of the pipelines in Pierce County. It transports JP-8 jet fuel from the terminal in the Port of Tacoma to Joint Base Lewis McChord.

Impacts

Potential impacts from distribution pipelines could include:

- Construction activities impacts to pipelines if easements and setbacks are not observed.
- In the case of an earthquake, there could be many breaks along one or more of the pipelines during the same event.
- Potential impacts from pipeline accidents on adjacent developed areas.

Mitigation Measures

Mitigation measures include:

- Maintenance of pipelines is regulated by State and Federal regulations
- Enforcement of “Call before you Dig” requirements.
- Observance of pipeline easements and setbacks for construction activities adjacent to pipelines.

Maintaining Comprehensive Emergency Management Plans will also increase preparedness for the possibility of a pipeline leak or rupture. There is a need for increased training for emergency responders, adequate equipment to handle an eventual pipeline failure, and increased monitoring for possible failures.

Significant Unavoidable Adverse Impacts

There are no significant unavoidable adverse impacts from major pipelines related to the alternatives.

3.7.4 Toxic or Hazardous Materials

Affected Environment

Sites with identified chemical releases pose the greatest potential risk from toxic materials in or near the urban growth boundaries. The sites, generally known as hazardous waste sites, show exceedances of hazardous chemicals, as defined by the State of Washington and the federal government (Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as Superfund).

List of superfund sites in Pierce County:

- American Lake Gardens/McChord Air Force Base
- Commencement Bay, Near Shore/Tide Flats
- Commencement Bay, South Tacoma Channel
- Fort Lewis (Landfill No. 5)
- Fort Lewis Logistics Center (USARMY)
- Hidden Valley Landfill (Thun Field)
- Lakewood Site
- McChord Air Force Base (Wash Rack/Treat)

Regulatory Framework

A high degree of regulation applies to the release and management of hazardous materials. Future development projects and the actions of local governments to accommodate growth are subject to the following regulations:

Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. Sec. 9601 et seq.)

The act establishes prohibitions and requirements concerning closed and abandoned hazardous waste sites. Provide for liability of persons responsible for releases of hazardous waste at these sites. Establish a trust fund to provide for cleanup when no responsible party can be identified.

Dangerous Waste Regulations (Chapter 173-303 WAC)

The regulations designate solid wastes which are dangerous or extremely hazardous to public health and the environment. They provide surveillance and monitoring of dangerous and extremely hazardous wastes until they are detoxified, reclaimed, neutralized, or disposed of safely. The regulations provide the form and rules necessary to establish a system for manifesting, tracking, reporting, monitoring, recordkeeping, sampling, and labeling wastes. The WAC establishes the siting, design, operation, closure, post-closure, financial, and monitoring requirements for waste transfer, treatment, storage, and disposal facilities. Additionally, the regulations establish design, operation,

and monitoring requirements for managing the State's extremely hazardous waste disposal facility. Finally, they establish and administer a program for permitting dangerous and extremely hazardous waste management facilities, and encourage recycling, reuse, reclamation, and recovery to the maximum extent possible.

Model Toxics Control Act (Chapter 173-340 WAC)

The act establishes administrative processes and standards to identify, investigate, and clean up facilities with hazardous substances. It defines the role of the Department of Ecology and encourages public involvement in decision-making at these facilities.

Occupational Safety and Health Act of 1970 (29 U.S.C. Sec. 651 et seq.)

The act encourages employers and employees in their efforts to reduce the occupational safety and health hazards at their places of employment, and to stimulate employers and employees to perfect existing programs and institute new ones for providing safe and healthful working conditions.

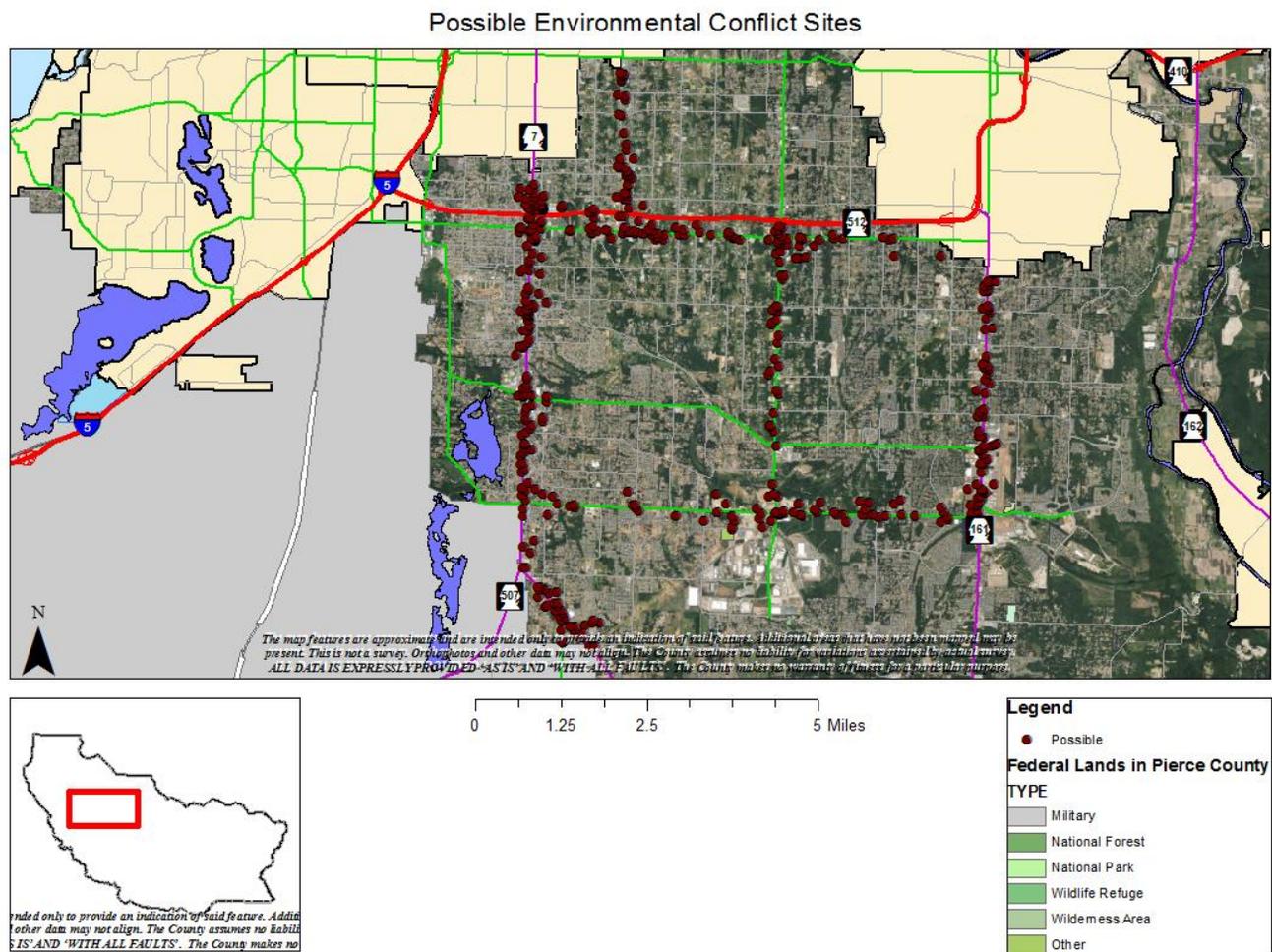
Washington Industrial Safety and Health Act (Chapter 49.17 RCW)

To create, maintain, continue, and enhance the industrial safety and health program of the State, which shall equal or exceed the standards prescribed by the Occupational Safety and Health Act of 1970 (Public Law 91-596, 84 Stat. 1590).

Existing Conditions

Within the proposal area, there are many (500+) sites monitored by the Department of Ecology for possible conflicts with hazardous materials and humans. During development, the chance of contact with hazardous materials increases when hazardous materials are present.

Figure 3-42 Monitored Sites; Department of Ecology



Washington State is also required to have a Solid and Hazardous Waste Management Plan. The State's plan promotes sustainable materials management and aims to reduce wastes and toxic substances. The plan is the result of a collaborative effort among many stakeholders, including local government, business, and non-profits. Regional planners and other Ecology staff are available to assist jurisdictions to plan for and implement programs that advance the state's plan.

Impacts

The risk of encountering old hazardous sites is present, independent of any alternative. Increasing the amount of development significantly increases the chance of disturbing contaminated soils or hazardous materials, thereby exposing humans to risks associated with the material. There could also be a need to develop or transport increased amounts of hazardous materials. Most likely to be affected are those excavating contaminated soils, being exposed to contaminated groundwater, and people living near construction areas. Focusing growth in developed areas could result in higher development, cleanup, and management costs and requirements. And when growth occurs in areas with little or no contamination, the risk to properties of potential contamination increases.

Mitigation Measures

During development or redevelopment of sites there is an increased risk of encountering old hazardous materials site. Some sites may have need to remove hazardous materials in accordance with federal and state hazardous waste mediation regulations. Development of sites for commercial or industrial uses often includes research and testing for hazardous materials. Increased development will identify hazardous materials and required mediation. Creating an inventory of confirmed contaminated sites for planning and development purposes is encouraged. Workers involved in remediation activities will need to meet State and Federal requirements to prevent exposure. Over time, remediation of hazardous materials sites will result from development and reduce the number of hazardous materials sites in the communities

Development of commercial and industrial uses which use hazardous materials will need to meet state, federal and local regulation on handling hazardous materials.

Significant Unavoidable Adverse Impacts

There are no significant unavoidable adverse impacts from hazardous materials and hazardous materials site.

Appendices

Appendix A: Acronyms and Glossary

Appendix B: Distribution List

Appendix C: Map Change Requests

Appendix D: Traffic Volume Service Ratios

Appendix E: Existing and Proposed Zoning

Appendix E.1 Existing Zoning Map

Appendix E.2 Alternative 1 Zoning Map and Table

Appendix E.3 Alternative 2 Zoning Map and Table

Appendix E.4 Alternative 3 Zoning (Map Change Requests) Map and Table

Appendix F: Growth Forecasts by Traffic Analysis Zone

Appendix F.1 Existing and Future Households

Appendix F.2 Alternative 1 Added Housing Units

Appendix F.3 Alternative 2 Added Housing Units

Appendix A: Glossary of Common Terms

This appendix includes a list of acronyms and glossary of technical terms and definitions that commonly appear in the document

AOI	Area of Influence
BMPs	Best Management Practices
CAA	Clean Air Act
CFP	Capital Facilities Plan
CPP	Pierce County Countywide Planning Policy
dBA	A-weighted decibels
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
ERUs	Equivalent Residential Units. That portion of a facility's use that is equivalent to that used by a single-family residence
GMA	Growth Management Act
Intertie	Interconnection permitting passage between two or more utility systems
JBLM	Joint Base Lewis-McChord
Ldn	The day-night average sound level. The average noise level over a 24-hour period
LID	Low Impact Development
LOS	Level of Service
LUAC	Land Use Advisory Commission
MGD	Million Gallons Per Day
MPP	Vision 2040 Multicounty Planning Policy
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
PIA	Potential Incorporation Area
PROS Plan	Parks, Recreation and Open Space Plan
PSCAA	Puget Sound Clean Air Agency
PSRC	Puget Sound Regional Council
RCW	Revised Code of Washington
SEPA	State Environmental Policy Act
SMA	Shoreline Management Act
SR	State Route
ST	Sound Transit
TAZ	Traffic Analysis Zone
TIF	Traffic Impact Fee
UGA	Urban Growth Area
USP	Unified Sewer Plan
V/S	Volume to Service
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation
WWTP	Wastewater Treatment Plant

Zones

AC	Activity Center
ARL	Agricultural Resource Land
CC	Community Center
CE	Community Employment
CMUD	Commercial Mixed-Use District
ECOR	Employment Corridor
ES	Employment Services
HRD	High-Density Residential District
HSF	High Density Single-Family
MHR	Moderate-High Density Residential
MPC	Master Planned Community
MSF	Moderate Density Single Family Zone
MUD	Mixed Use District
NC	Neighborhood Center
NCOR	Neighborhood Corridor
NMU	Neighborhood Mixed Use
OMUD	Office Mixed-Use District
PR	Parks and Recreation
RNC	Rural Neighborhood Center
RO	Research-Office
ROC	Residential-Office-Civic
RR	Residential Resource
RSep	Rural Separator
SF	Single Family
TCTR	Towne Center
UCOR	Urban Corridor

Appendix B: Distribution List

The following received notification of the availability of the DEIS by email or US Mail:

Tribes

Muckleshoot Indian Tribe - Fisheries
Muckleshoot Indian Tribe - Cultural
Muckleshoot Indian Tribe - Wildlife
Muckleshoot Indian Tribe -Preservation
Nisqually Indian Tribe - Fisheries
Nisqually Indian Tribe – Cultural
Puyallup Tribe of Indians – Preservation
Puyallup Tribe of Indians - Fisheries
Puyallup Tribe of Indians – Water Quality
Snoqualmie Tribe – Cultural
Snoqualmie Tribe - Fisheries
Snoqualmie Tribe – General

Federal Agencies

Joint Base Lewis/McChord
US EPA, Region 10
U.S. Fish and Wildlife Service

State Agencies

WA State Department of Ecology – Habitat
WA State Department of Ecology – SEPA Review
WA State Department of Fish & Wildlife -General
WA State Department of Fish & Wildlife – SEPA Review
WA State Department of Natural Resources – SEPA Center
WA State Department of Natural Resources - General
WA State Department of Transportation
WA State Dept. of Archaeology & Historic Preservation
WA State Parks & Recreation
WA State Department of Health
WA Department of Commerce, Review Team

Regional Agencies

Puget Sound Regional Council
Metro Parks Tacoma
Port of Tacoma
Pierce Transit

Tacoma-Pierce County Health Department
Puget Sound Clean Air Agency
Puget Sound Energy
Northwest Pipeline
Olympic Pipeline Co.

