

Clark County

2016 Comprehensive Growth Management Plan Update



CHECKING IN ON OUR FUTURE

Draft

Supplemental Environmental Impact Statement

August 2015



Clark County 2016 Comprehensive Growth Management Plan Update

Draft
Supplemental Environmental Impact Statement (SEIS)
August 2015

Prepared by:
Clark County Community Planning
1300 Franklin Street
Vancouver, WA 98666

With assistance from:
Environmental Science Associates (ESA)

SEPA Fact Sheet

Project Title

Clark County 2016 Comprehensive Growth Management Plan Update

Project Description

Clark County is proposing to revise its Comprehensive Growth Management Plan (the Comprehensive Plan) to comply with the requirements of the Growth Management Act (GMA). The revisions focus on county-initiated technical changes as well as minor changes to Urban Growth Areas (UGAs) to accommodate projected growth to the year 2035. The County's objective for the 2016 Plan is to make adjustments to the existing plan to account for the conditions that have changed since the last comprehensive plan update in 2007. The vision has not changed – projected demand for jobs and housing will be accommodated based on new growth assumptions; land use patterns that reflect local principles and values will be implemented; and impacts on the environment, schools, and the cost of infrastructure will be minimized.

An environmental review based on the State Environmental Policy Act (SEPA) is part of the revision process. This programmatic Draft SEIS evaluates four alternatives to manage growth to 2035: Alternative 1 – No Action, Alternative 2 – Countywide Modifications, Alternative 3 – City UGA Expansion, and Alternative 4 – Rural, Agriculture, and Forest Changes. This document updates baseline information provided in the Final EIS on the 2007 Comprehensive Plan update, and documents changes in impacts, if any, for each alternative growth scenario. The alternatives are summarized below and a more detailed description can be found in Chapter 1 of this document:

Alternative 1 – No Action. This alternative would not change the current UGA boundaries, policies and regulations as adopted in 2007 and updated to July 2014.

Alternative 2 – Countywide Modifications. This alternative incorporates changes in policy direction, land use, zoning, the County Council's principles and values, acknowledges existing development trends, and resolves map inconsistencies.

Alternative 3 – City UGA Expansion. The Cities of Battle Ground and La Center are considering expanding their urban growth areas to better support employment and residential growth.

Alternative 4 – Rural, Agriculture, and Forest Changes. This alternative incorporates changes in policy direction and land use/zoning proposed to correct discrepancies between the actual predominant lot sizes and the existing zoning in rural areas; encourage clustering options to preserve resource lands, open space, and non-residential agriculture uses; and provide additional economic opportunities in the rural areas.

A preferred alternative has not been identified at this time.

Project Location

Clark County and the cities of Battle Ground, Camas, La Center, Ridgefield, Vancouver, and Washougal, and the Town of Yacolt.

SEPA Lead Agency and Project Proponent

Lead Agency

Clark County
1300 Franklin Street
Vancouver, WA 98660

Contact: Oliver Orjiako, Director, Clark County Community Planning and SEPA Responsible Official

Project Proponent

Clark County Community Planning, 3rd Floor
1300 Franklin Street
Vancouver, WA 98660
Contact: Gordy Euler, Program Manager

Permits and Licenses Required or Potentially Required

This is a non-project action. No permits are required for the Comprehensive Plan Update.

This Draft Supplemental EIS has been prepared under the direction of Clark County Community Planning with support from:

ESA 5309 Shilshole Ave NW Seattle, WA 98107 (206)789-9658	KPFF Consulting Engineers 1601 Fifth Avenue Seattle, WA 98101	FCS Group 7525 166 th Ave NE Redmond, WA 98052	BST Associates PO Box 82388 Kenmore, WA 98028
---	---	---	---

Date of Issue of Draft Supplemental EIS

August 5, 2015

End of Draft Supplemental EIS Comment Period

Comments on the Draft Supplemental EIS must be received by the close of business on **September 17, 2015** and may be submitted by any of the following:

On the county website at:

www.clark.wa.gov/planning/2016update/comments.html

Via e-mail at:

comp.plan@clark.wa.gov

In writing, to:

Community Planning
EIS Comments
P.O. Box 9810
Vancouver, WA 98666

Public Hearings

A public hearing to receive comments on the Draft Supplemental EIS will be held at the following locations:

September 1 and 3, 2015 at 6:00 p.m.
Public Service Center, 6 th Floor 1300 Franklin Street Vancouver, WA 98660

Additional Environmental Review

Specific projects selected to implement the Clark County Comprehensive Growth Management Plan may undergo additional SEPA review in the form of a SEPA Checklist, SEPA EIS, or addendum to this Non-project EIS, as appropriate.

Documents Incorporated by Reference:

Clark County 2007, Growth Management Plan Update Final EIS

Clark County 2006, Growth Management Plan Update Draft EIS

Location of Background Documents

Clark County Community Planning, 3rd Floor
1300 Franklin Street
Vancouver, WA 98660

Website: www.clark.wa.gov/planning

Additional Copies

Copies of this document have been printed and made available for review at the following locations:

Vancouver City Hall, 415 W. 6th Street
Camas City Hall, 616 NE 4th Avenue
La Center City Hall, 214 E. 4th Street
Battle Ground City Hall, 109 SW 1st Avenue
Washougal City Hall, 1701 C Street
Ridgefield City Hall, 230 Pioneer Street
Yacolt Town Hall, 202 W. Cushman Street

Libraries:

Fort Vancouver Regional Library, 901 C. Street, Vancouver
Westfield Mall Branch, 8700 NE Vancouver Mall Drive, Vancouver
Three Creeks Branch, 800-C NE Tenny Road, Vancouver
Cascade Park Branch, 600 NE 136th Avenue, Vancouver
Washougal Branch, 1661 C Street
Camas Public Library, 625 NE 4th Avenue
Battle Ground Branch, 1207 NE 8th Way

Ridgefield Branch, 210 N. Main Avenue

In addition, the document and background information is available on the County's web page at www.clark.wa.gov/planning.

Summary

Clark County's Comprehensive Growth Management Plan must address state growth management goals and be consistent with the County-wide Planning Policies, as well as meet the requirements of the Growth Management Act (GMA). Comprehensive plans are based on a set of assumptions that may not be realized over the lifespan of the plans. For that reason, comprehensive plans and growth that actually occurs are compared at least every eight years to enable corrections to be made. Assumptions made for accommodating growth in the 2007 plan did not anticipate the economic downturn that followed in 2008 and from which recovery is still in process. Other conditions in the county as well as state and federal laws have changed, requiring corresponding changes to the County's Plan with this update. In addition, improvements in technology and data gathering/interpretations to more accurately map existing conditions and field determinations of available buildable land has recently been accomplished, which may change the conclusions of the previous plan regarding the ability of the current urban growth areas to accommodate future population, jobs, and vision of the communities.

What Is Being Proposed?

Clark County and the Cities of Battle Ground, Camas, La Center, Ridgefield, Vancouver, and Washougal, and the Town of Yacolt are proposing to revise their Comprehensive Growth Management Plans (the Plans) to comply with the requirements of the Growth Management Act (GMA). The revisions focus on county-initiated technical changes to the comprehensive plan as well as minor changes to Urban Growth Areas (UGAs) to accommodate projected growth to 2035. This Draft Supplemental Environmental Impact Statement (SEIS) evaluates the potential environmental impacts of three alternatives.

The County's objective for the 2016 Plan is to make adjustments to the existing plan to account for the conditions that have changed since the last comprehensive plan update in 2007. The vision has not changed – projected demand for jobs and housing will be accommodated based on new growth assumptions; land use patterns that reflect local principles and values will be implemented, and impacts on the environment, schools, and the cost of infrastructure will be minimized. To evaluate the impacts of growth on the environment, this Draft SEIS updates baseline information provided in the 2007 Final EIS and documents changes in impacts, if any, for each alternative growth scenario.

What Is the Growth Management Act?

In 1990, Washington adopted the GMA, RCW 36.70A, which requires certain counties and cities to develop and adopt comprehensive land use plans that anticipate the needs of population and employment growth. Plans must look forward at least 20 years.

The GMA requires that comprehensive plans consist of these elements: land use, housing, capital facilities, utilities, rural (for counties), transportation, economic development and parks and recreation (36.70A.070 RCW).

A comprehensive plan also may include additional optional elements that relate to the physical development within the jurisdiction. Examples of optional elements include: schools, historic preservation and community design (36.70A.080 RCW).

The Growth Management Act (GMA) was enacted by the state legislature in 1990. It requires high population counties and fast-growing counties to develop comprehensive plans to balance the needs of housing and jobs with preservation of resource lands (for agriculture, forestry and mining) and critical areas (such as habitat, wetlands and areas subject to flooding).

The GMA also requires jurisdictions to periodically review their comprehensive plans and implementing development regulations in their entirety and, if needed, revise them. Clark County is required to have this review and revision completed by June 30, 2016, and every eight years thereafter (36.70A.130(5)(b) RCW). Opportunities for public participation in this process will be provided (36.70A.035 RCW).

More about the history of planning in Clark County can be found on the County’s webpage:

<http://www.co.clark.wa.us/planning/2016update/background.html>

What Is the State Environmental Policy Act?

The State Environmental Policy Act (SEPA), enacted in 1984, requires local jurisdictions to evaluate potential environmental impacts of actions they approve or undertake. The most common evaluation looks at potential environmental impacts of a proposed project, such as a new road or big box store. It also requires environmental review of a large non-project action, such as adoption of a planning document like a new comprehensive plan. The SEPA process prescribes elements to be evaluated, and if it is determined that significant impacts to the environment are probable, an environmental impact statement or EIS, is prepared. An EIS is the forum for discussing alternative actions and the probable impacts from those actions. The EIS document is shared with residents, interested organizations, federal, state and local agencies, and tribes to obtain input on the findings. People can comment on the alternatives, mitigation measures, probable significant adverse impacts or other relevant topics. Because the EIS process for the last major update of the County Comprehensive Plan thoroughly evaluated the impacts of large-scale growth alternatives, and the proposed changes for this update are generally anticipated to be of a similar or lesser-scale than in the previous analysis, the County has determined that an update or supplement to that analysis through this Supplemental EIS, would be the appropriate method for disclosing the impacts of alternatives to accommodate projected growth through 2035.

What Are the Assumptions for Growth in 2035?

The following table summarizes the assumptions used in the development of the three growth alternatives. For additional details, see Chapter 1.