Local Jurisdictions and Agencies

Pierce County Departments

Pierce County Parks & Recreation
Pierce County PPW – SWM
Pierce County PPW – Sewer
Pierce County Department of Economic Development
Pierce County PPW – Transportation Planning
Pierce County Sheriff

Cities

City of Bonney Lake
City of Puyallup/Development Services Center
City of Puyallup Public Works
City of Tacoma
Tacoma Power

Fire Departments

Riverside Fire & Rescue
Graham Fire & Rescue
Tacoma Fire Department
Central Pierce Fire & Rescue

Schools

Bethel School District
Franklin Pierce School District
Puyallup School District

Water Purveyors

Firgrove Mutual Water Company
Fruitland Mutual Water Company
Lakewood Water District
Spanaway Water
Summit Water
Tacoma Water

Rainier View Water Company / Southwood Water
Parkland Light & Water

Land Use Advisory Commission Members

South Hill Advisory Commission
Frederickson Advisory Commission
Parkland Spanaway Midland Advisory Commission
Mid-County Advisory Commission

Newspapers and Libraries

The News Tribune
Pierce County Library Processing and Administration
Summit Branch- Pierce County Library
South Hill Branch – Pierce County Library
Parkland Spanaway Branch – Pierce County Library

Stakeholders and Individuals

South Hill Historical Society
Summit Waller Community Association
Pierce Communities Coalition
Garfield Street Business Association
Frederickson Clover Creek Community Council
North Clover Creek-Collins Community Association
Midland Community Association
Master Builder Association
Tacoma-Pierce County Association of Realtors
Pacific Lutheran University
Puyallup Watershed Initiative
Dara Carvalho
Futurewise
Roxy Giddings

Additional notices were sent to the following agencies and groups as appropriate:

Community Plan update interested parties – VIA Email and US Mail

Appendix C: Map Change Requests

LUAC Requests

Community Plan Area	Description	Number of Acres
Mid-County	Canyon Rd E/104th St E: MUD/CC to NC	29.8
Mid-County	121st St E: MHR to RSep	43.1
Mid-County	104th St E: MUD to RSep	11.6
Parkland-Spanaway-Midland	Portland Avenue changes	203.5
Parkland-Spanaway-Midland	Code consolidation to eliminate CMUD, OMUD, RO, and ROC	145.5
Parkland-Spanaway-Midland	96th St S/Steele St S: MHR to MUD	4.3
Parkland-Spanaway-Midland	Sales Rd S: MSF to MHR	0.3
Parkland-Spanaway-Midland	Golden Given Rd E/SR-512: SF to CE	10.2

Property Owner Requests

Community Plan Area(s)	Description	Number of Acres
Frederickson	Canyon Rd E/Military Rd E: CE to EC	32.0
Frederickson	192nd St E: EC to MSF	41.0
Frederickson	176th St E: EC to TCTR	8.8
Frederickson	Within Corridors: RR/SF to MSF	715.3
Mid-County	Within Corridors: RR/SF to MSF	1,670.0
Parkland-Spanaway-Midland	Mountain Highway: MHR to MUD	6.3
Parkland-Spanaway-Midland	208th St E: MSF to CE	3.5
Parkland-Spanaway-Midland	19th Ave Ct E: SF to CE	2.1
Parkland-Spanaway-Midland	Within Corridors: RR/SF to MSF	1,119.8
South Hill	Sunrise Blvd E/110th Ave E: EC to CC	6.6
South Hill	128th St E/94th Ave E: HSF to ROC	2.6
South Hill	112nd St E/Shaw Rd E: MHR to HSF	22.6

South Hill	128th St E/86th Ave E: MSF to HSF	20.5
South Hill	Within Corridors: RR/SF to MSF	1,123.6

Appendix D: Traffic Volume Service Ratios

Traffic Volume/Service Ratios for All Alternatives (Pierce County Roads)

Name	Limits	2015 Traffic V/S	No Action V/S	Alt 1 V/S	Alt 2 V/S	Alt 3 V/S
122ND AV E	136 ST E TO 144 ST E	18,250/17,600 1.03	28,529/33,000 0.86	28,857/33,000 0.87	28,979/33,000 0.87	28,591/33,000 0.86
122ND AV E	144 ST E TO 145 ST E	17,850/17,600 1.01	27,337/33,000 0.82	27,695/33,000 0.83	27,833/33,000 0.84	27,401/33,000 0.83
122ND AV E	145 ST E TO 152 ST E	18,375/17,600 1.04	28,155/33,000 0.85	28,508/33,000 0.86	28,644/33,000 0.86	28,219/33,000 0.85
160TH ST E	70 AV E TO 74 AV E	16,952/22,000 0.77	22,395/22,000 1.01	22,743/22,000 1.03	22,883/22,000 1.04	22,539/22,000 1.02
CANYON RD E	SR 512 EB ON/OFF RAMP TO 112 ST E	52,500/66,000 0.79	66,354/66,000 1.00	67,052/66,000 1.01	67,200/66,000 1.01	66,759/66,000 1.01
CANYON RD E	112 ST E TO 128 ST E	50,729/66,000 0.76	65,224/66,000 0.98	66,107/66,000 1.00	66,383/66,000 1.00	65,478/66,000 0.99
CANYON RD E	128 ST E TO 136 ST E	49,625/66,000 0.75	67,882/66,000 1.02	68,845/66,000 1.04	69,114/66,000 1.04	68,157/66,000 1.03
PIONEER WY E	TACOMA C/L TO WALLER RD E	19,825/22,000 0.90	25,831/22,000 1.17	26,112/22,000 1.18	26,147/22,000 1.18	25,937/22,000 1.17
SPANAWAY LOOP RD S	TULE LAKE RD S TO 138 ST S	28,200/33,000 0.85	33,839/33,000 1.02	34,426/33,000 1.04	34,491/33,000 1.04	33,906/33,000 1.02
SPANAWAY LOOP RD S	138 ST S TO MILITARY RD S	28,575/33,000 0.86	34,054/33,000 1.03	34,696/33,000 1.05	34,783/33,000 1.05	34,127/33,000 1.03
SPANAWAY LOOP RD S	154 ST S TO 174 ST S	26,022/22,000 1.18	31,929/33,000 0.96	32,061/33,000 0.97	32,110/33,000 0.97	31,951/33,000 0.96

Traffic Volume/Service Ratios for All Alternatives (State Highways)

Name	2015 Traffic V/S	No Action V/S	Alt 1 V/S	Alt 2 V/S	Alt 3 V/S
MERIDIAN E	41,000/32,400 1.26	46,254/32,400 1.42	46,703/32,400 1.44	46,804/32,400 1.44	46,388/32,400 1.43
MERIDIAN E	43,000/36,105 1.19	47,014/36,105 1.30	47,496/36,105 1.31	47,627/36,105 1.31	47,168/36,105 1.30
MERIDIAN E	39,000/39,800 0.97	46,811/39,800 1.17	47,056/39,800 1.18	47,060/39,800 1.18	46,829/39,800 1.17
MERIDIAN E	41,500/39,800 1.04	45,462/39,800 1.14	45,814/39,800 1.15	45,959/39,800 1.15	45,616/39,800 1.14
MERIDIAN E	40,000/39,800 1.00	47,266/39,800 1.18	47,582/39,800 1.19	47,646/39,800 1.19	47,352/39,800 1.18
MERIDIAN E	40,000/39,800 1.00	40,149/39,800 1.00	40,419/39,800 1.01	40,457/39,800 1.01	40,200/39,800 1.01
MERIDIAN E	39,500/39,800 0.99	46,963/39,800 1.17	47,352/39,800 1.18	47,356/39,800 1.18	46,997/39,800 1.18
MERIDIAN E	37,000/39,800 0.92	47,287/39,800 1.18	47,395/39,800 1.19	47,446/39,800 1.19	47,351/39,800 1.18
PACIFIC AV S	38,000/39,800 0.95	44,411/39,800 1.11	44,566/39,800 1.11	44,587/39,800 1.12	44,424/39,800 1.11
PACIFIC AV S	35,000/32,400 1.08	38,525/32,400 1.18	38,886/32,400 1.20	38,908/32,400 1.20	38,552/32,400 1.18
PACIFIC AV S	32,500/32,400 1.00	39,922/32,400 1.23	40,178/32,400 1.24	40,179/32,400 1.24	39,920/32,400 1.23
PACIFIC AV S	32,500/32,400 1.00	45,117/32,400 1.39	45,864/32,400 1.41	46,057/32,400 1.42	45,324/32,400 1.39
PACIFIC AV S	33,000/32,400 1.01	43,154/32,400 1.33	44,607/32,400 1.37	44,706/32,400 1.37	43,242/32,400 1.33
PACIFIC AV S	40,000/32,400 1.23	47,313/32,400 1.46	48,689/32,400 1.50	48,776/32,400 1.50	47,431/32,400 1.46
PACIFIC AV S	36,500/32,400 1.12	46,792/32,400 1.44	48,422/32,400 1.49	48,518/32,400 1.49	46,891/32,400 1.44
PACIFIC AV S	32,500/32,400 1.00	43,109/32,400 1.33	44,477/32,400 1.37	44,601/32,400 1.37	43,220/32,400 1.33
PACIFIC AV S	32,500/32,400 1.00	41,264/32,400 1.27	42,062/32,400 1.29	42,082/32,400 1.29	41,284/32,400 1.27
PACIFIC AV S	32,500/32,400 1.00	42,434/32,400 1.30	43,146/32,400 1.33	43,212/32,400 1.33	42,499/32,400 1.31
PACIFIC AV S	32,500/32,400 1.00	41,923/32,400 1.29	42,810/32,400 1.32	42,905/32,400 1.32	42,011/32,400 1.29
PACIFIC AV S	32,500/32,400 1.00	41,930/32,400 1.29	42,269/32,400 1.30	42,364/32,400 1.30	42,017/32,400 1.29
PACIFIC AV S	32,500/32,400 1.00	41,807/32,400 1.29	42,161/32,400 1.30	42,263/32,400 1.30	41,900/32,400 1.29
PACIFIC AV S	32,500/32,400 1.00	42,061/32,400 1.29	42,615/32,400 1.31	42,719/32,400 1.31	42,156/32,400 1.30
PACIFIC AV S	32,500/32,400 1.00	42,522/32,400 1.31	43,350/32,400 1.33	43,444/32,400 1.34	42,607/32,400 1.31
PACIFIC AV S	32,500/32,400 1.00	42,411/32,400 1.30	43,106/32,400 1.33	43,199/32,400 1.33	42,495/32,400 1.31
SR 512	54,000/40,000 1.35	64,131/49,090 1.30	64,683/49,090 1.31	64,787/49,090 1.31	64,215/49,090 1.30
SR 512	45,000/47,200 0.95	53,976/53,264 1.01	54,266/53,264 1.01	54,335/53,264 1.02	54,049/53,264 1.01
SR 512	42,000/42,644 0.98	49,005/43,855 1.11	48,924/43,855 1.11	48,974/43,855 1.11	49,055/43,855 1.11
SR 512	42,000/37,200 1.12	45,659/37,200 1.22	45,656/37,200 1.22	45,684/37,200 1.22	45,684/37,200 1.22
SR 512	42,000/37,200 1.12	44,836/37,200 1.20	44,819/37,200 1.20	44,808/37,200 1.20	44,832/37,200 1.20
SR 512	42,500/37,200 1.14	45,538/37,200 1.22	45,599/37,200 1.22	45,613/37,200 1.22	45,554/37,200 1.22
SR 512	42,500/37,200 1.14	44,480/37,200 1.19	44,543/37,200 1.19	44,516/37,200 1.19	44,445/37,200 1.19
SR 512	43,000/37,200 1.15	47,266/37,200 1.27	47,342/37,200 1.27	47,354/37,200 1.27	47,281/37,200 1.27
SR 512	45,243/47,200 0.95	53,458/51,846 1.03	53,769/51,846 1.03	53,854/51,846 1.03	53,526/51,846 1.03

Appendix E: Existing and Proposed Zoning

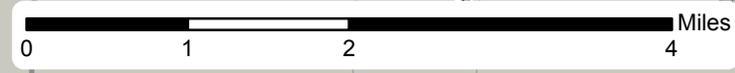
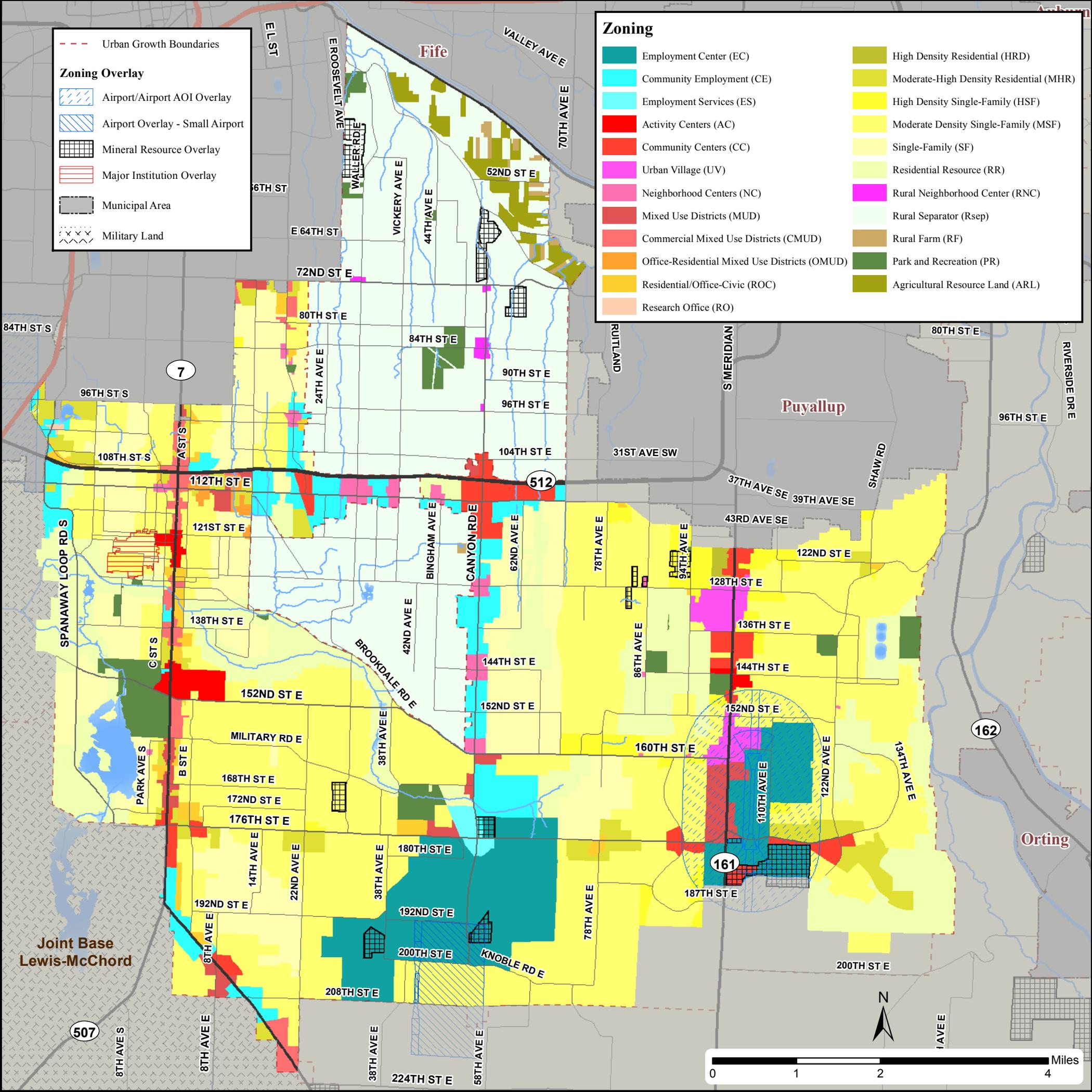
Appendix E.1 Existing Zoning Map

Zoning Overlay

- Urban Growth Boundaries
- Airport/Airport AOI Overlay
- Airport Overlay - Small Airport
- Mineral Resource Overlay
- Major Institution Overlay
- Municipal Area
- Military Land

Zoning

Employment Center (EC)	High Density Residential (HRD)
Community Employment (CE)	Moderate-High Density Residential (MHR)
Employment Services (ES)	High Density Single-Family (HSF)
Activity Centers (AC)	Moderate Density Single-Family (MSF)
Community Centers (CC)	Single-Family (SF)
Urban Village (UV)	Residential Resource (RR)
Neighborhood Centers (NC)	Rural Neighborhood Center (RNC)
Mixed Use Districts (MUD)	Rural Separator (Rsep)
Commercial Mixed Use Districts (CMUD)	Rural Farm (RF)
Office-Residential Mixed Use Districts (OMUD)	Park and Recreation (PR)
Residential/Office-Civic (ROC)	Agricultural Resource Land (ARL)
Research Office (RO)	

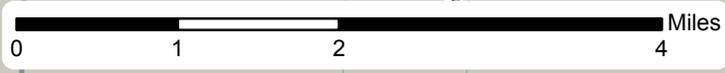
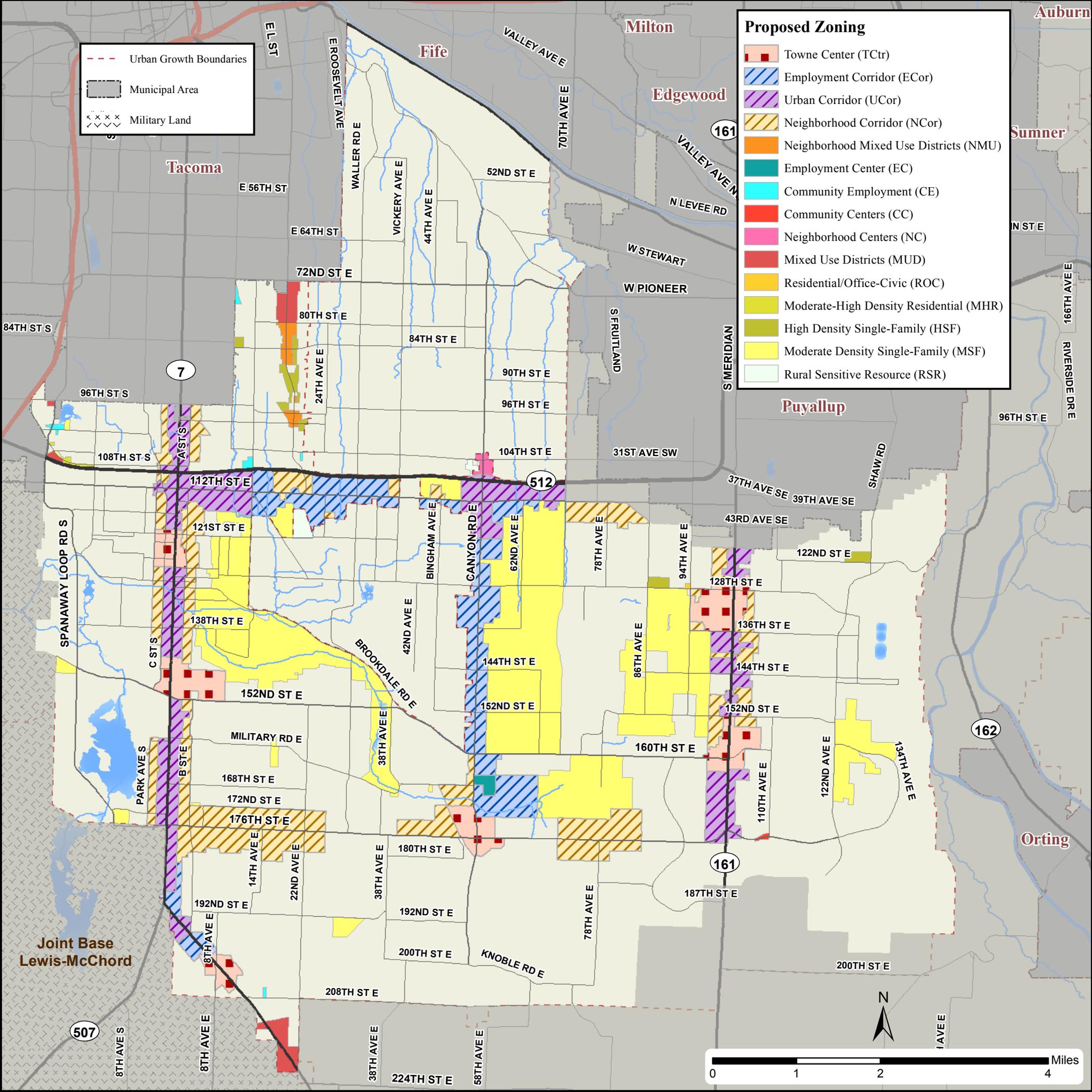


Appendix E.2 Alternative 1 Zoning Map and Table

- - - Urban Growth Boundaries
 [Grey Box] Municipal Area
 [Cross-hatch Box] Military Land

Proposed Zoning

- [Red Square] Towne Center (TCtr)
- [Blue Diagonal Lines] Employment Corridor (ECor)
- [Purple Diagonal Lines] Urban Corridor (UCor)
- [Orange Diagonal Lines] Neighborhood Corridor (NCor)
- [Orange Box] Neighborhood Mixed Use Districts (NMU)
- [Teal Box] Employment Center (EC)
- [Cyan Box] Community Employment (CE)
- [Red Box] Community Centers (CC)
- [Pink Box] Neighborhood Centers (NC)
- [Red Box] Mixed Use Districts (MUD)
- [Yellow Box] Residential/Office-Civic (ROC)
- [Light Green Box] Moderate-High Density Residential (MHR)
- [Dark Green Box] High Density Single-Family (HSF)
- [Yellow Box] Moderate Density Single-Family (MSF)
- [Light Green Box] Rural Sensitive Resource (RSR)



Alternative 1 Proposed Zoning

Existing Zoning	Proposed Zoning	Acres
AC	TCtr	234.83
	UCor	37.97
CC	Ecor	20.07
	NC	26.97
	Ncor	85.81
	TCtr	37.61
	UCor	510.71
CE	EC	31.97
	ECor	1,051.81
	MSF	5.03
	NCor	17.14
	TCtr	16.47
CMUD	UCor	96.80
	CE	5.31
	MUD	122.35
	NMU	3.69
EC	UCor	268.76
	CC	6.62
	MSF	40.93
	TCtr	31.48
ES	UCor	19.51
	TCtr	108.33
HRD	NCor	46.52
	UCor	0.79
HSF	HSF (HSF LU)	8.85
	NCor	124.75
	ROC	2.61
MHR	HSF	22.64
	MUD	21.38
	NCor	277.19
	Rsep	43.12
	TCtr	12.65
	UCor	120.49
MSF	CE	3.54
	HSF	34.09
	MHR	0.25
	MUD	5.03
	NCor	1,218.68