Table S-1. Summary of Planning Assumptions

Item	Assumption
Total population projection for 2035	577,431 total county population
Projected new residents	129,566 new residents
Urban/rural population growth split	90% of new growth in urban areas; 10% in rural areas
Annual population growth rate	1. 25% assumed per year
Housing type ratio	Up to 75% of one housing type
Persons per household	2.66 persons per household
New jobs	101,153 new jobs
Jobs to household ratio	1 new job for every 1 new dwelling unit
Residential infrastructure deduction	27.7% deducted from gross residential land supply
Commercial/industrial infrastructure deduction	25% deducted from gross commercial/industrial land supply

Item	Assumption
Vacant Land per Vacant Buildable Lands Model (VBLM) definition	Vacant if residential building value is less than \$13,000 Vacant if commercial/industrial building value is less than \$67,500
Market factor – % of additional land added to supply over that specified as needed to accommodate growth to provide flexibility	15% additional residential land capacity 15% additional commercial, business park, industrial land capacity

What Are the Alternatives to Accommodating Growth?

Clark County last updated its comprehensive plan in 2007. At that time about 12,000 acres were added to urban growth areas (UGAs) to accommodate growth through 2024 for an expected population of 584,000. As stated above, an EIS was prepared that outlined potential impacts from growth. Because of the recession that began in 2008, most of the predicted growth has not occurred. As a result, most of the land brought in to UGAs has not developed. Given this fact along with a smaller growth rate, only minimal expansion of UGAs is proposed in 2016. Clark County will still grow, but not at the growth rate projected in 2007.

What are UGAs? They are areas where urban growth will be encouraged. Counties and cities planning under GMA must cooperatively establish the urban growth areas and cities must be located inside urban growth areas. Growth outside urban growth areas must be rural in character.

Based on input during the scoping process, four alternative scenarios have been developed to provide the framework for evaluating the impacts of growth on the environment. As information from this Draft SEIS and other criteria is made available, decision makers will continue to guide further development of the Plan. For additional details on each alternative, see Chapter 1 Project Description.

Alternative 1 – is also referred to as the **No Action Alternative**. This alternative would not change the current UGA boundaries, policies, or regulations as adopted in 2007 Comprehensive Plan as subsequently updated to 2014.

Alternative 2 –Countywide Modifications. This alternative incorporates changes in policy direction and land use/zoning; the Board’s principles and values; acknowledges existing development trends; and resolves map inconsistencies throughout the county.

in the Rural Area:

1. **Create a “Rural Lands” designation** – a single designation would be implemented by R-5, R-10, and R-20 zones;
2. **Consolidate some Forest Resource and Agricultural Resource designations** – reduce minimum lot areas in some zones as recommended by the Rural Lands Task Force ;
3. **Create Rural Center comprehensive plan designation** – replace various commercial designations to match current zoning;
4. **Create one Urban Reserve Overlay comprehensive plan designation** – retain underlying zoning or change to R-5.

In the Urban Growth Areas:

5. **Create one new Commercial comprehensive plan designation** – consolidate multiple urban commercial designations;
6. **Apply new Public Facilities Comprehensive Plan designation and Zoning district** – create new classifications to include schools, utilities and government buildings;
7. **Create new Urban Holding Overlay comprehensive plan designation** – retain underlying zoning;
8. **Adjusts the Battle Ground UGA** – for consistency with existing uses;
9. **Adjusts the Ridgefield UGA** – for consistency with Community goals;
10. **Adjusts the Vancouver UGA** – implement Discovery-Fairgrounds and Salmon Creek Subarea Plan recommendations and remove Urban Reserve Overlay and Urban Holding in specific areas;
11. **Adjusts the Washougal UGA** – Correct inconsistency between County and City zoning.

Alternative 3 – City UGA Expansion. The Cities of Battle Ground, La Center, Ridgefield, and Washougal are considering expanding their urban growth areas by less than 320 acres to better support job growth.

Based on the environmental information from this Draft Supplemental EIS, input from the public, cities, and other agencies, as well as other criteria such as financial and social considerations, a preferred alternative will be developed for analysis in a Final Supplemental EIS. The preferred alternative will become the basis for finalization of the 2016-2035 Comprehensive Plan, including policies, implementing ordinances, and capital facility programs.

Alternative 4 – Rural, Agriculture, and Forest Changes. Like Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. The changes are proposed to correct discrepancies between the actual predominant lot sizes and the existing zoning in rural areas; encourage clustering options to preserve resource lands, open space, and non-residential agriculture uses; and provide additional economic opportunities in the rural areas. Alternative 4 includes:

1. **A single “Rural Lands” designation** – implemented by R-1, R-2.5, and R-5 zones.
2. **Reduce Forest Resource minimum lot size** – add FR-10 and FR-20 to the existing FR-40 and FR-80 zones.
3. **Replace Agriculture zone** – replace the AG-20 zone with AG-5 and AG-10.

What Are the Environmental Impacts of These Alternatives?

Table S-2 summarizes the analysis found in Chapters 1-8.

Table S-2. Summary of Impacts by Alternative

Resource	Alternative 1 – No Action Alternative	Alternative 2 – Countywide Modifications	Alternative 3 – City UGA Expansion	Alternative 4 – Rural, Agriculture, and Forest Changes
Earth Resources	No new impacts that cannot be mitigated through compliance with existing regulations.	Zoning changes could have individually small but cumulatively moderate impacts on prime soils and forested areas. Mitigation would be provided by localized protection.	Same as Alternative 1	Similar to Alternative 2, but with cumulatively greater impacts due to potentially more development.
Water Resources	Moderate potential for impacts due to development allowed under current zoning. New stormwater regulations since 2007 could improve surface and groundwater resources.	Incremental increase in impacts to hydrology and water quality resulting from potential for more intensive development of over 34,000 acres. Individually small but cumulatively moderate impacts on aquatic resources. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Same as Alternative 1.	Similar to Alternative 2, but with cumulatively greater impacts due to potential development on approximately 65,500 acres.
Fish & Wildlife Resources	More intensive development under current zoning could affect fish and wildlife habitats, threatened & endangered species, migratory species, and wetlands, but regulations and mitigation requirements would minimize impacts.	Incremental increase in impacts to fish and wildlife habitats, threatened & endangered species, migratory species, and wetlands resulting from potential to create 8,220 new parcels and increased density.	Potential localized impacts to fish and wildlife habitats, threatened & endangered species, migratory species, and wetlands; could be mitigated during project-specific review.	Similar to Alternative 2, but with cumulatively greater impacts due to potential creation of approximately 12,400 new lots.
Energy & Natural Resources	Most impacts to scenic and natural resources could be mitigated through compliance with existing regulations.	Incremental increase in use of energy and natural resources resulting from potential to create 8,220 new parcels. Visual and scenic resources could also be affected with increased development. Incremental development over time would minimize impacts.	Low potential for impacts; could be mitigated during project-specific review.	Similar to Alternative 2, but with cumulatively greater impacts due to potential creation of approximately 12,400 new lots.

<p>Land & Shoreline Use</p>	<p>Localized impacts from development allowed under current zoning would be mitigated through compliance with existing regulations.</p>	<p>Incremental increase in impacts to land and shoreline use resulting from potential to create 8,220 new parcels which could affect opportunity for large-scale agricultural production but would increase opportunity for rural housing.</p>	<p>Same as Alternative 1.</p>	<p>Similar to Alternative 2, but with cumulatively greater impacts due to potential creation of approximately 12,400 new lots.</p>
<p>Transportation</p>	<p>Low potential for impacts that would not be mitigated through on-going regional efforts to improve the existing transportation system, including encouraging alternative modes of travel.</p>	<p>Incremental increase in impacts to the transportation system resulting from distribution of higher travel demand over a larger geography compared to concentrated urban areas. Infrastructure costs could be prohibitive.</p>	<p>Same as Alternative 1.</p>	<p>Similar to Alternative 2, but with cumulatively greater impacts due to potentially more development.</p>
<p>Public Facilities & Utilities</p>	<p>More intensive development allowed under current zoning could affect the levels of service provided in rural areas.</p>	<p>Incremental increase in impacts to public facilities and utilities resulting from potential to create 8,220 new parcels which distributes the need to provide services over a larger geography, compared to concentrated urban areas. Opportunities for new development may be delayed until services and facilities are available.</p>	<p>Low potential for impacts to infrastructure and services. No expansion of service areas would be required beyond that already planned.</p>	<p>Similar to Alternative 2, but with cumulatively greater impacts due to potentially more development.</p>

Table of Contents

SEPA Fact Sheet	FS-1
Summary	S-1
Table of Contents.....	i
Acronyms	A-1
1.0 Project Description	1-1
1.1 What is being proposed?.....	1-1
1.1.1 What are the planning assumptions used in developing the alternatives to manage growth?	1-1
1.2 What alternatives are being considered?	1-3
1.2.1 Alternative 1 – No Action Alternative	1-3
1.2.2 Alternative 2 – Countywide Modifications.....	1-6
1.2.3 Alternative 3 – City UGA Expansion	1-11
1.2.4 Alternative 4 – Rural, Agriculture, and Forest Changes	1-14
2.0 Earth Resources	2-1
2.1 Setting Overview	2-1
2.1.1 What has changed since 2007?	2-2
2.2 Environmental Impacts	2-2
2.2.1 What methodology was used to analyze impacts to earth resources from each of the alternatives?	2-2
2.2.2 What are the impacts to earth resources from each alternative?.....	2-2
2.2.3 Are there adverse impacts that cannot be avoided?	2-8
2.3 Mitigation	2-8
2.3.1 Are there mitigation measures beyond regulations that reduce the potential for impacts?	2-8
3.0 Water Resources.....	3-1
3.1 Surface Water.....	3-1

- 3.1.1 What has changed since 2007? 3-1
- 3.1.2 Water Quality 3-1
- 3.1.3 Shoreline Master Plan 3-3
- 3.1.4 Floodplain Regulations 3-3
- 3.2 Groundwater Resources..... 3-3
 - 3.2.1 How have conditions changed since 2007? 3-3
 - 3.2.2 Critical Aquifer Recharge Areas..... 3-6
 - 3.2.3 Wellhead Protection Areas..... 3-6
- 3.3 Environmental Impacts 3-8
 - 3.3.1 What methodology was used to analyze impacts to water resources resulting from each of the alternatives?..... 3-8
 - 3.3.2 What are the impacts to water resources resulting from each alternative? 3-8
 - 3.3.3 How do the potential impacts between the alternatives compare? 3-14
- 3.4 Are there adverse impacts that cannot be avoided? 3-14
- 3.5 Mitigation 3-14
 - 3.5.1 Are there mitigation measures beyond regulations that reduce the potential for impacts? 3-14
- 4.0 Fish and Wildlife Resources 4-1**
 - 4.1 Fish and Wildlife Habitats..... 4-1
 - 4.1.1 What has changed since 2007? 4-1
 - 4.1.2 Riparian Habitats (Streams)..... 4-1
 - 4.1.3 Priority Upland Habitats 4-3
 - 4.1.4 State Priority Species..... 4-3
 - 4.1.5 Environmental Impacts..... 4-3
 - 4.1.6 Mitigation 4-13
 - 4.2 Threatened and Endangered Species..... 4-14