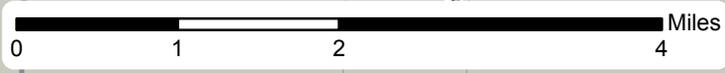
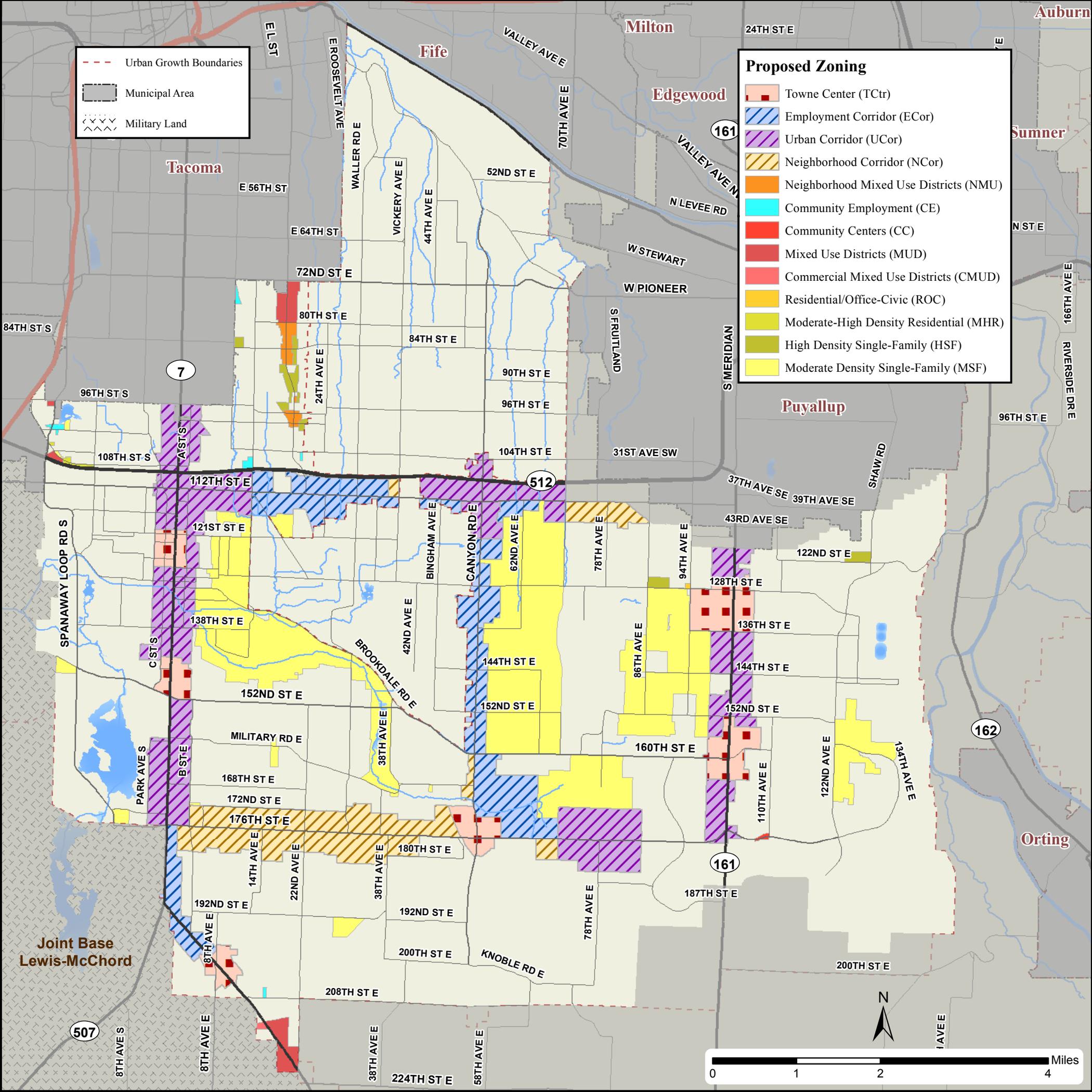
	NMU	17.92
	TCtr	30.46
	UCor	116.50
MUD	ECor	22.93
	NC	2.85
	NCor	50.70
	RSep	11.62
	TCtr	71.67
	UCor	318.56
NC	ECor	199.59
	HSF	0.64
	NCor	40.61
	NMU	30.70
	UCor	12.24
OMUD	MSF	8.77
	UCor	82.83
RO	CE	8.94
ROC	ECor	40.90
	HSF	10.00
	MHR	14.42
	MSF	5.18
	MUD	30.13
	NCor	141.71
	NMU	4.76
	TCtr	4.95
	Ucor	105.06
RR	ECor	10.22
	MSF	2,771.62
	NCor	106.48
Rsep	ECor	0.27
SF	CE	12.38
	HSF	37.90
	MSF	1,857.10
	MUD	3.10
	NCor	174.60
	NMU	15.82
	TCtr	11.85
	UCor	10.39
UV	NCor	1.28
	TCtr	363.41
	UCor	12.75

Appendix E.3 Alternative 2 Zoning Map and Table

- Urban Growth Boundaries
- Municipal Area
- Military Land

Proposed Zoning

- Towne Center (TCtr)
- Employment Corridor (ECor)
- Urban Corridor (UCor)
- Neighborhood Corridor (NCor)
- Neighborhood Mixed Use Districts (NMU)
- Community Employment (CE)
- Community Centers (CC)
- Mixed Use Districts (MUD)
- Commercial Mixed Use Districts (CMUD)
- Residential/Office-Civic (ROC)
- Moderate-High Density Residential (MHR)
- High Density Single-Family (HSF)
- Moderate Density Single-Family (MSF)



Alternative 2 Proposed Zoning

Existing Zoning	Proposed Zoning	Acres
AC	TCtr	147.30
	Ucor	37.97
CC	Ecor	87.31
	Ncor	22.59
	TCtr	37.61
	Ucor	508.17
CE	ECor	1,127.25
	MSF	5.03
	TCtr	11.20
	UCor	42.21
CMUD	CE	5.31
	MUD	122.35
	NMU	3.69
	UCor	258.84
EC	CC	6.62
	ECor	108.22
	MSF	40.93
	NCor	40.96
	TCtr	34.48
	UCor	14.29
ES	NCor	2.18
	TCtr	106.16
HRD	UCor	47.31
HSF	HSF (HSF LU)	8.85
	NCor	55.20
	ROC	2.61
	TCtr	43.44
	UCor	15.98
MHR	CMUD	6.28
	ECor	1.31
	HSF	22.64
	MUD	15.09
	NCor	117.16
	Rsep	45.07
	TCtr	12.65
UCor	222.39	
MSF	CE	3.54

	ECor	2.92
	HSF	34.09
	MHR	0.25
	MUD	5.03
	NCor	902.24
	NMU	17.92
	TCtr	81.96
	UCor	1,077.44
MUD	ECor	23.43
	NCor	50.70
	TCtr	108.01
	UCor	231.53
NC	ECor	190.53
	HSF	0.64
	NCor	17.39
	NMU	30.70
	UCor	30.75
OMUD	ECor	0.49
	MSF	8.77
RO	CE	8.94
ROC	ECor	40.90
	HSF	10.00
	MHR	14.42
	MSF	5.18
	MUD	30.13
	NCor	62.49
	NMU	4.76
	TCtr	4.95
	UCor	181.80
RR	ECor	23.66
	MSF	2,684.36
	NCor	7.40
	UCor	122.53
SF	CE	12.38
	ECor	8.69
	HSF	37.90
	MSF	1,770.71
	MUD	3.10
	NCor	41.09
	NMU	15.82
	TCtr	11.85

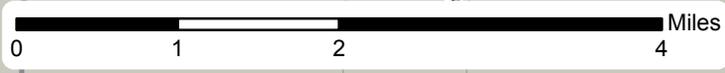
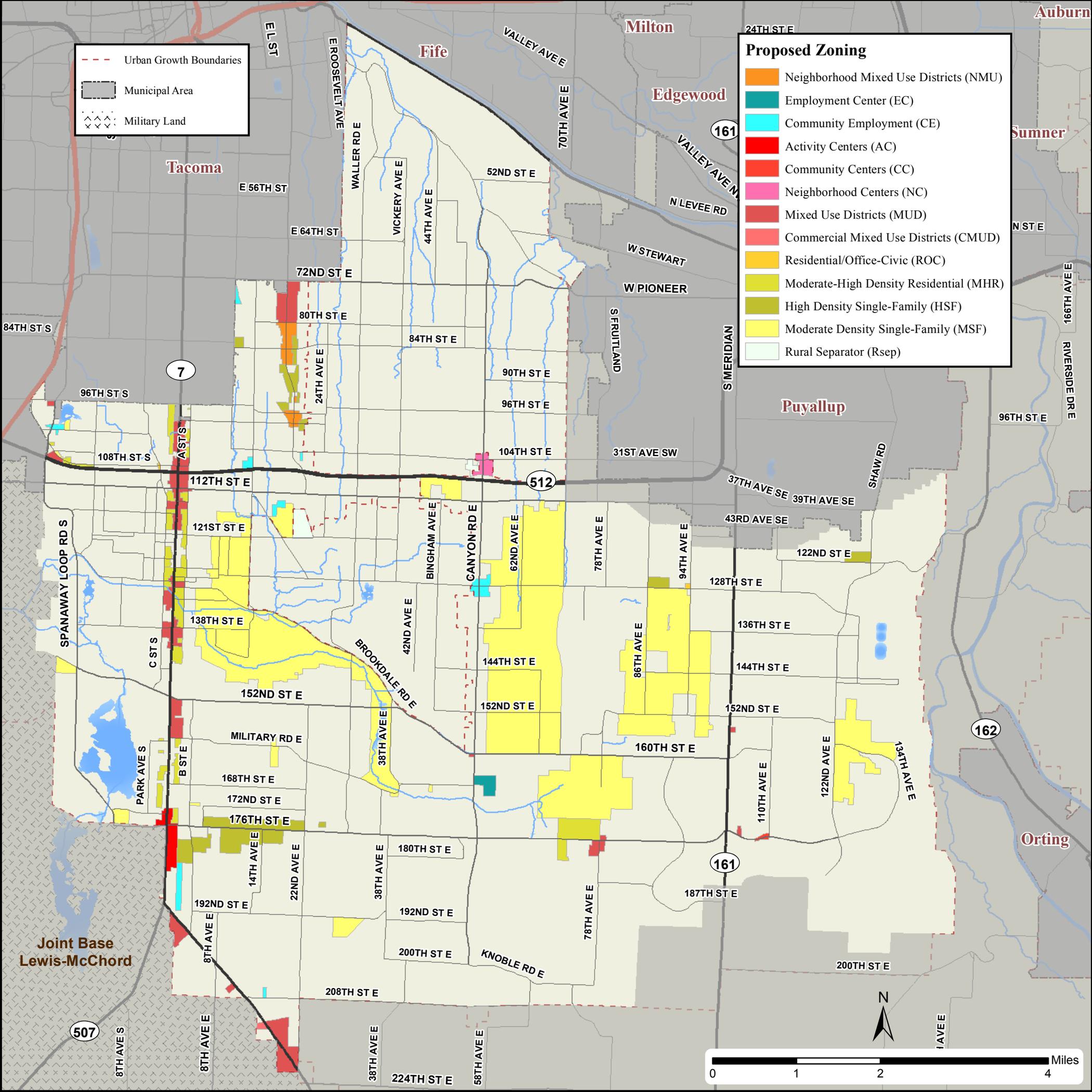
	UCor	187.11
	TCtr	364.77
UV	UCor	12.75

Appendix E.4 Alternative 3 Zoning (Map Change Requests) Map and Table

- Urban Growth Boundaries
- Municipal Area
- Military Land

Proposed Zoning

- Neighborhood Mixed Use Districts (NMU)
- Employment Center (EC)
- Community Employment (CE)
- Activity Centers (AC)
- Community Centers (CC)
- Neighborhood Centers (NC)
- Mixed Use Districts (MUD)
- Commercial Mixed Use Districts (CMUD)
- Residential/Office-Civic (ROC)
- Moderate-High Density Residential (MHR)
- High Density Single-Family (HSF)
- Moderate Density Single-Family (MSF)
- Rural Separator (Rsep)



Alternative 3 Proposed Zoning

Existing Zoning	Proposed Zoning	Acres
CC	AC	63.15
	NC	26.96
CE	AC	1.88
	EC	31.97
	MSF	5.03
	MUD	33.00
CMUD	CE	5.31
	MUD	364.97
	NMU	3.69
EC	CC	6.62
	MSF	40.93
	MUD	3.83
HSF	HSF (HSF LU)	8.85
	ROC	2.61
MHR	CMUD	6.28
	HSF	22.64
	MHR (LU HRD)	8.01
	MUD	15.30
	Rsep	43.12
MSF	CE	3.54
	HSF	263.60
	MHR	136.44
	MUD	9.10
	NMU	17.92
MUD	NC	2.76
	RSep	11.62
NC	CE	29.70
	HSF	0.64
	NMU	30.70
OMUD	MSF	8.77
	MUD	0.72
RO	CE	8.94
ROC	CE	24.21
	HSF	10.00
	MHR	123.32
	MSF	5.18
	MUD	52.28

	NMU	4.76
	ROC (LU HRD)	1.81
RR	CE	10.19
	MSF	2,773.80
	CE	12.38
	HSF	73.96
SF	MHR	81.71
	MSF	1,859.74
	MUD	3.10
	NMU	15.82
UV	MUD	2.87

Appendix F: Growth Forecasts by Traffic Analysis Zone

Appendix F.1 Existing and Future Households

Traffic Analysis Zone (TAZ)	Households (HH) by TAZ				Alt 1 HH Growth	Alt 2 HH Growth
	Baseyear 2015	No Action Alternative 2040	Alternative 1 2040	Alternative 2 2040		
124	429	786	786	786	0	0
125	104	156	156	156	0	0
126	357	547	547	547	0	0
127	404	598	598	598	0	0
128	251	382	382	382	0	0
129	347	806	806	806	0	0
130	511	832	832	832	0	0
131	316	467	467	467	0	0
132	538	792	792	792	0	0
133	347	512	512	512	0	0
134	284	450	450	450	0	0
135	567	839	839	839	0	0
136	419	618	618	618	0	0
137	579	930	930	930	0	0
138	647	961	961	961	0	0
139	193	285	285	285	0	0
140	410	603	603	603	0	0
141	313	460	460	460	0	0
142	172	256	256	256	0	0
143	35	54	54	54	0	0
144	189	319	319	319	0	0
145	179	268	268	268	0	0
146	318	467	467	467	0	0
147	233	415	415	415	0	0
148	132	258	258	258	0	0
149	236	345	345	345	0	0
150	547	816	816	816	0	0
151	493	746	746	746	0	0
152	506	767	767	767	0	0
153	231	348	348	348	0	0
154	425	797	797	797	0	0
155	128	298	298	298	0	0
156	121	186	186	186	0	0
157	235	349	349	349	0	0
158	194	315	315	315	0	0
159	142	221	221	221	0	0
160	201	296	296	296	0	0
161	365	542	542	542	0	0
162	1171	1725	1725	1725	0	0
163	294	434	434	434	0	0

164	356	526	526	526	0	0
165	284	416	416	416	0	0
166	323	475	475	475	0	0
167	577	852	852	852	0	0
168	469	691	691	691	0	0
169	534	787	787	787	0	0
170	626	1024	1024	1024	0	0
171	78	134	134	134	0	0
172	63	100	100	100	0	0
173	267	421	421	421	0	0
174	449	731	731	731	0	0
175	147	401	401	401	0	0
176	17	44	44	44	0	0
177	142	233	233	233	0	0
178	448	661	661	661	0	0
179	279	411	411	411	0	0
180	413	612	612	612	0	0
181	833	1371	1371	1371	0	0
182	333	492	492	492	0	0
183	217	321	321	321	0	0
184	212	313	313	313	0	0
185	179	319	319	319	0	0
186	47	69	69	69	0	0
187	143	211	211	211	0	0
188	249	369	369	369	0	0
189	449	700	700	700	0	0
190	416	622	622	622	0	0
191	11	16	16	16	0	0
192	193	493	493	493	0	0
193	363	734	734	734	0	0
194	550	1018	1018	1018	0	0
195	151	298	298	298	0	0
196	347	754	754	754	0	0
197	304	781	781	781	0	0
198	0	0	0	0	0	0
199	191	412	412	412	0	0
200	218	660	660	660	0	0
201	195	529	529	529	0	0
202	108	175	175	175	0	0
203	225	332	332	332	0	0
204	376	606	606	606	0	0
205	5	8	8	8	0	0
206	387	659	659	659	0	0
207	321	474	474	474	0	0
208	758	1157	1157	1157	0	0
209	368	571	571	571	0	0
210	541	809	809	809	0	0

211	372	549	549	549	0	0
212	340	531	531	531	0	0
213	296	597	597	597	0	0
214	442	652	652	652	0	0
215	168	334	334	334	0	0
216	215	322	322	322	0	0
217	129	296	296	296	0	0
218	68	269	269	269	0	0
219	17	89	89	89	0	0
220	36	174	174	174	0	0
221	0	157	157	157	0	0
222	0	88	88	88	0	0
223	0	123	123	123	0	0
224	58	238	238	238	0	0
225	199	443	443	443	0	0
226	48	371	371	371	0	0
227	0	18	18	18	0	0
228	0	0	0	0	0	0
229	0	0	0	0	0	0
230	84	219	219	219	0	0
231	323	479	479	479	0	0
232	413	608	608	608	0	0
233	24	37	37	37	0	0
234	226	337	337	337	0	0
235	135	198	198	198	0	0
236	325	487	487	487	0	0
237	232	343	343	343	0	0
238	305	542	542	542	0	0
239	177	387	387	387	0	0
240	343	509	509	509	0	0
241	332	494	494	494	0	0
242	187	277	277	277	0	0
243	180	271	271	271	0	0
244	255	399	399	399	0	0
245	238	354	354	354	0	0
246	138	490	490	490	0	0
247	55	197	197	197	0	0
248	216	652	652	652	0	0
249	245	618	618	618	0	0
250	0	0	0	0	0	0
251	0	7	7	7	0	0
252	0	0	0	0	0	0
253	97	518	518	518	0	0
254	99	485	485	485	0	0
255	0	0	0	0	0	0
256	0	0	0	0	0	0
257	0	0	0	0	0	0

258	319	607	607	607	0	0
259	172	518	518	518	0	0
260	3	88	88	88	0	0
261	110	164	164	164	0	0
262	753	1125	1125	1125	0	0
263	152	236	236	236	0	0
264	0	0	0	0	0	0
265	180	422	422	422	0	0
266	0	34	34	34	0	0
267	122	183	183	183	0	0
268	222	333	333	333	0	0
269	149	221	221	221	0	0
270	109	162	162	162	0	0
271	243	371	371	371	0	0
272	96	305	305	305	0	0
273	253	675	675	675	0	0
274	88	722	722	722	0	0
275	107	406	406	406	0	0
276	338	917	917	917	0	0
277	203	721	721	721	0	0
278	11	354	354	354	0	0
279	0	0	0	0	0	0
280	7	491	491	491	0	0
281	26	460	460	460	0	0
282	47	70	70	70	0	0
283	19	28	28	28	0	0
284	0	0	0	0	0	0
285	143	307	307	307	0	0
286	0	255	255	255	0	0
287	0	176	176	176	0	0
288	0	134	134	134	0	0
289	47	87	87	87	0	0
290	459	684	684	684	0	0
291	227	345	345	345	0	0
292	289	430	430	430	0	0
293	71	108	108	108	0	0
294	0	0	0	0	0	0
295	1	1	1	1	0	0
296	1	1	1	1	0	0
297	0	0	0	0	0	0
298	1	8	8	8	0	0
299	101	386	386	386	0	0
300	0	341	341	341	0	0
301	1	41	41	41	0	0
302	0	189	189	189	0	0
303	3	5	5	5	0	0
304	1	3	3	3	0	0

305	391	599	599	599	0	0
306	460	738	738	738	0	0
307	1	14	14	14	0	0
308	0	0	0	0	0	0
309	3	293	293	293	0	0
310	93	287	287	287	0	0
311	26	144	144	144	0	0
312	329	488	488	488	0	0
313	339	511	511	511	0	0
314	338	530	530	530	0	0
315	83	322	322	322	0	0
316	390	720	720	720	0	0
317	243	515	515	515	0	0
318	190	353	353	353	0	0
319	353	620	620	620	0	0
320	186	296	296	296	0	0
321	300	526	526	526	0	0
322	171	299	299	299	0	0
323	542	838	838	838	0	0
324	295	564	564	564	0	0
325	288	727	727	727	0	0
326	504	904	904	904	0	0
327	179	470	470	470	0	0
328	4	25	25	25	0	0
329	416	876	876	876	0	0
330	263	942	942	942	0	0
331	729	1317	1317	1317	0	0
332	220	689	689	689	0	0
333	0	142	142	142	0	0
334	203	425	425	425	0	0
335	373	553	553	553	0	0
336	325	482	482	482	0	0
337	465	780	780	780	0	0
338	406	600	600	600	0	0
339	342	624	624	624	0	0
340	316	468	468	468	0	0
341	222	474	474	474	0	0
342	244	362	362	362	0	0
343	140	208	208	208	0	0
344	175	261	261	261	0	0
345	343	562	562	562	0	0
346	293	473	473	473	0	0
347	687	1031	1031	1031	0	0
348	684	1085	1085	1085	0	0
349	0	10	10	10	0	0
350	524	1209	1209	1209	0	0
351	88	262	262	262	0	0

352	411	608	608	608	0	0
353	439	651	651	651	0	0
354	344	507	507	507	0	0
355	335	497	497	497	0	0
356	445	657	657	657	0	0
357	596	885	885	885	0	0
358	450	682	682	682	0	0
359	349	541	541	541	0	0
360	268	443	443	443	0	0
361	582	870	870	870	0	0
362	479	763	763	763	0	0
363	23	34	34	34	0	0
364	384	667	667	667	0	0
365	413	614	614	614	0	0
366	234	348	348	348	0	0
367	66	115	115	115	0	0
368	319	471	471	471	0	0
369	630	933	933	933	0	0
370	486	714	714	714	0	0
371	403	607	607	607	0	0
372	351	524	524	524	0	0
373	353	537	537	537	0	0
374	476	756	756	756	0	0
375	194	197	197	197	0	0
376	427	629	629	629	0	0
377	342	536	536	536	0	0
378	380	575	575	575	0	0
379	390	578	578	578	0	0
380	301	464	464	464	0	0
381	544	803	803	803	0	0
382	346	627	627	627	0	0
383	600	989	989	989	0	0
384	543	1139	1139	1139	0	0
385	493	904	904	904	0	0
386	63	125	125	125	0	0
387	200	336	336	336	0	0
388	114	172	172	172	0	0
389	508	761	761	761	0	0
390	389	587	587	587	0	0
391	254	385	385	385	0	0
392	417	643	643	643	0	0
393	413	615	615	615	0	0
394	514	1318	1318	1318	0	0
395	186	382	382	382	0	0
396	342	542	542	542	0	0
397	762	1142	1142	1142	0	0
398	481	731	731	731	0	0

399	458	671	671	671	0	0
400	165	252	252	252	0	0
401	293	438	438	438	0	0
402	246	369	369	369	0	0
403	414	617	617	617	0	0
404	384	651	651	651	0	0
405	257	400	400	400	0	0
406	324	529	529	529	0	0
407	443	763	763	763	0	0
408	729	1175	1175	1175	0	0
409	374	699	699	699	0	0
410	645	983	983	983	0	0
411	632	934	934	934	0	0
412	126	305	305	305	0	0
413	274	428	428	428	0	0
414	610	946	946	946	0	0
415	548	809	809	809	0	0
416	200	325	325	325	0	0
417	136	270	270	270	0	0
418	589	918	918	918	0	0
419	4	7	7	7	0	0
420	0	0	0	0	0	0
421	0	0	0	0	0	0
422	200	486	486	486	0	0
423	570	1345	1345	1345	0	0
424	0	0	0	0	0	0
425	0	0	0	0	0	0
426	0	0	0	0	0	0
427	0	0	0	0	0	0
428	0	0	0	0	0	0
429	0	0	0	0	0	0
430	0	0	0	0	0	0
431	0	0	0	0	0	0
432	0	0	0	0	0	0
433	0	0	0	0	0	0
434	0	0	0	0	0	0
435	0	0	0	0	0	0
436	0	0	0	0	0	0
437	1	25	25	25	0	0
438	0	0	0	0	0	0
439	0	0	0	0	0	0
440	376	631	631	631	0	0
441	308	534	534	534	0	0
442	377	624	624	624	0	0
443	224	363	363	363	0	0
444	579	943	943	943	0	0
445	355	576	576	576	0	0