- 4.2.1 What has changed since 2007? 4-16
- 4.2.2 Environmental Impacts..... 4-16
- 4.2.3 Mitigation 4-20
- 4.3 Migratory Species..... 4-20
 - 4.3.1 Environmental Impacts..... 4-21
 - 4.3.2 Mitigation 4-23
- 4.4 Wetlands 4-23
 - 4.4.1 Environmental Impacts..... 4-24
 - 4.4.2 Mitigation 4-30
- 5.0 Energy & Natural Resources 5-1**
 - 5.1 Setting 5-1
 - 5.1.1 What has changed since 2007? 5-3
 - 5.2 Environmental Impacts 5-3
 - 5.2.1 What methodology was used to analyze impacts to natural resources from each of the alternatives? 5-3
 - 5.2.2 What are the impacts to energy, natural and scenic resources from each alternative?..... 5-3
 - 5.2.3 How do the potential impacts between the alternatives compare? 5-5
 - 5.2.4 Are there adverse impacts that cannot be avoided? 5-6
 - 5.3 Mitigation 5-6
 - 5.3.1 Are there mitigation measures beyond regulations that reduce the potential for impacts? 5-6
- 6.0 Land and Shoreline Use 6-1**
 - 6.1 Setting 6-1
 - 6.1.1 Population 6-1
 - 6.1.2 Community Framework Plan 6-3

- 6.1.3 Housing..... 6-4
- 6.1.4 Historic and Cultural Resources 6-4
- 6.2 What has changed since 2007?..... 6-4
 - 6.2.1 Population 6-5
 - 6.2.2 Land and Shoreline Use 6-6
 - 6.2.3 Mineral Resource Development Practices 6-7
 - 6.2.4 Floodplain Management 6-8
 - 6.2.5 Shoreline Management..... 6-8
 - 6.2.6 Housing Patterns 6-8
 - 6.2.7 Historic and Cultural Resources 6-9
- 6.3 Environmental Impacts 6-10
 - 6.3.1 What methodology was used to analyze impacts to land and shoreline use resulting from each of the alternatives? 6-10
 - 6.3.2 What are the impacts to land and shoreline use from each alternative?..... 6-11
 - 6.3.3 How do the potential impacts between the alternatives compare? 6-21
 - 6.3.4 Are there adverse impacts that cannot be avoided? 6-22
- 6.4 Mitigation 6-23
 - 6.4.1 Are there mitigation measures beyond regulations that reduce the potential for impacts? 6-23
- 7.0 Transportation..... 7-1**
 - 7.1 Setting 7-1
 - 7.1.1 Existing Roadway Network and Mass Transit..... 7-1
 - 7.1.2 Existing Non-Motorized Facilities and Services 7-3
 - 7.1.3 Existing Airports, Rail & Marine Ports 7-3
 - 7.2 How has the transportation system changed since 2007? 7-4
 - 7.2.1 Roadway Network 7-5

- 7.2.2 Transit..... 7-5
- 7.2.3 Non-motorized Facilities 7-6
- 7.2.4 Air Transportation 7-6
- 7.2.5 Rail..... 7-6
- 7.3 Environmental Impacts 7-7
 - 7.3.1 What methodology was used to analyze impacts to the transportation system from each of the alternatives?..... 7-7
 - 7.3.2 How will future growth impact the transportation system in 2035?..... 7-7
 - 7.3.3 What are the impacts to the transportation system from each alternative?..... 7-9
 - 7.3.4 Are there adverse impacts that cannot be avoided? 7-12
- 7.4 Mitigation 7-12
 - 7.4.1 Are there mitigation measures beyond regulations that reduce the potential for impacts? 7-12
- 8.0 Public Facilities and Utilities8-1**
 - 8.1 Overview 8-1
 - 8.1.1 Fire Protection 8-1
 - 8.1.2 Police Protection 8-1
 - 8.1.3 Public Schools 8-1
 - 8.1.4 Parks and Recreation..... 8-2
 - 8.1.5 Libraries 8-2
 - 8.1.6 Solid Waste 8-2
 - 8.1.7 Water Systems..... 8-3
 - 8.1.8 Electrical Systems 8-3
 - 8.1.9 Sanitary Sewer 8-3
 - 8.2 What has changed since 2007? 8-3
 - 8.2.1 Fire Protection 8-3

8.2.2 Police Protection 8-5

8.2.3 Public Schools 8-5

8.2.4 Parks and Recreation 8-6

8.2.5 Libraries 8-7

8.2.6 Solid Waste 8-7

8.2.7 Water Systems 8-7

8.2.8 Electrical Systems 8-8

8.2.9 Sanitary Sewer 8-8

8.3 Environmental Impacts 8-8

8.3.1 What methodology was used to analyze impacts to public facilities and utilities from each of the alternatives? 8-8

8.3.2 What are the impacts to public facilities and utilities from each alternative? 8-8

8.3.3 Are there adverse impacts that cannot be avoided? 8-10

8.4 Mitigation 8-10

8.4.1 Are there mitigation measures beyond regulations that reduce the potential for impacts? 8-10

9.0 References 9-1

Appendices

- A 303(d) Surface Waters in Clark County
- B Fish and Wildlife Tables

ACRONYMS

AAGR – average annual growth rate

ADA – Americans with Disabilities Act

ADT – Average Daily Traffic

AG – Agriculture

AMR – American Medical Response

BMP – best management practices

BNSF – Burlington Northern & Santa Fe Railroad

BOCC – Board of County Councilors

BP – Business Park

BPA – Bonneville Power Administration

BYCX – Chelatchie Prairie Railroad Association

C – Commercial

CARA – Critical Aquifer Recharge Area

CCC – Clark County Code

CCFD – Clark County Fire District

CCF&R – Clark County Fire & Rescue

CFP – Community Framework Plan

CMAQ – Air Quality Improvement Program

CMC – Camas Municipal Code

CPU – Clark Public Utilities

CREDC – Columbia River Economic Development Council

C-TRAN – Clark County Public Transportation Benefit Area Authority

CWA – Federal Clean Water Act

CWPPs – County-wide Planning Policies

CWSP – Clark County Coordinated Water System Plan

DCD – Department of Community Development

DCWA – Discovery Clean Water Alliance

DEIS – Draft Environmental Impact Statement

DNR – (Washington State) Department of Natural Resources

DOE – (Washington State) Department of Ecology

DOH – (Washington State) Department of Health

DSEIS – Draft Supplemental Environmental Impact Statement

EIS – Environmental Impact Statement

EMS – emergency medical services

ESA – Endangered Species Act

FEIS – Final Environmental Impact Statement

FEMA – Federal Emergency Management Agency

FIRM – Federal Insurance Rate Map

FR – Forest Resource

FSEIS – Final Supplemental Environmental Impact Statement

FVRLD – Fort Vancouver Regional Library District

GHG – greenhouse gas

GIS – global information systems

GMA – Growth Management Act

HCA – Habitat Conservation Area

HCDP – Housing and Community Development Plan

HHW – household hazardous waste

HOV – high occupancy vehicle

HUD – U.S. Department of Housing and Urban Development

I – Industrial

I-5 – Interstate 5

I-205 – Interstate 205

ITS – Intelligent Transportation System

LCSCI – Lower Columbia Steelhead Conservation Initiative

LID – low impact development

LOS – level of service

LOS E/F – level of service rating of E/F (close to failing or failing level of service)

LRT – Light Rail Transit

MAP21 – Moving Ahead for Progression in the 21st Century

MGD – million gallons per day

ML – Light Industrial

MPO – Metropolitan Planning Organization; regional planning organization required by federal regulations (for Clark County it is RTC).

MSA – Metropolitan Statistical Area

MSW – municipal solid waste

MTP – Metropolitan Transportation Plan

NMFS – National Marine Fisheries Service (now NOAA Fisheries)

NOAA – National Oceanic and Atmospheric Agency

NRCS – Natural Resource Conservation Service

OFM – Office of Financial Management, State of Washington

PDX – Portland International Airport

PHS – Priority Habitat and Species Program

PIA – Portland International Airport (formerly PDX)

PMSA – Primary Metropolitan Statistical Area

PVJR – Portland Vancouver Junction Railroad

R – Rural

RC – Rural Center

RC-MX – Rural Center Mixed Use

RCO – Washington State Recreational Conservation Office

RCW – Revised Code of Washington

ROW – right of way

RTC – Southwest Washington Regional Transportation Council

RTP – Regional Transportation Plan

RTPOs – Regional Transportation Planning Organization; created by GMA (RTC is the RTPO for Clark, Skamania and Klickitat counties.)

SCWTP – Salmon Creek Wastewater Treatment Plant

SEIS – Supplemental Environmental Impact Statement

SEPA – State Environmental Policy Act

SMA – Shoreline Management Act

SMP – Shoreline Master Program

SR – State Route, Washington

STE – Sensitive, Threatened and Endangered species

SWCAA – Southwest Washington Clean Air Agency

TAZ – Transportation Analysis Zone

TDR – Transfer of Development Rights

TIF – Transportation Impact Fees

TIP – Transportation Improvement Program

TSM/TDM – Transportation System Management / Transportation Demand Management

UBC – Uniform Building Code

UGA – urban growth areas

UH – Urban Holding

UR – Urban Reserve

USDA – U.S. Department of Agriculture

USFWS – U.S. Fish and Wildlife Service

VBLM – Vacant Buildable Lands Model

VHA – Vancouver Housing Authority

VHT – vehicle hours traveled

VMT – vehicles miles traveled

WAC – Washington Administrative Code

WDFW – Washington State Department of Fish and Wildlife

WSDOT – Washington State Department of Transportation

WSRB – Washington State Surveying and Rating Bureau

WSU – Washington State University

WUCC – Water Utility Coordinating Committee

1.0 Project Description

1.1 What is being proposed?

Clark County's Comprehensive Growth Management Plan must address state growth management goals and be consistent with the Community Framework Plan (countywide planning policies), as well as meet the requirements of the Growth Management Act (GMA). Comprehensive plans are based on a set of assumptions that may not be realized over the lifespan of the plans. For that reason, comprehensive plans and growth that actually occurs are compared at least every seven years to enable corrections to be made. Clark County is scheduled to have an updated comprehensive plan by June 2016.