446	262	430	430	430	0	0
447	437	954	954	954	0	0
448	512	858	858	858	0	0
449	208	345	345	345	0	0
450	692	1271	1271	1271	0	0
451	549	1141	1141	1141	0	0
452	245	430	430	430	0	0
453	653	1131	1131	1131	0	0
454	415	672	672	672	0	0
455	807	1348	1348	1348	0	0
456	399	714	714	714	0	0
457	780	1275	1275	1275	0	0
458	114	498	498	498	0	0
459	0	0	0	0	0	0
460	412	726	726	726	0	0
461	331	563	563	563	0	0
462	910	1572	1572	1572	0	0
463	331	594	594	594	0	0
464	487	791	791	791	0	0
465	989	1841	1841	1841	0	0
466	380	676	676	676	0	0
467	724	1195	1195	1195	0	0
468	154	191	191	191	0	0
469	148	186	186	186	0	0
470	255	317	317	317	0	0
471	0	0	0	0	0	0
472	402	495	495	495	0	0
473	253	312	312	312	0	0
474	277	344	344	344	0	0
475	695	855	855	855	0	0
476	545	695	695	695	0	0
477	770	939	939	939	0	0
478	211	265	265	265	0	0
479	257	320	320	320	0	0
480	483	675	675	675	0	0
481	460	587	587	587	0	0
482	425	484	484	484	0	0
483	416	631	631	631	0	0
484	752	1151	1151	1151	0	0
485	670	1061	1061	1061	0	0
486	413	693	693	693	0	0
487	0	0	0	0	0	0
488	763	1167	1167	1167	0	0
489	1116	1719	1719	1719	0	0
490	569	953	953	953	0	0
491	751	1310	1310	1310	0	0
492	653	1262	1262	1262	0	0

493	873	1382	1382	1382	0	0
494	26	39	39	39	0	0
495	497	759	759	759	0	0
496	380	577	577	577	0	0
497	0	0	0	0	0	0
498	792	1276	1276	1276	0	0
499	317	516	516	516	0	0
500	241	402	402	402	0	0
501	832	1389	1389	1389	0	0
502	0	4	4	4	0	0
503	27	42	42	42	0	0
504	300	467	467	467	0	0
505	331	507	507	507	0	0
506	194	297	297	297	0	0
507	77	118	118	118	0	0
508	376	626	626	626	0	0
509	305	496	496	496	0	0
510	302	494	494	494	0	0
511	419	675	675	675	0	0
512	708	1213	1213	1213	0	0
513	299	621	621	621	0	0
514	328	530	530	530	0	0
515	476	889	889	889	0	0
516	322	495	495	495	0	0
517	97	149	149	149	0	0
518	0	4	4	4	0	0
519	341	600	600	600	0	0
520	274	447	447	447	0	0
521	382	607	607	607	0	0
522	564	1486	1486	1486	0	0
523	177	341	341	341	0	0
524	546	857	857	857	0	0
525	300	502	502	502	0	0
526	469	824	824	824	0	0
527	212	336	336	336	0	0
528	262	442	442	442	0	0
529	475	745	745	745	0	0
530	546	978	978	978	0	0
531	473	760	760	760	0	0
532	474	799	799	799	0	0
533	221	369	369	369	0	0
534	21	32	32	32	0	0
535	0	0	0	0	0	0
536	7	94	94	94	0	0
537	942	1733	1733	1733	0	0
538	651	1400	1400	1400	0	0
539	200	329	329	329	0	0

540	795	1608	1608	1608	0	0
541	1055	2188	2188	2188	0	0
542	67	99	99	99	0	0
543	0	35	35	35	0	0
544	5	45	45	45	0	0
545	296	464	464	464	0	0
546	24	73	73	73	0	0
547	0	10	10	10	0	0
548	1	46	46	46	0	0
549	504	773	773	773	0	0
550	1	8	8	8	0	0
551	180	274	274	274	0	0
552	1218	1842	1842	1842	0	0
553	151	247	247	247	0	0
554	1096	1745	1745	1745	0	0
555	180	429	429	429	0	0
556	161	178	178	178	0	0
557	550	647	647	647	0	0
558	279	347	347	347	0	0
559	397	472	472	472	0	0
560	501	579	579	579	0	0
561	253	314	314	314	0	0
562	446	548	548	548	0	0
563	212	297	297	297	0	0
564	374	894	894	894	0	0
565	313	452	452	452	0	0
566	254	393	393	393	0	0
567	124	311	311	311	0	0
568	125	282	282	282	0	0
569	293	514	514	514	0	0
570	294	422	422	422	0	0
571	225	335	335	335	0	0
572	269	395	395	395	0	0
573	140	192	192	192	0	0
574	280	399	399	399	0	0
575	283	386	386	386	0	0
576	212	321	321	321	0	0
577	268	379	379	379	0	0
578	14	33	33	33	0	0
579	9	21	21	21	0	0
580	4	261	261	261	0	0
581	12	12	12	12	0	0
582	10	304	304	304	0	0
583	0	38	38	38	0	0
584	41	156	156	156	0	0
585	276	400	400	400	0	0
586	521	807	807	807	0	0

587	792	1060	1060	1060	0	0
588	99	223	223	223	0	0
589	516	640	640	640	0	0
590	376	516	516	516	0	0
591	378	453	453	453	0	0
592	524	679	679	679	0	0
593	11	32	32	32	0	0
594	451	666	666	666	0	0
595	1260	1740	1740	1740	0	0
596	778	1068	1068	1068	0	0
597	176	261	261	261	0	0
598	555	792	792	792	0	0
599	388	546	546	546	0	0
600	3	5	5	5	0	0
601	521	860	860	860	0	0
602	127	435	435	435	0	0
603	555	1019	1019	1019	0	0
604	291	484	484	484	0	0
605	0	0	0	0	0	0
606	289	514	514	514	0	0
607	161	268	268	268	0	0
608	128	210	210	210	0	0
609	437	735	735	735	0	0
610	115	193	193	193	0	0
611	348	579	579	579	0	0
612	198	376	376	376	0	0
613	89	184	184	184	0	0
614	277	597	597	597	0	0
615	1015	1709	1709	1709	0	0
616	9	15	15	15	0	0
617	19	32	32	32	0	0
618	178	390	390	390	0	0
619	415	708	708	708	0	0
620	225	384	384	384	0	0
621	105	231	231	231	0	0
622	247	460	460	460	0	0
623	362	737	737	737	0	0
624	185	405	405	405	0	0
625	365	705	705	705	0	0
626	625	1419	1419	1419	0	0
627	481	857	857	857	0	0
628	308	638	638	638	0	0
629	190	339	339	339	0	0
630	366	667	667	667	0	0
631	298	856	856	856	0	0
632	618	1277	1277	1277	0	0
633	267	573	573	573	0	0

634	745	1306	1306	1306	0	0
635	172	433	433	433	0	0
636	1280	2237	2237	2237	0	0
637	345	575	575	575	0	0
638	800	1317	1317	1317	0	0
639	1	2	2	2	0	0
640	191	313	313	313	0	0
641	1	4	4	4	0	0
642	2	3	3	3	0	0
643	0	3	3	3	0	0
644	84	151	151	151	0	0
645	577	993	993	993	0	0
646	318	748	748	748	0	0
647	216	357	357	357	0	0
648	241	393	393	393	0	0
649	175	184	184	184	0	0
650	473	569	569	569	0	0
651	461	484	484	484	0	0
652	390	517	517	517	0	0
653	695	768	768	768	0	0
654	481	604	604	604	0	0
655	276	496	496	496	0	0
656	131	147	147	147	0	0
657	161	174	174	174	0	0
658	427	462	462	462	0	0
659	54	141	141	141	0	0
660	11	12	12	12	0	0
661	286	352	352	352	0	0
662	470	523	523	523	0	0
663	108	177	177	177	0	0
664	296	299	299	299	0	0
665	79	79	79	79	0	0
666	0	551	551	551	0	0
667	320	352	352	352	0	0
668	126	220	220	220	0	0
669	285	304	304	304	0	0
670	78	85	85	85	0	0
671	259	286	286	286	0	0
672	132	136	136	136	0	0
673	0	0	0	0	0	0
674	424	661	661	661	0	0
675	1132	2311	2311	2311	0	0
676	212	285	285	285	0	0
677	524	576	576	576	0	0
678	417	546	546	546	0	0
679	5	561	561	561	0	0
680	326	350	350	350	0	0

681	81	113	113	113	0	0
682	246	274	274	274	0	0
683	665	805	805	805	0	0
684	136	142	142	142	0	0
685	170	236	236	236	0	0
686	213	286	286	286	0	0
687	388	636	636	636	0	0
688	1727	2934	2934	2934	0	0
689	560	927	927	927	0	0
690	254	429	429	429	0	0
691	336	552	552	552	0	0
692	288	452	452	452	0	0
693	631	1039	1039	1039	0	0
694	277	405	405	405	0	0
695	495	849	849	849	0	0
696	66	630	630	630	0	0
697	10	304	304	304	0	0
698	263	306	306	306	0	0
699	0	262	262	262	0	0
700	307	342	342	342	0	0
701	199	219	219	219	0	0
702	218	240	240	240	0	0
703	388	396	396	396	0	0
704	278	285	285	285	0	0
705	80	309	309	309	0	0
706	285	304	304	304	0	0
707	215	219	219	219	0	0
708	123	162	162	162	0	0
709	340	354	354	354	0	0
710	405	414	414	414	0	0
711	278	281	281	281	0	0
712	0	0	0	0	0	0
713	760	760	760	760	0	0
714	0	0	0	0	0	0
715	751	751	751	751	0	0
716	790	790	790	790	0	0
717	30	30	30	30	0	0
718	671	671	671	671	0	0
719	1523	1523	1523	1523	0	0
720	4	4	4	4	0	0
721	0	0	0	0	0	0
722	613	724	724	724	0	0
723	88	104	104	104	0	0
724	177	206	206	206	0	0
725	67	78	78	78	0	0
726	459	524	524	524	0	0
727	173	205	205	205	0	0

728	540	619	619	619	0	0
729	281	325	325	325	0	0
730	218	249	249	249	0	0
731	855	977	977	977	0	0
732	255	295	295	295	0	0
733	454	526	526	526	0	0
734	457	526	526	526	0	0
735	286	345	345	345	0	0
736	109	132	132	132	0	0
737	184	219	219	219	0	0
738	249	305	305	305	0	0
739	188	229	229	229	0	0
740	358	423	423	423	0	0
741	398	481	481	481	0	0
742	101	128	128	128	0	0
743	93	125	125	125	0	0
744	91	113	113	113	0	0
745	190	241	241	241	0	0
746	247	297	297	297	0	0
747	189	237	237	237	0	0
748	192	220	220	220	0	0
749	625	712	712	712	0	0
750	335	387	387	387	0	0
751	101	202	202	202	0	0
752	329	470	470	470	0	0
753	244	279	279	279	0	0
754	107	123	123	123	0	0
755	650	739	739	739	0	0
756	391	446	446	446	0	0
757	629	771	771	771	0	0
758	311	355	355	355	0	0
759	79	91	91	91	0	0
760	122	132	132	132	0	0
761	205	246	246	246	0	0
762	484	624	624	624	0	0
763	136	157	157	157	0	0
764	319	425	425	425	0	0
765	13	24	24	24	0	0
766	183	210	210	210	0	0
767	227	263	263	263	0	0
768	222	255	255	255	0	0
769	243	275	275	275	0	0
770	237	273	273	273	0	0
771	120	137	137	137	0	0
772	82	94	94	94	0	0
773	223	257	257	257	0	0
774	291	374	374	374	0	0