Clark County and the Cities of Battle Ground, Camas, La Center, Ridgefield, Vancouver, and Washougal, and the Town of Yacolt are proposing to revise their Comprehensive Growth Management Plans (Comprehensive Plans) to comply with the requirements of the GMA. The revisions focus on county-initiated technical changes to the comprehensive plan as well as minor city-proposed changes to Urban Growth Areas (UGAs) to accommodate projected growth for the next 20 years (out to 2035).

Assumptions used in planning for growth in 2007 did not anticipate the economic downturn that followed in 2008, and from which recovery is still in process. Other conditions in the county as well as state and federal laws have changed, requiring corresponding changes to the County's Plan with this update. In addition, improvements in technology and data gathering/interpretations to more accurately map existing conditions and field determinations of available buildable land has recently been accomplished, which may change the conclusions of the previous plan regarding the ability of the current urban growth areas to accommodate future population, jobs, and vision of the communities.

The 2007 Comprehensive Plan Final Environmental Impact Statement (2007 FEIS) included a full inventory of existing environmental conditions at the time of evaluation, along with an analysis of potential impacts to the environment from implementation of the 2007 Comprehensive Plan, as well as mitigation to minimize those impacts. This 2016 Comprehensive Plan Update Environmental Impact Statement (EIS) incorporates by reference the full build-out conditions of the preferred alternative analyzed in the 2007 FEIS, and is referred to as the No Action Alternative in this document. For more information on the alternatives being considered for the 2016 Comprehensive Plan Update, see Section 1.2 below.

1.1.1 What are the planning assumptions used in developing the alternatives to manage growth?

The Board of County Councilors adopted a number of assumptions in 2013 and 2014 that are used to guide land use planning for the next 20 years. The following table summarizes these assumptions, which were used in the development of the growth alternatives that are the subject of this document. Assumptions for the 2007 Comprehensive Plan are shown for comparison.

Table 1-1. Summary of Planning Assumptions

Assumption Factors	2007 UPDATE	2016 UPDATE
Total population projection	584,310 total county population	577,431 total county population
Projected new residents	192,635 new residents	128,616 new residents
Urban/rural population growth split	90% of the population in urban areas; 10% in rural areas	90% of the population in urban areas; 10% in rural areas
Annual population growth rate	2.0% assumed per year	1.26% assumed per year
Number of new dwelling units	66,939 new urban dwelling units 7,438 new rural dwelling units	43,517 new urban dwelling units 4,835 new rural dwelling units
Average residential urban densities	Vancouver = 8 units/ net acre La Center = 4 units/net acre Remaining cities = 6 units/net acre Yacolt = no minimum	Vancouver = 8 units/ net acre La Center = 4 units/net acre Remaining cities = 6 units/net acre Yacolt = no minimum
Housing type ratio	Up to 75% of one housing type	Up to 75% of one housing type
Persons per household	2.59 persons per household	2.66 persons per household
Number of new jobs	138,312 new jobs	101,153 new jobs
Employees per acre	20 per commercial acre; 9 per industrial acre; and 20 per business park acre	20 per commercial acre; 9 per industrial acre; and 9 per business park acre
Jobs to household ratio		1 new job for every 1 new dwelling unit
Residential infrastructure deduction	27.7% deducted from gross residential land supply	27.7% deducted from gross residential land supply
Commercial/industrial infrastructure deduction	25% deducted from gross commercial/industrial land supply	25% deducted from gross commercial/industrial land supply
Vacant Land per Vacant Buildable Lands Model (VBLM) definition	Vacant if residential building value is less than \$13,000 Vacant if commercial/industrial building value is less than \$67,500	Vacant if residential building value is less than \$13,000 Vacant if commercial/industrial building value is less than \$67,500
Absorption Rate	Redevelopable land would absorb 5% of projected population & job growth	Redevelopable land would absorb 5% of projected population & job growth
Market factor – % of additional land added to specified supply to accommodate growth for market flexibility	10% additional residential land capacity 0% for commercial, business park, industrial land capacity	15% additional residential land capacity 15% additional commercial, business park, industrial land capacity

1.2 What alternatives are being considered?

1.2.1 Alternative 1 – No Action Alternative

Alternative 1, also referred to as the No Action Alternative, would maintain the existing 2007 Comprehensive Plan as currently updated. See Figure 1-1a for the Alternative 1 Comprehensive Plan Map and Figure 1-1b for the accompanying Alternative 1 Zoning Map. There would be no change in the current urban growth boundaries, policies, or implementation ordinances. However, growth would still occur under the No Action Alternative in accordance with the current boundaries, policies and ordinances.

Table 1-2 summarizes the number of new parcels that could be created under full build-out conditions of each alternative analyzed in this document. That is to say, it shows the number of new parcels that would be created if every rural lot was subdivided to the extent allowed under the existing (for Alternative 1) or proposed (for Alternatives 2-4) zoning. Under Alternative 1, approximately 7,000 new lots could be created based on the current zoning. The zoning changes proposed under Alternatives 2 through 4 are described in the sections below.

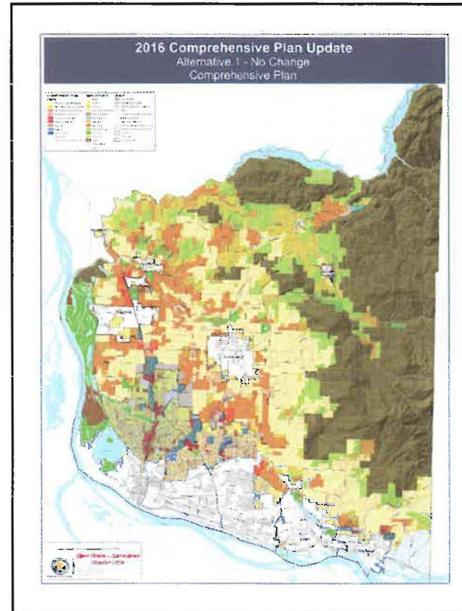


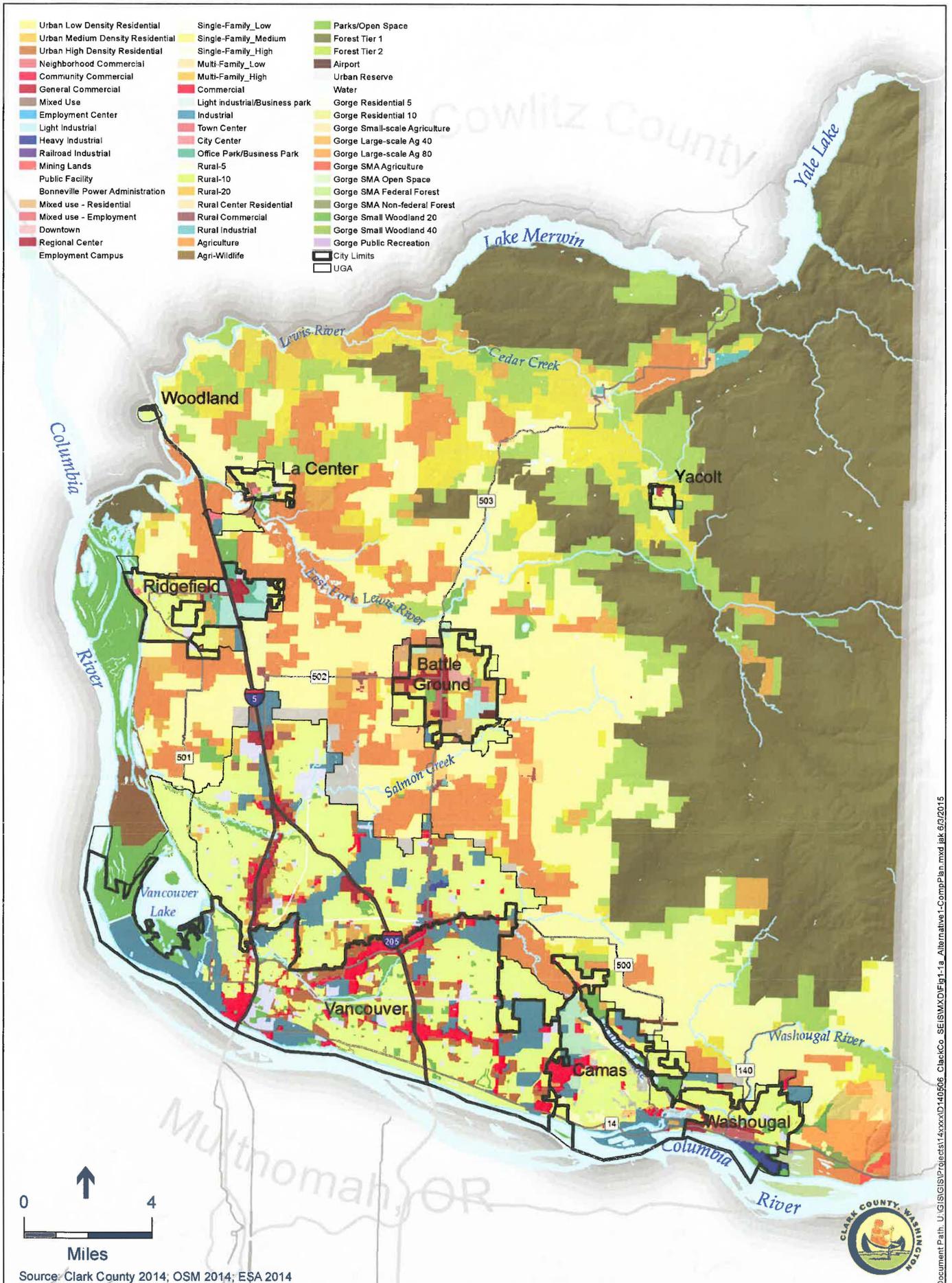
Table 1-2. Potential New Lots Allowable Under Each Alternative

Zone	Alternative 1 No Action Alternative	Alternative 2 – Countywide Modifications	Alternative 3 – City UGA Expansions	Alternative 4 – Rural, Agriculture, and Forest Changes
Rural	5,684	5,823	5,672	9,880
Agriculture	970	1,937	952	1,958
Forest*	419	460	419	563
Total	7,073	8,220	7,043	12,401

Source: Clark County GIS; based on the Rural Vacant Buildable Lands Model (VBLM) dated July 24, 2015.

* The Rural VBLM excludes property in the current use program for Timber and Designated Forest Land. This may underestimate the number of potential lots in Alternative 4.

** This table does not include areas designated as Rural Center or Urban Reserve, nor does it include lots within UGAs.



Document Path: U:\GIS\GIS\Projects\14xxxx\140506_ClectCo_SEI\SMXD\Fig1-1a_Alternative1-CompPlan.mxd Ink 6/2/2015

Figure 1-1a: Alternative 1- No Action Comprehensive Plan Map

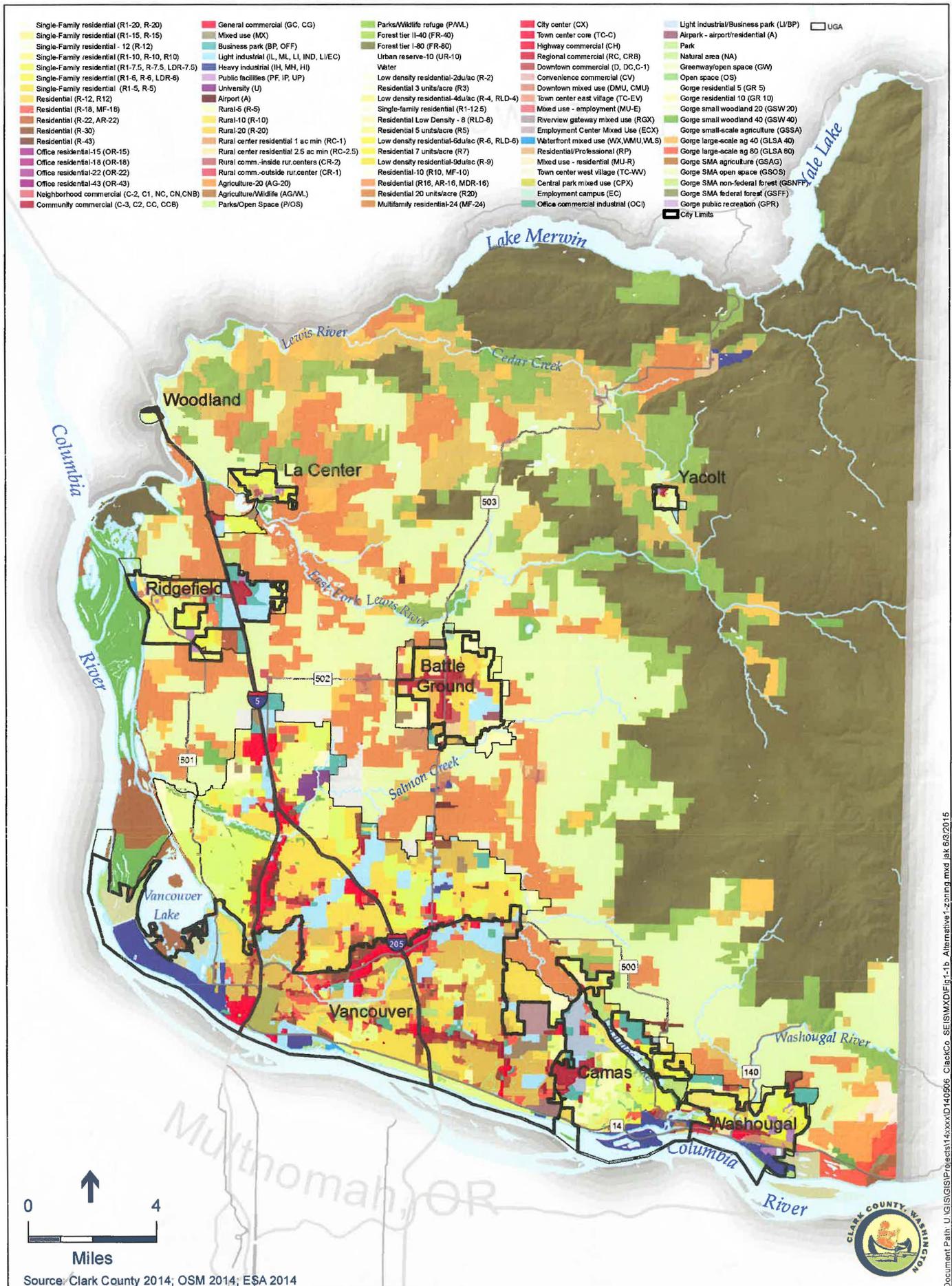
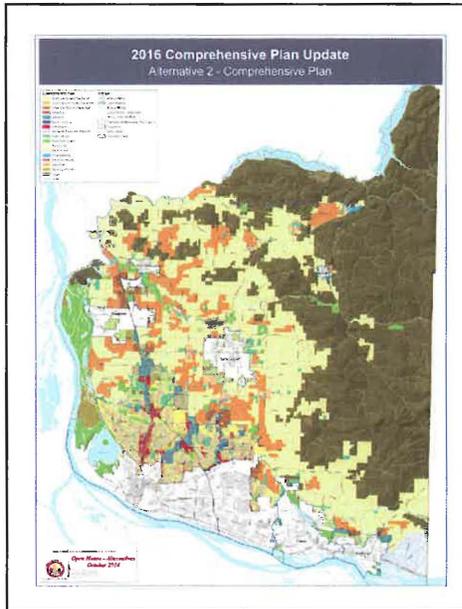


Figure 1-1b: Alternative 1- No Action Zoning Map

Document Path: U:\GIS\GIS\Projects\14\xxxx\140606_ClkCo_SEISM\DFig-1b_Alternative1_zoning.mxd, jsk 02/2015

1.2.2 Alternative 2 – Countywide Modifications

This alternative incorporates changes in policy direction and land use/zoning, incorporates the Board’s principles and values, and acknowledges existing development trends. It is a collection of technical and mapping changes to incorporate studies that have been undertaken over the past seven years, such as the Rural Lands Study and Three Creeks Special Planning area. The proposed changes continue to refine the original intent of the 2007 Comprehensive Plan and resolve inconsistencies. See Figure 1-2a for proposed Alternative 2 Comprehensive Land Use Map and Figure 1-2b for the proposed Alternative 2 Zoning Map.



1. Rural Clark County:

The proposed changes to rural County lands would help organize and consolidate the Comprehensive Plan land use designations County-wide. Some additional changes are proposed to affect more localized areas and their UGAs.

a. Rural Lands

The 2016 Comprehensive Plan proposes to consolidate comprehensive plan land use designations, creating a single “Rural Lands” designation which will be implemented by R-5, R-10, and R-20 zones. An estimated 5,823 new parcels could be created under full build-out conditions with this proposed zoning change.

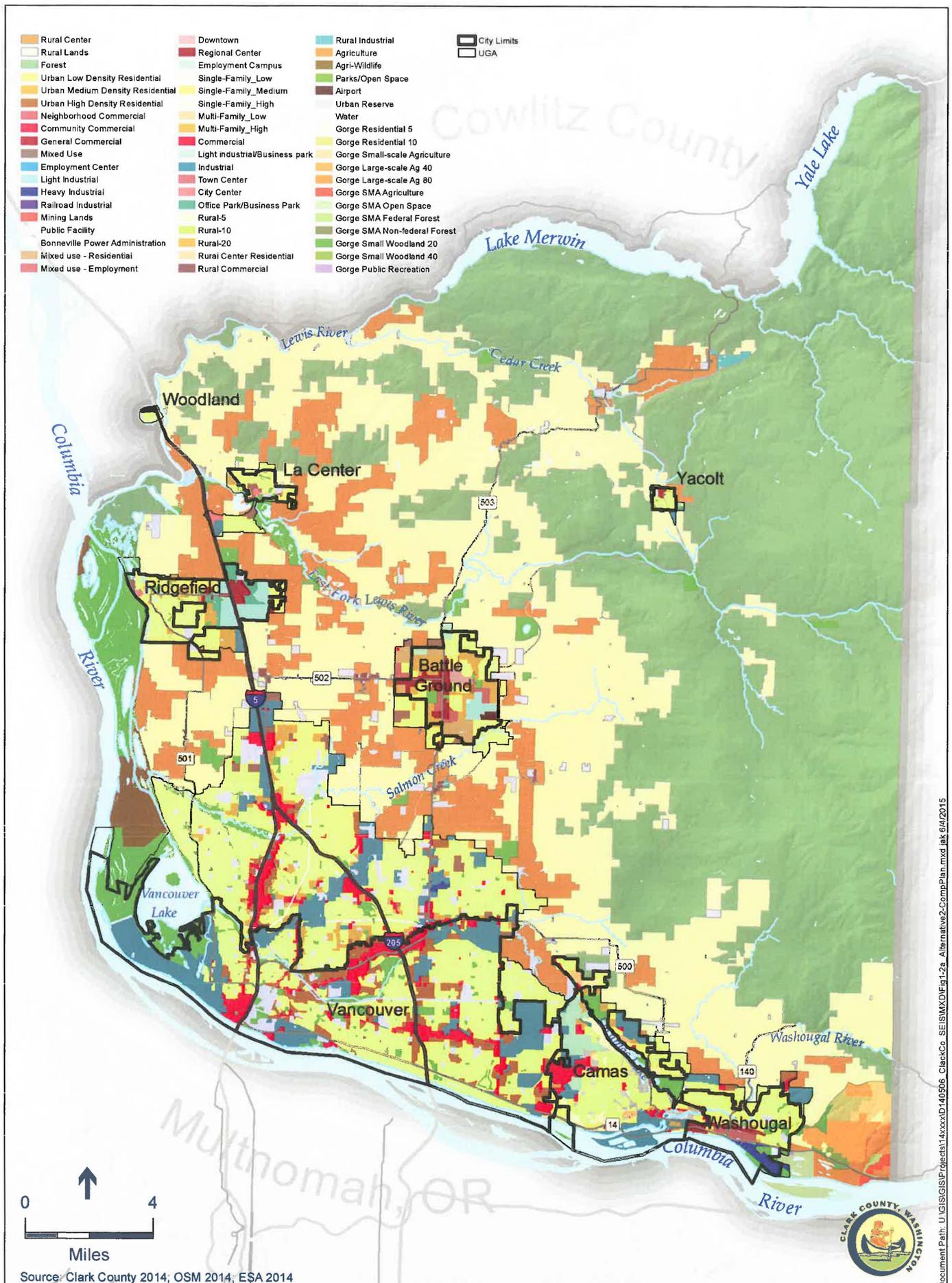
b. Resource Lands

1) **Forest Resources.** Under Alternative 2, the proposal would consolidate the Forest Tier I and Forest Tier II comprehensive land use designations to one Forest (F) designation, which will be implemented by FR-80 and FR-40 zones. The main proposal is to change parcels zoned FR-40 to FR-20, thus reducing the minimum lot area in that zone. An estimated 460 new parcels could be created under full build-out conditions with this proposed zoning change.