775	222	254	254	254	0	0
776	169	183	183	183	0	0
777	381	437	437	437	0	0
778	94	107	107	107	0	0
779	442	500	500	500	0	0
780	363	411	411	411	0	0
781	256	291	291	291	0	0
782	222	252	252	252	0	0
783	339	392	392	392	0	0
784	542	620	620	620	0	0
785	311	355	355	355	0	0
786	407	466	466	466	0	0
787	154	176	176	176	0	0
788	113	124	124	124	0	0
789	328	374	374	374	0	0
790	796	901	901	901	0	0
791	422	481	481	481	0	0
792	201	231	231	231	0	0
793	460	528	528	528	0	0
794	393	453	453	453	0	0
795	583	664	664	664	0	0
796	308	351	351	351	0	0
797	379	434	434	434	0	0
798	264	301	301	301	0	0
799	583	662	662	662	0	0
800	77	88	88	88	0	0
801	41	48	48	48	0	0
802	258	331	331	331	0	0
803	203	223	223	223	0	0
804	178	203	203	203	0	0
805	70	81	81	81	0	0
806	61	73	73	73	0	0
807	518	601	601	601	0	0
808	359	445	445	445	0	0
809	260	326	326	326	0	0
810	203	232	232	232	0	0
811	76	87	87	87	0	0
812	135	153	153	153	0	0
813	345	390	390	390	0	0
814	339	386	386	386	0	0
815	237	268	268	268	0	0
816	76	229	229	229	0	0
817	101	142	142	142	0	0
818	211	302	302	302	0	0
819	262	293	293	293	0	0
820	161	185	185	185	0	0
821	102	117	117	117	0	0

822	304	346	346	346	0	0
823	442	501	501	501	0	0
824	367	417	417	417	0	0
825	171	255	255	255	0	0
826	854	871	871	871	0	0
827	574	599	599	599	0	0
828	227	279	279	279	0	0
829	435	492	492	492	0	0
830	201	229	229	229	0	0
831	263	274	274	274	0	0
832	145	167	167	167	0	0
833	143	165	165	165	0	0
834	96	117	117	117	0	0
835	422	478	478	478	0	0
836	136	154	154	154	0	0
837	231	252	252	252	0	0
838	349	994	994	994	0	0
839	276	284	284	284	0	0
840	695	719	719	719	0	0
841	429	454	454	454	0	0
842	234	259	259	259	0	0
843	212	267	267	267	0	0
844	327	346	346	346	0	0
845	66	77	77	77	0	0
846	39	45	45	45	0	0
847	69	79	79	79	0	0
848	39	47	47	47	0	0
849	182	230	230	230	0	0
850	168	392	392	392	0	0
851	98	112	112	112	0	0
852	117	118	118	118	0	0
853	417	427	427	427	0	0
854	425	437	437	437	0	0
855	291	300	300	300	0	0
856	140	142	142	142	0	0
857	171	189	239	239	50	50
858	507	579	579	579	0	0
859	391	428	428	428	0	0
860	572	683	683	683	0	0
861	230	235	235	235	0	0
862	47	166	205	205	39	39
863	180	196	196	196	0	0
864	164	185	185	185	0	0
865	82	87	87	87	0	0
866	147	169	169	169	0	0
867	61	85	106	106	21	21
868	134	154	154	154	0	0

869	10	29	29	29	0	0
870	23	51	51	51	0	0
871	85	100	100	100	0	0
872	280	294	294	294	0	0
873	304	331	339	339	8	8
874	173	231	251	251	20	20
875	415	444	444	444	0	0
876	469	556	564	564	8	8
877	65	90	90	90	0	0
878	418	529	529	529	0	0
879	107	130	130	130	0	0
880	408	572	572	572	0	0
881	258	294	294	294	0	0
882	285	378	378	378	0	0
883	116	127	127	127	0	0
884	127	167	167	167	0	0
885	106	139	139	139	0	0
886	173	205	205	205	0	0
887	345	359	359	359	0	0
888	249	340	340	340	0	0
889	719	754	754	754	0	0
890	314	355	355	355	0	0
891	226	242	242	242	0	0
892	304	384	384	384	0	0
893	223	333	333	333	0	0
894	184	236	236	236	0	0
895	472	508	508	508	0	0
896	16	22	22	22	0	0
897	327	332	332	332	0	0
898	349	357	357	357	0	0
899	200	205	205	205	0	0
900	59	61	136	136	75	75
901	39	58	58	58	0	0
902	47	53	53	53	0	0
903	49	53	53	53	0	0
904	266	368	618	618	250	250
905	188	195	195	195	0	0
906	145	148	273	273	125	125
907	133	193	193	193	0	0
908	352	398	398	398	0	0
909	155	214	214	214	0	0
910	150	173	173	173	0	0
911	340	387	387	387	0	0
912	68	78	78	78	0	0
913	153	221	221	221	0	0
914	317	326	326	326	0	0
915	416	444	524	604	80	160

916	186	194	269	269	75	75
917	355	372	472	552	100	180
918	346	382	382	382	0	0
919	629	652	852	852	200	200
920	218	252	390	440	138	188
921	211	223	229	229	6	6
922	370	434	645	645	211	211
923	429	511	541	541	30	30
924	736	775	775	775	0	0
925	228	263	270	270	7	7
926	233	271	271	271	0	0
927	199	230	230	230	0	0
928	296	851	882	882	31	31
929	340	372	372	372	0	0
930	485	577	577	577	0	0
931	268	270	270	270	0	0
932	255	431	453	453	22	22
933	221	282	335	335	53	53
934	785	843	918	918	75	75
935	185	193	193	193	0	0
936	90	119	145	145	26	26
937	45	91	91	91	0	0
938	265	291	331	371	40	80
939	439	563	563	563	0	0
940	327	416	496	576	80	160
941	257	275	275	275	0	0
942	239	270	270	270	0	0
943	430	464	464	464	0	0
944	317	351	351	351	0	0
945	98	123	156	156	33	33
946	168	193	193	193	0	0
947	116	223	223	223	0	0
948	51	102	102	102	0	0
949	222	403	403	403	0	0
950	397	531	531	531	0	0
951	243	266	266	266	0	0
952	352	458	458	458	0	0
953	408	473	487	487	14	14
954	206	322	322	322	0	0
955	179	192	192	192	0	0
956	186	247	281	281	34	34
957	95	136	142	142	6	6
958	173	176	176	176	0	0
959	179	227	253	253	26	26
960	367	399	399	399	0	0
961	246	282	282	282	0	0
962	110	158	158	158	0	0

963	404	466	466	466	0	0
964	42	59	59	59	0	0
965	313	316	316	316	0	0
966	261	299	299	299	0	0
967	233	300	300	300	0	0
968	89	243	243	243	0	0
969	124	139	139	139	0	0
970	283	386	386	386	0	0
971	369	391	391	391	0	0
972	251	268	268	268	0	0
973	392	442	442	442	0	0
974	19	21	21	21	0	0
975	75	84	84	84	0	0
976	138	160	160	160	0	0
977	444	511	511	511	0	0
978	329	366	366	366	0	0
979	321	434	434	434	0	0
980	159	211	238	238	27	27
981	379	464	464	464	0	0
982	299	349	349	349	0	0
983	75	79	79	79	0	0
984	271	302	311	311	9	9
985	373	781	824	824	43	43
986	314	322	322	322	0	0
987	373	410	410	410	0	0
988	0	30	30	30	0	0
989	34	104	104	104	0	0
990	184	231	231	231	0	0
991	182	275	275	275	0	0
992	162	164	164	164	0	0
993	255	258	258	258	0	0
994	267	271	271	271	0	0
995	213	292	292	292	0	0
996	279	294	294	294	0	0
997	247	266	266	266	0	0
998	260	275	275	275	0	0
999	370	375	375	375	0	0
1000	302	380	380	380	0	0
1001	274	278	278	278	0	0
1002	493	601	601	601	0	0
1003	126	198	198	198	0	0
1004	55	206	306	406	100	200
1005	15	16	216	216	200	200
1006	0	0	0	0	0	0
1007	119	348	465	515	117	167
1008	148	509	739	939	230	430
1009	400	407	407	407	0	0

1010	322	325	325	325	0	0
1011	0	0	0	0	0	0
1012	30	60	160	160	100	100
1013	174	183	183	183	0	0
1014	228	256	256	256	0	0
1015	386	413	413	413	0	0
1016	499	513	513	513	0	0
1017	432	462	462	462	0	0
1018	355	393	393	393	0	0
1019	816	932	932	932	0	0
1020	917	1111	1111	1111	0	0
1021	623	718	718	718	0	0
1022	416	573	573	573	0	0
1023	108	162	162	162	0	0
1024	1	1	1	1	0	0
1025	4	4	4	4	0	0
1026	0	0	0	0	0	0
1027	0	0	0	0	0	0
1028	738	783	833	883	50	100
1029	318	410	410	410	0	0
1030	218	367	417	467	50	100
1031	578	608	608	608	0	0
1032	331	364	364	364	0	0
1033	437	459	459	459	0	0
1034	690	708	708	708	0	0
1035	140	142	142	142	0	0
1036	185	190	190	190	0	0
1037	156	168	168	168	0	0
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1039	61	75	75	75	0	0
1040	1	1610	1610	1610	0	0
1041	114	209	209	209	0	0
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1044	9	85	85	85	0	0
1045	137	291	291	291	0	0
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1047	0	239	239	239	0	0
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1050	0	143	143	143	0	0
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1055	676	726	726	726	0	0
1056	473	959	959	959	0	0

1057	108	181	181	181	0	0
1058	0	0	0	0	0	0
1059	166	218	218	218	0	0
1060	270	332	332	332	0	0
1061	204	219	219	219	0	0
1062	4	4	4	4	0	0
1063	363	393	393	393	0	0
1064	76	77	77	77	0	0
1065	117	145	145	145	0	0
1066	253	261	261	261	0	0
1067	609	658	658	658	0	0
1068	56	88	88	88	0	0
1069	393	413	413	413	0	0
1070	465	519	519	519	0	0
1071	311	339	339	339	0	0
1072	873	1060	1060	1060	0	0
1073	610	644	644	644	0	0
1074	61	70	70	70	0	0
1075	169	412	412	412	0	0
1076	0	218	218	218	0	0
1077	0	237	237	237	0	0
1078	298	338	338	338	0	0
1079	247	374	374	374	0	0
1080	203	234	234	234	0	0
1081	496	560	560	560	0	0
1082	447	507	507	507	0	0
1083	228	259	259	259	0	0
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1085	143	164	164	164	0	0
1086	372	423	423	423	0	0
1087	166	187	187	187	0	0
1088	19	22	22	22	0	0
1089	264	301	301	301	0	0
1090	39	45	45	45	0	0
1091	176	201	201	201	0	0
1092	629	711	711	711	0	0
1093	672	764	764	764	0	0
1094	280	323	323	323	0	0
1095	452	522	522	522	0	0
1096	131	150	150	150	0	0
1097	427	487	487	487	0	0
1098	52	59	59	59	0	0
1099	539	613	613	613	0	0
1100	251	285	285	285	0	0
1101	448	507	507	507	0	0
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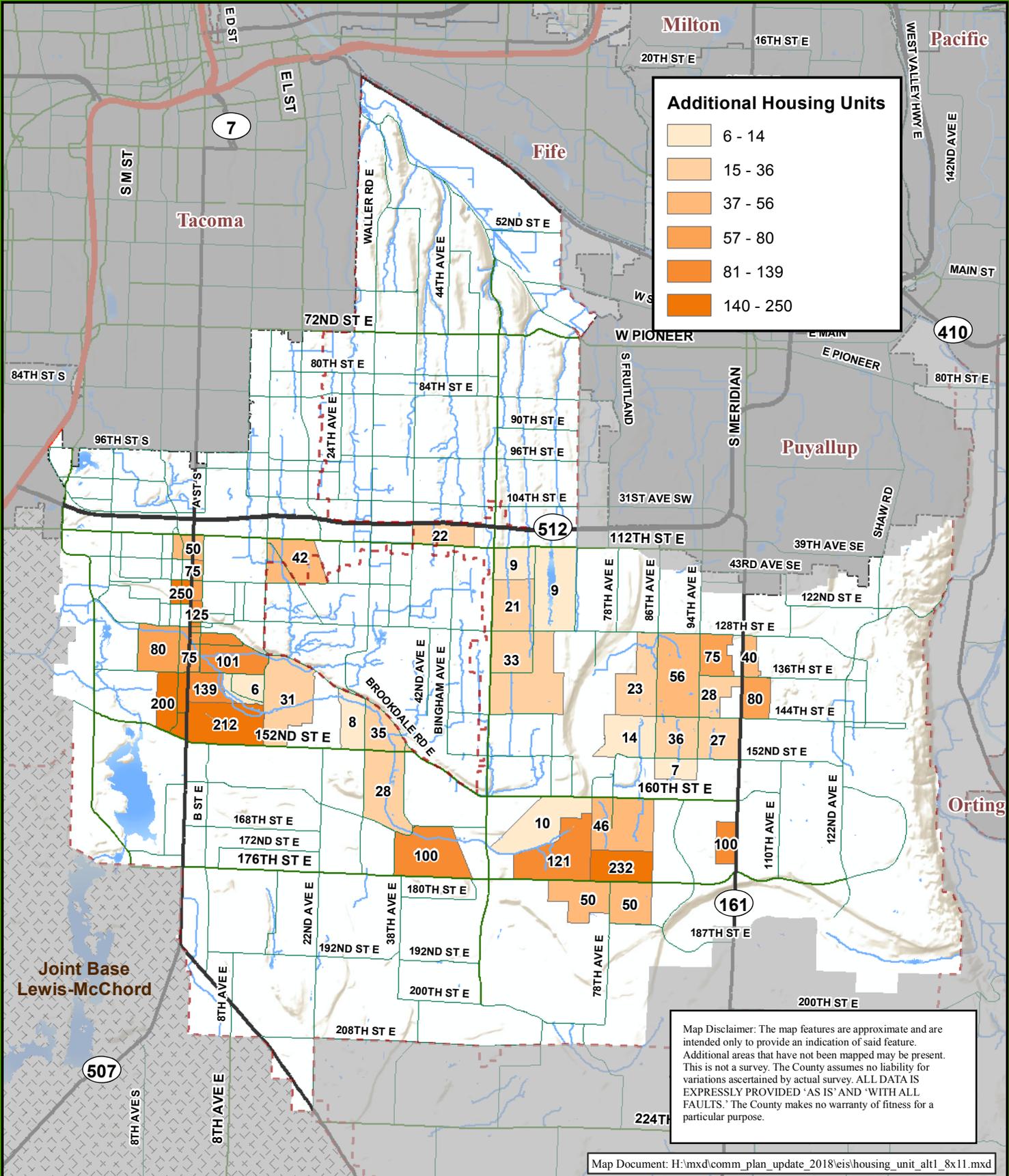
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1108	285	410	410	410	0	0
1109	481	547	547	547	0	0
1110	108	125	125	125	0	0
1111	367	421	421	421	0	0
1112	101	302	302	302	0	0
1113	471	539	539	539	0	0
1114	279	485	485	485	0	0
1115	126	142	142	142	0	0
1116	392	442	442	442	0	0
1117	349	399	399	399	0	0
1118	226	258	258	258	0	0
1119	83	95	95	95	0	0
1120	91	108	108	108	0	0
1121	205	241	241	241	0	0
1122	4	5	5	5	0	0
1123	183	208	208	208	0	0
1124	222	252	252	252	0	0
1125	126	145	145	145	0	0
1126	35	51	51	51	0	0
1127	130	157	157	157	0	0
1128	60	77	77	77	0	0
1129	81	92	92	92	0	0
1130	116	132	132	132	0	0
1131	75	86	86	86	0	0
1132	274	311	311	311	0	0
1133	162	187	187	187	0	0
1134	57	108	108	108	0	0
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1136	72	83	83	83	0	0
1137	126	144	144	144	0	0
1138	68	78	78	78	0	0
1139	26	30	30	30	0	0
1140	167	192	192	192	0	0
1141	21	25	25	25	0	0
1142	82	84	84	84	0	0
1143	340	366	366	366	0	0
1144	174	201	201	201	0	0
1145	161	182	182	182	0	0
1146	153	173	173	173	0	0
1147	110	124	124	124	0	0
1148	70	79	79	79	0	0
1149	45	53	53	53	0	0
1150	120	137	137	137	0	0