- 2) **Agricultural Resources.** The County proposes to change areas zoned AG- 20 to AG-10, reducing the minimum lot area in that zone. An estimated 1,937 new parcels could be created under full build-out conditions with this proposed zoning change.

c. Rural Centers

The County is required to designate ‘limited areas of more intensive rural development’. In the County, such areas are called Rural Centers; Amboy, Fargher Lake, Brush Prairie, and Hockinson are examples. This alternative would combine the “Rural Center Mixed Use (RC-MX) Overlay” and “Rural Center Residential” comprehensive plan designations into one “Rural Center” comprehensive plan designation implemented by Rural Center Commercial -1 (RC-1), and Rural Center Commercial-2.5 (RC-2.5) zones, and Rural Center Commercial – Mixed Use (RC-MX) overlay.



Document Path: U:\GIS\GIS\Projects\114xxxx\1146906_ClarckCo_SEISM\XD\Fig1-2a_Alternative2-CompPlan.mxd Ink 6/4/2015

Figure 1-2a: Alternative 2- Countywide Modifications Comprehensive Plan Map

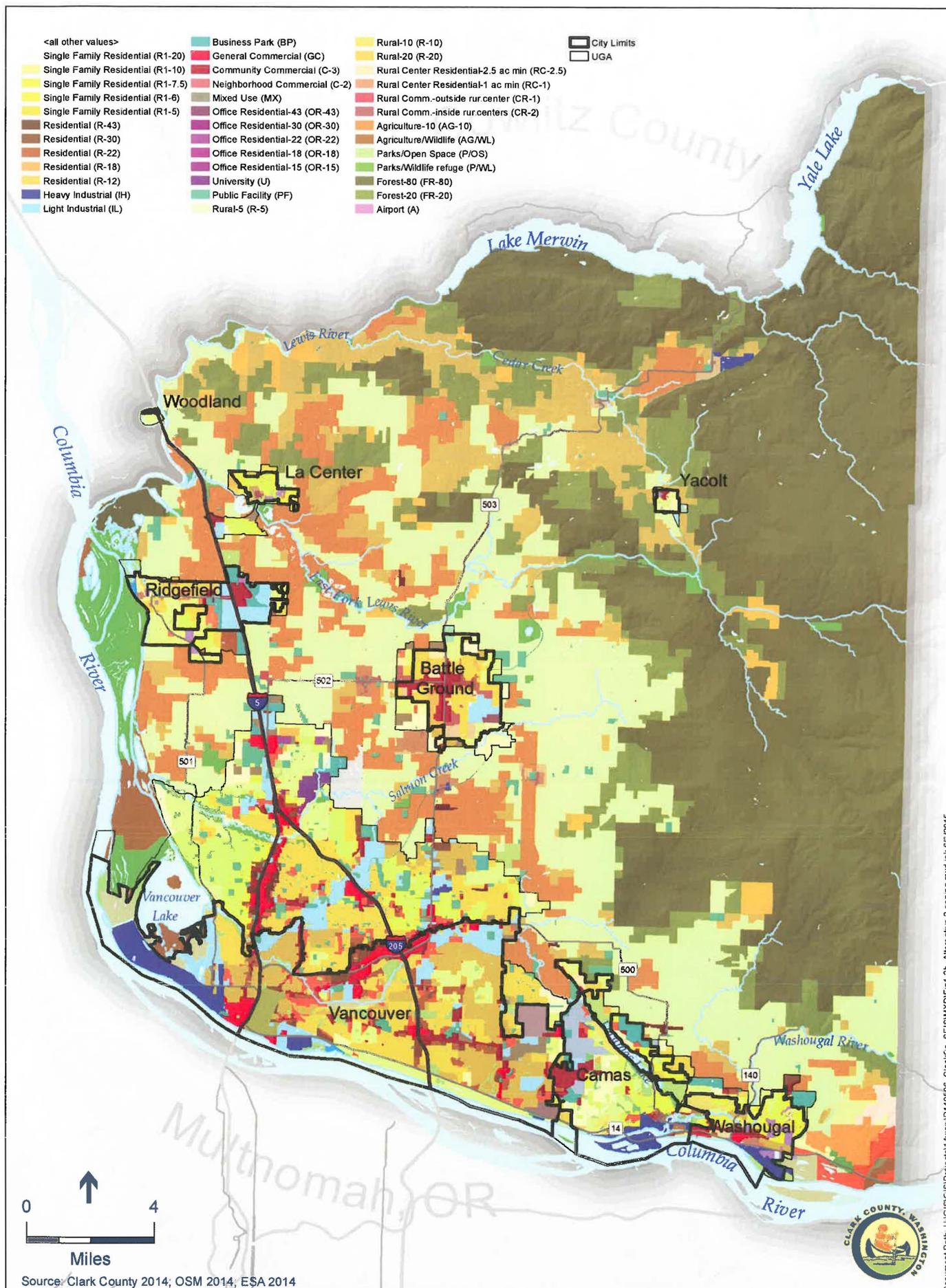


Figure 1-2b: Alternative 2 - Countywide Modification Zoning Map

d. Urban Reserve

These lands are on the fringe of the UGAs. This designation is intended to protect areas from premature land division and development that would preclude efficient transition to urban development. Currently there are Urban Reserve and Industrial Urban Reserve overlay comprehensive plan designations. They are implemented with the Urban Reserve-10 zoning overlay and Industrial Urban Reserve-20 zoning overlay. With the 2016 Comprehensive Plan Update Alternative 2, the County is proposing one comprehensive plan overlay - Urban Reserve (UR) - that would be implemented by an UR-10 zoning overlay for future urban residential development and UR-20 for all other types of future urban land development. There are approximately 577 acres of proposed Rural and Agricultural zoning under the Urban Reserve overlay. These lands would retain the underlying zoning or be designated R-5. There would be no changes to the uses that are allowed in the overlay.

2. Urban Growth Areas

a. Commercial Comprehensive Plan Designation

The multiple urban commercial comprehensive plan designations (Neighborhood, Community General and Mixed Use) are proposed to be consolidated into one Commercial (C) designation. This would affect approximately 2,900 acres scattered throughout the county. Existing zoning would remain. For those properties with a Mixed Use comprehensive plan designation, the comprehensive plan designation would change to match the existing zoning. For example, if a property has a Mixed Use comprehensive plan designation and the underlying zoning is Residential 12 (R-12) then the comprehensive plan designation would revert to Urban Medium Residential.

b. Public Facility (PF)

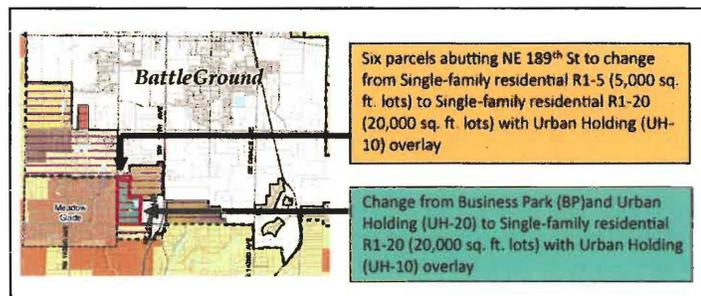
The County proposes to create new Public Facility comprehensive plan and zoning designations which would include existing schools, utilities and government buildings and facilities.

c. Urban Holding

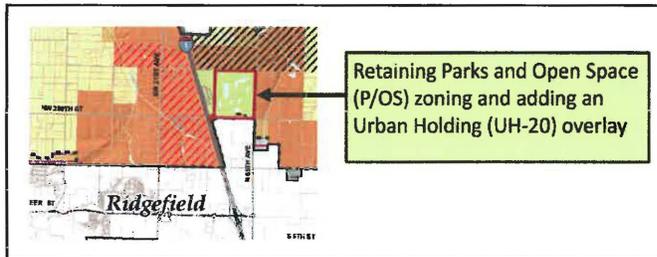
An Urban Holding (UH) overlay is applied when lands that are brought into urban growth areas do not have the necessary infrastructure to support development. In these cases, identified criteria are established that must be met in order to remove the urban holding overlay to allow the land to develop with the underlying zoning. There are currently three UH zoning overlays: Urban Holding-10, Urban Holding-20, and Urban Holding-40, and no comprehensive plan Urban Holding overlay. For the 2016 Comprehensive Plan Update, the County proposes to create an Urban Holding (UH) overlay comprehensive plan designation which would be implemented with a zoning designation of Urban Holding-10 (UH-10) for residential and Urban Holding-20 (UH-20) for all other uses. These lands would retain the underlying zoning, which would apply when the UH overlay is removed.

d. Battle Ground UGA Modifications

Battle Ground has a number of parcels (less than 60 acres) with an Industrial (I) comprehensive plan designation and UH-40 and Business Park (BP) zoning that are currently in urban low residential use, including Whispering Meadows I and II, Camellia, and Windsong Acres. One parcel is vacant yet surrounded on four sides with urban low residential use. This action would change this area to urban low density residential, R1-20, UH-10 overlay. This change would make the land use



and zoning designations consistent with how properties are being used and reduce the potential for an incompatible land use to locate in the midst of residential use in the future.

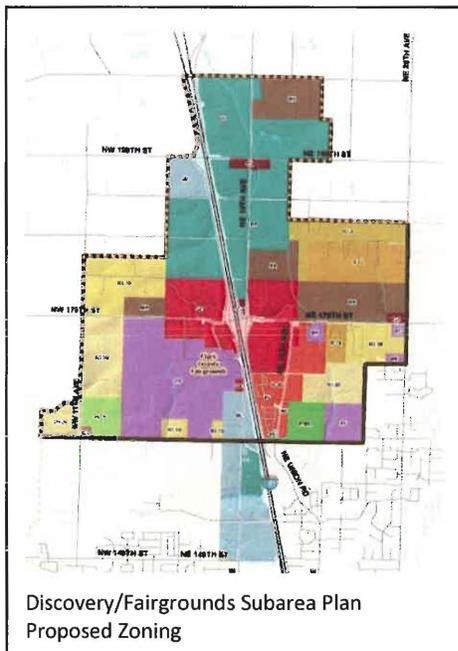


e. Ridgefield UGA Modifications

This is a five-parcel expansion (155 acres) of Ridgefield’s Urban Growth Area that includes the Tri Mountain Golf Course. It would add an Urban Holding (UH-20) Overlay and Public Facilities zoning.

f. Vancouver UGA Modifications

- 1) The Three Creeks special planning area was created during the adoption of the 2007 Comprehensive Plan. The intent was to conduct further detailed planning efforts in the in the unincorporated urban areas around Hazel Dell, Felida, Lake Shore, Salmon Creek and the County Fairgrounds. The subarea planning effort is nearly complete and removal of the overlay is appropriate. Four subarea planning efforts were initiated: Highway 99, Pleasant Highlands, Discovery/Fairgrounds and Salmon Creek/University District. The Highway 99 Subarea Plan was adopted in 2008 (Clark County, 2008) and the Pleasant Highlands Subarea Plan was initiated in 2012 with the effort ongoing. Recommendations from the remaining two subareas are a part of this update and are discussed in more detail below:



Discovery/Fairgrounds Subarea Plan

This subarea is generally bounded by NE 209th Street on the north, NE 29th Avenue on the east, NE 164th Street on the south, and NW 11th Avenue on the west. In the 2007 Comprehensive Plan the area was approved for zoning at urban densities with a considerable amount of land designated for Light Industrial (ML) uses. The subarea planning effort recognized the environmental constraints in the area and recommended changing most of the ML zoning to Office Campus or Business Park uses. The zoning designations allow for more environmentally compatible site design while allowing for more jobs per acre.

Salmon Creek/University District Subarea Plan

This subarea is generally bounded by NE 190th Street alignment on the north, approximately NE 58th Avenue on the east, Salmon Creek and Interstate 205 on the south, and Interstate 5 on the west. The draft plan is consistent with Washington State University (WSU) and the City of Vancouver’s vision for future campus development and

promotion of jobs and housing, with substantial acres designated as Mixed Use.

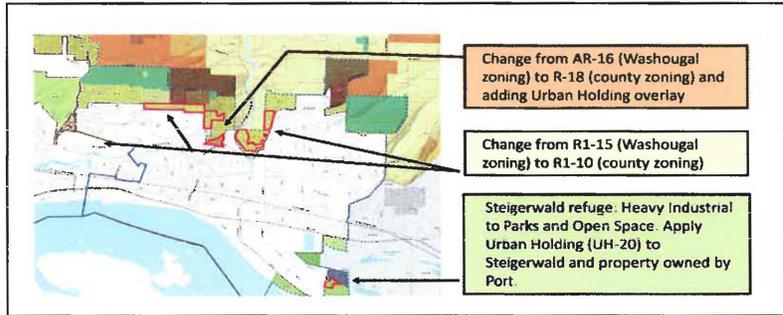
- 2) Vancouver UGA Mixed Use

Land use designation of Mixed Use in approximately 115 acres of the northern part of the Vancouver UGA are proposed to be replaced with the corresponding County Urban Low,

Medium, and High to better reflect existing development and zoning. The underlying zoning will remain the same.

3) Vancouver UGA Urban Reserve

Urban Reserve Overlay designations in two areas in the north Salmon Creek Vancouver UGA are proposed to be removed and Rural (R) designation applied: 1) remove the Urban Reserve (UR-10) zoning designation along NE 50th between 199th and NE 179th and replace it with Rural (R-5); and 2) remove the Urban Reserve overlay on a parcel along NE 50th Avenue south of 199th and retain the Agricultural zoning.



4) Vancouver UGA Urban Holding

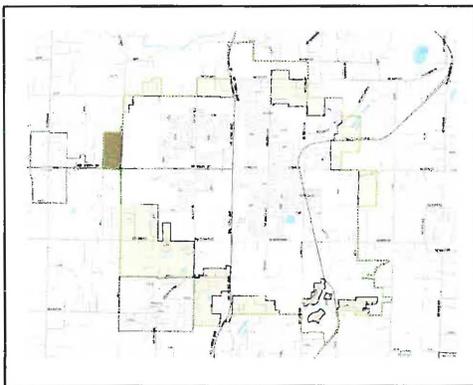
The Urban Holding (UH) designation (577 acres) within two areas of the Vancouver UGA, known as Fisher Swale, are proposed to be removed. The underlying Single Family zoning of R1-20, R-10, and R1-7.5 would remain.

g. Washougal UGA Modifications

This change is to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal UGA. The proposal would replace the City zoning of AR-16 (13 acres) SE Woodburn Road and apply County zoning of R-18 and add an Urban Holding overlay; replace R1-15 zoning (132 acres) in several areas on the north side of the city with R1-10 zoning; replace 37 acres of Heavy Industrial zoning on Steigerwald Refuge property to Parks and Open Space; and remove Urban Holding 40 on property owned by the Port of Camas/Washougal and replace it with Urban Holding (UH-20).

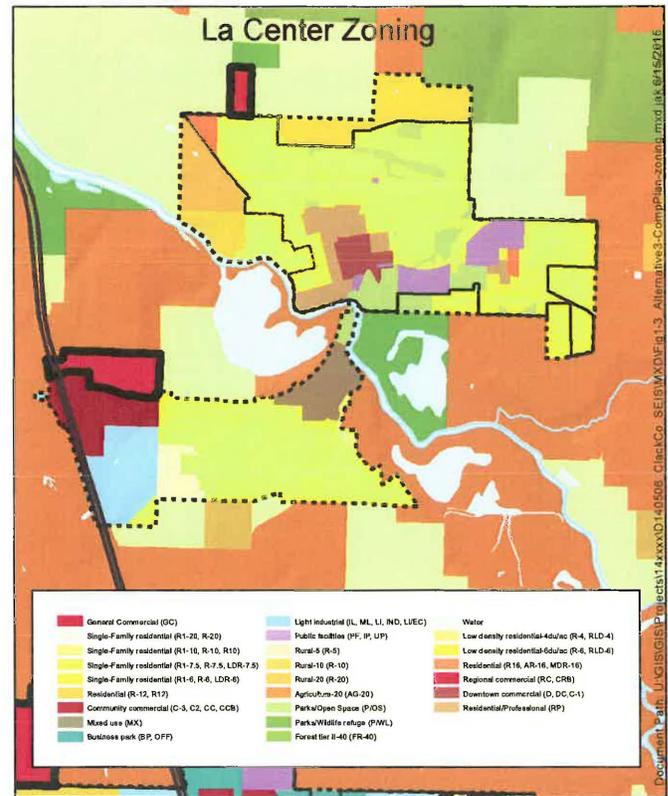
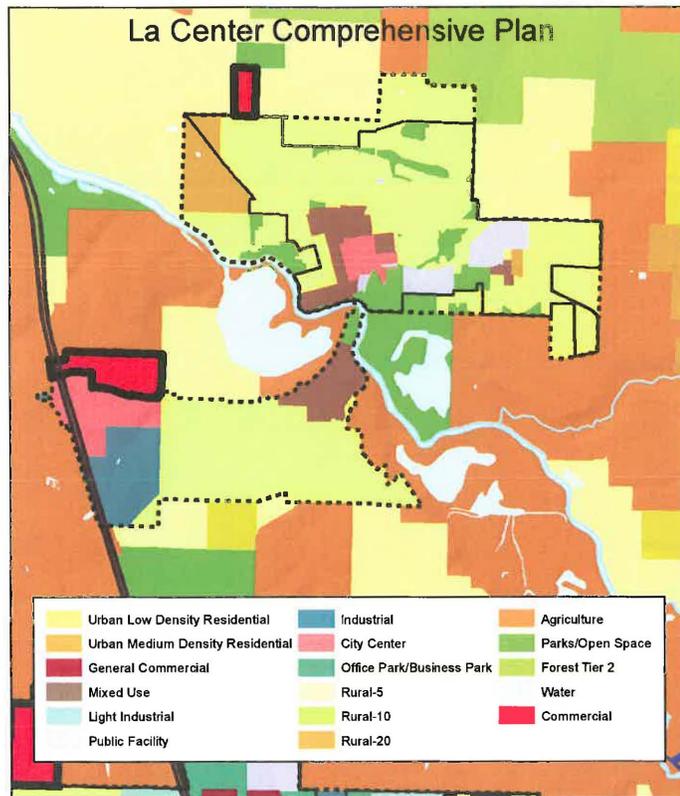
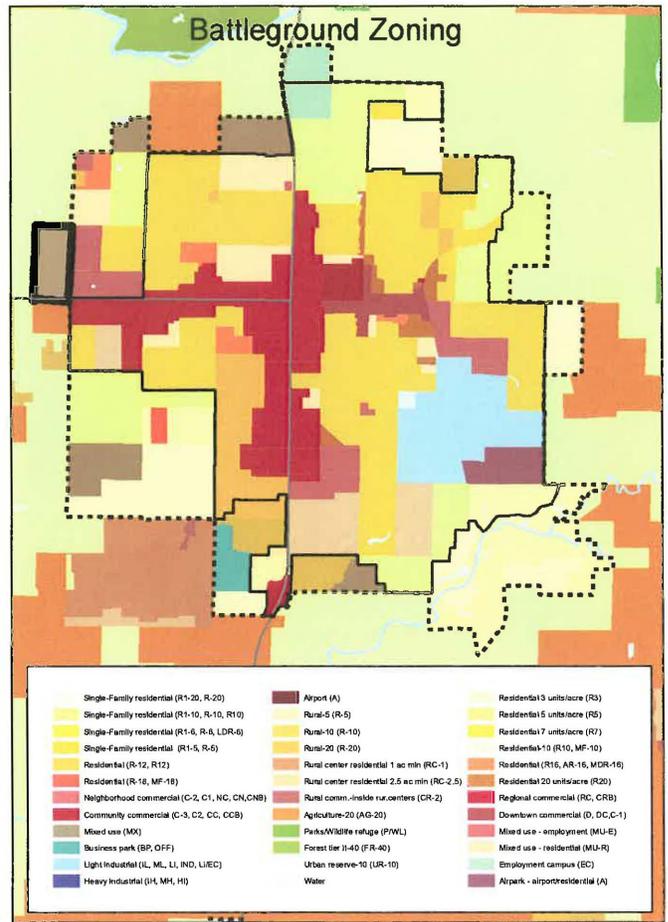
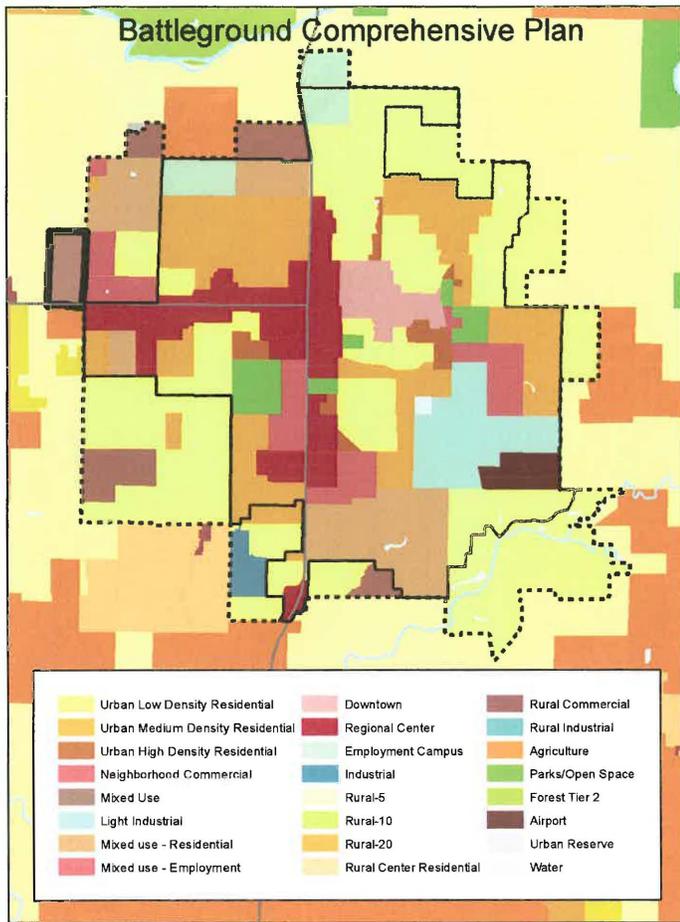
1.2.3 Alternative 3 – City UGA Expansion