1151	222	696	696	696	0	0
1152	60	72	72	72	0	0
1153	0	0	0	0	0	0
1154	55	69	69	69	0	0
1155	43	49	49	49	0	0
1156	359	370	370	370	0	0
1157	396	399	399	399	0	0
1158	402	434	434	434	0	0
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1160	280	316	316	316	0	0
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1162	422	481	481	481	0	0
1163	115	130	130	130	0	0
1164	499	570	570	570	0	0
1165	75	86	86	86	0	0
1166	294	340	340	340	0	0
1167	146	169	169	169	0	0
1168	10	11	11	11	0	0
1169	0	394	394	394	0	0
1170	163	628	628	628	0	0
1171	0	1832	1832	1832	0	0
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1173	23	26	26	26	0	0
1174	398	451	451	451	0	0
1175	0	27	27	27	0	0
1176	150	489	489	489	0	0
1177	0	194	194	194	0	0
1178	0	1280	1280	1280	0	0
1179	16	19	19	19	0	0
1180	25	29	29	29	0	0
1181	0	455	455	455	0	0
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1184	95	109	109	109	0	0
1185	2	2	2	2	0	0
1186	188	215	215	215	0	0
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1191	292	334	334	334	0	0
1192	433	493	493	493	0	0
1193	350	403	403	403	0	0
1194	132	152	152	152	0	0
1195	178	240	240	240	0	0
1196	450	522	522	522	0	0
1197	554	647	647	647	0	0

1198	504	575	575	575	0	0
1199	419	497	497	497	0	0
1200	516	594	594	594	0	0
1201	534	626	626	626	0	0
1202	214	254	254	254	0	0
1203	102	117	117	117	0	0
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1205	88	102	102	102	0	0
1206	141	163	163	163	0	0
1207	137	160	160	160	0	0
1208	127	146	146	146	0	0
1209	148	176	176	176	0	0
1210	292	343	343	343	0	0
1211	191	224	224	224	0	0
1212	298	348	348	348	0	0
1213	462	552	552	552	0	0
1214	222	255	255	255	0	0
1215	452	524	524	524	0	0
1216	421	490	490	490	0	0
1217	477	568	568	568	0	0
1218	286	336	336	336	0	0
1219	245	285	285	285	0	0
1220	216	256	256	256	0	0
1221	173	254	254	254	0	0
1222	102	126	126	126	0	0
1223	187	237	237	237	0	0
1224	384	707	707	707	0	0
1225	17	29	29	29	0	0
1226	373	541	541	541	0	0
1227	85	198	198	198	0	0
1228	126	157	157	157	0	0
1229	74	91	91	91	0	0
1230	29	34	34	34	0	0
1231	263	307	307	307	0	0
1232	412	472	472	472	0	0
1233	364	418	418	418	0	0
1234	483	553	553	553	0	0
1235	546	629	629	629	0	0
1236	25	36	36	36	0	0
1237	0	0	0	0	0	0
1238	239	294	294	294	0	0
1239	535	571	571	571	0	0
1240	414	453	453	453	0	0
1241	19	20	20	20	0	0
1242	202	356	356	356	0	0
1243	329	449	449	449	0	0
1244	160	214	214	214	0	0

1245	4	80	80	80	0	0
1246	359	397	397	397	0	0
1247	98	123	123	123	0	0
1248	294	321	321	321	0	0
1249	106	185	185	185	0	0
1250	370	387	387	387	0	0
1251	526	537	537	537	0	0
1252	30	34	34	34	0	0
1253	0	105	105	105	0	0
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1255	0	0	0	0	0	0
1256	72	308	308	308	0	0
1257	0	0	0	0	0	0
1258	0	219	219	219	0	0
1259	0	507	507	507	0	0
1260	0	0	0	0	0	0
1261	0	0	0	0	0	0
1262	0	0	0	0	0	0
1263	0	329	329	329	0	0
1264	0	202	202	202	0	0
1265	0	0	0	0	0	0
1266	0	348	348	348	0	0
1267	1	300	300	300	0	0
1268	12	205	205	205	0	0
1269	41	321	321	321	0	0
1270	21	24	24	24	0	0
1271	69	78	78	78	0	0
1272	10	11	11	11	0	0
1273	53	61	61	61	0	0
1274	80	91	91	91	0	0
1275	196	422	422	422	0	0
1276	92	111	111	111	0	0
1277	0	3	3	3	0	0
1278	103	114	114	114	0	0
1279	367	406	406	406	0	0
1280	226	259	259	259	0	0
1281	0	0	0	0	0	0
1282	0	0	0	0	0	0
1283	0	0	0	0	0	0
1284	12	376	376	376	0	0
1285	304	344	344	344	0	0
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Appendix F.2 Alternative 1 Added Housing Units



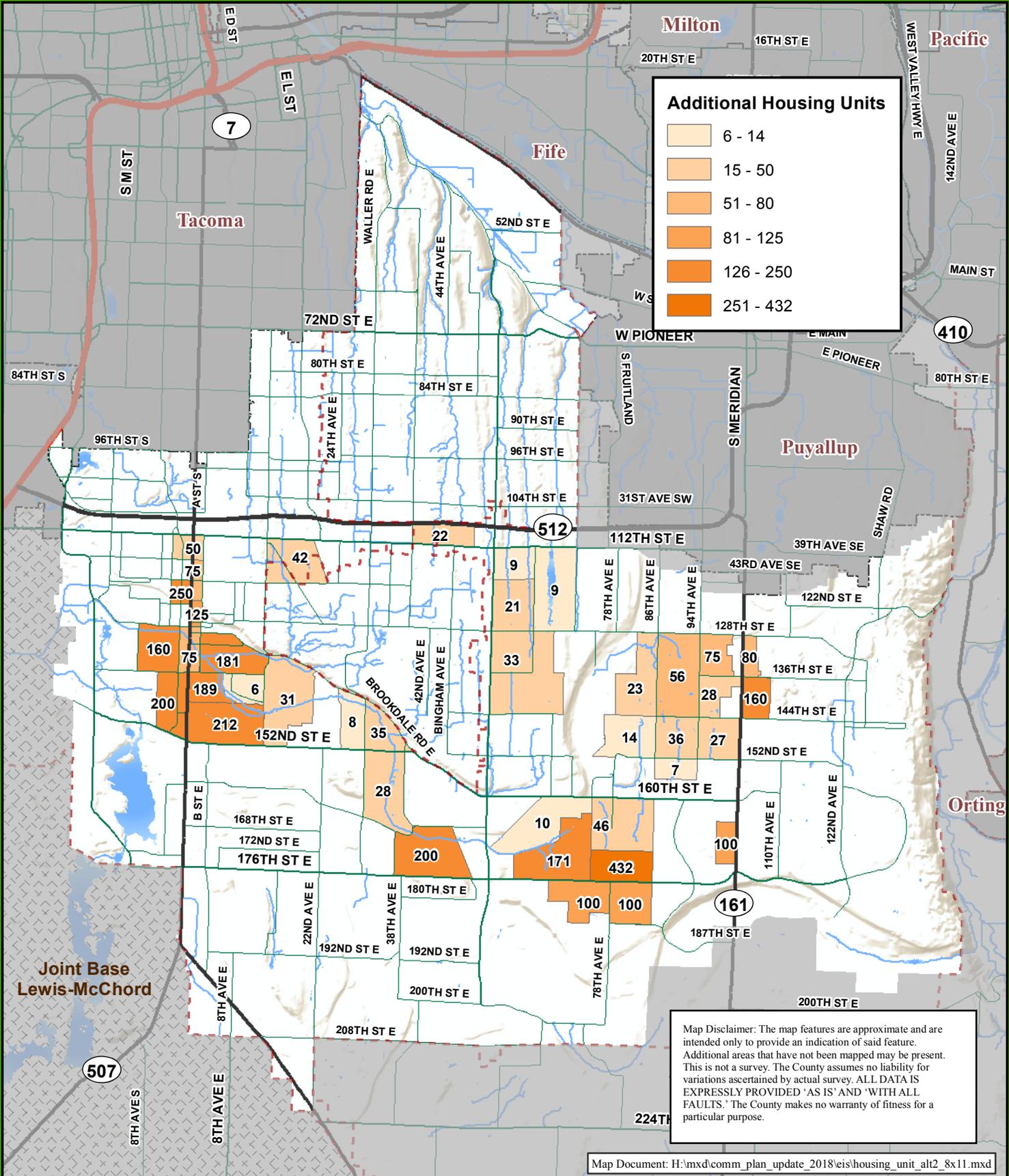
--- Urban Growth Boundaries
 [Hatched Box] Municipal Area
 [Cross-hatched Box] Military Land



**Alternative 1 –
 Additional Housing Units**
 Forecast by Traffic Analysis Zone

Revision Date: 6/1/2016
 Plot Date: 3/21/2019

Appendix F.3 Alternative 2 Added Housing Units



- - - Urban Growth Boundaries
 Municipal Area
 Military Land



**Alternative 2 –
Additional Housing Units**
Forecast by Traffic Analysis Zone

Revision Date: 6/1/2016
 Plot Date: 3/21/2019