This alternative assumes land and shoreline uses as indicated in the No Action Alternative, and in addition proposes to expand the urban growth areas of the Cities of Battle Ground, La Center, Ridgefield and Washougal to better support residential and employment growth. See Figures 1-3a and 1-3b for the proposed Alternative 3 Comprehensive Plan Maps and Zoning Maps.



1. Battle Ground UGA Expansion

This alternative would add 82 acres to the Urban Growth Area along the existing east boundary as Mixed Use with an Urban Holding Overlay area near Dollars Corner. The area would accommodate mixed residential and commercial uses.

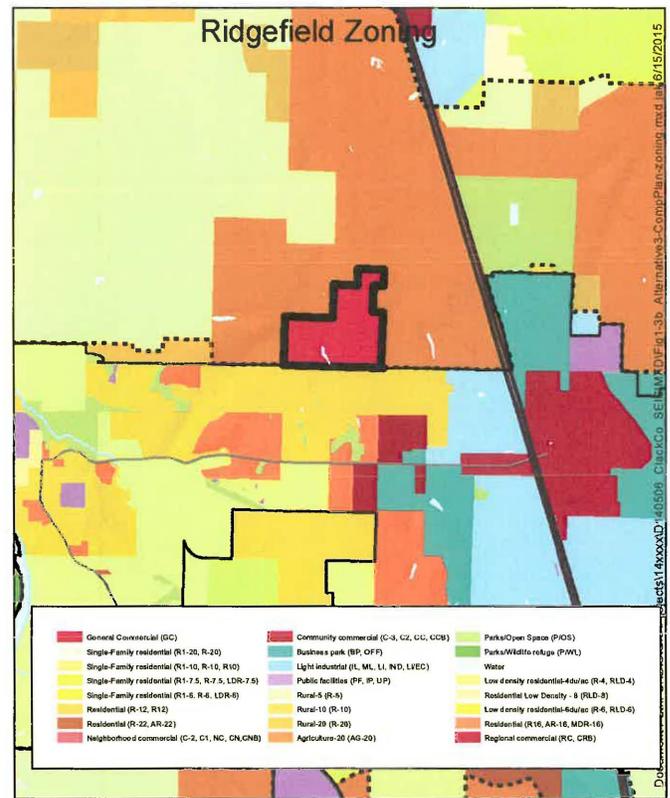
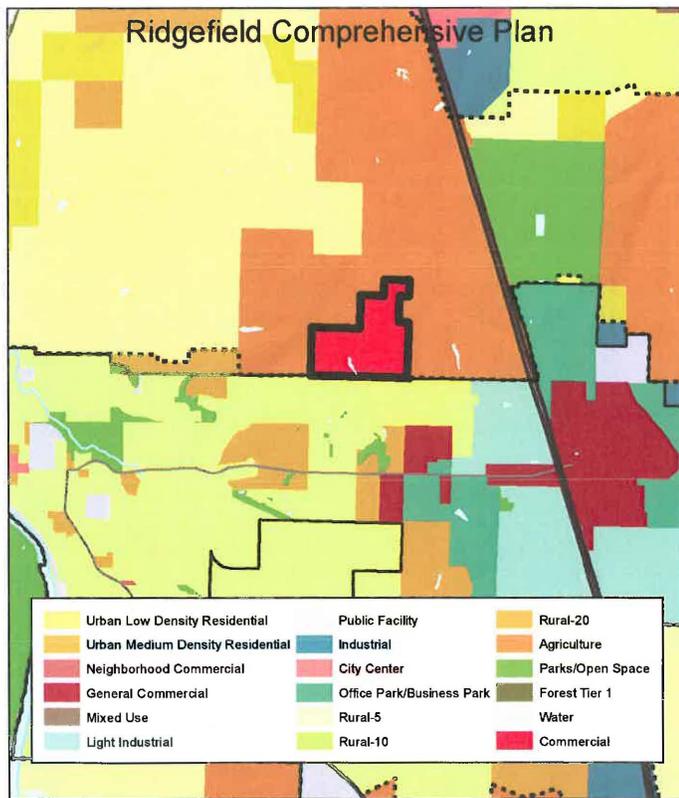
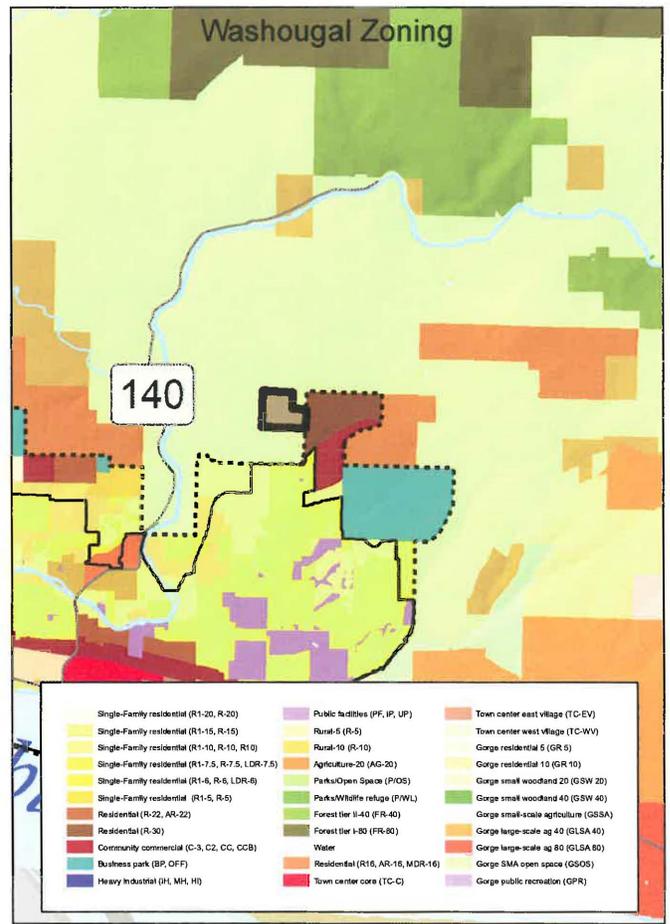
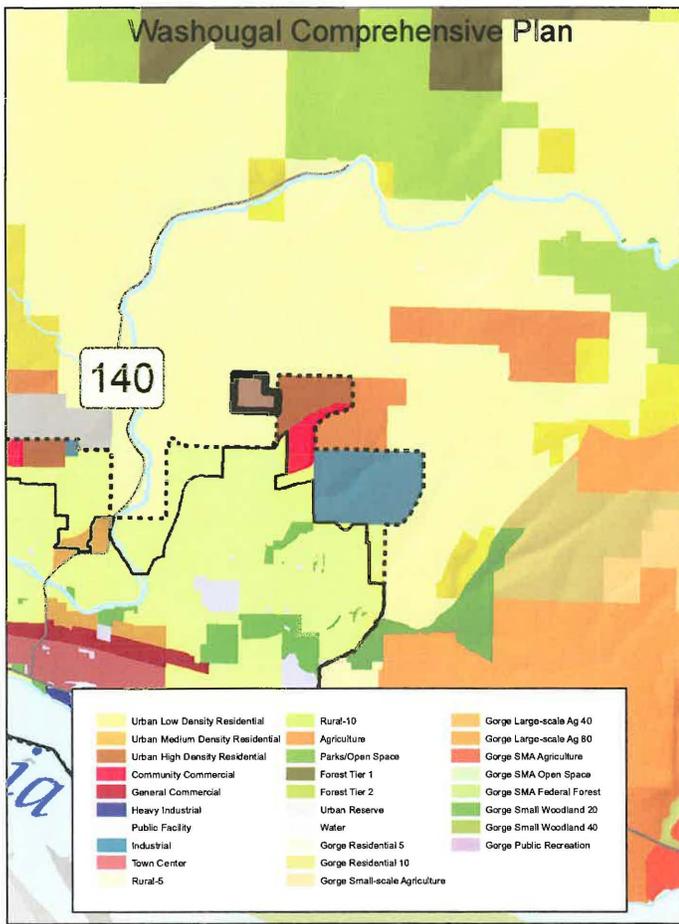


UGA expansion with Urban Holdings
 City Limits
 Current UGA

N
 ↑ Source: Clark County 2014; OSM 2014; ESA 2014



Figure 1-3a: Alternative 3 Comprehensive Plan and Zoning for UGA Expansion



UGA expansion with Urban Holdings

City Limits

Current UGA



Source: Clark County 2014; OSM 2014; ESA 2014



Figure 1-3b: Alternative 3 Comprehensive Plan and Zoning for UGA Expansion

2. La Center UGA Expansion

Alternative 3 proposes to add 61 acres to the UGA north of the existing southern portion of the La Center urban growth boundary. The purpose is to accommodate the opportunity for additional businesses near Interstate 5. The Comprehensive Plan designation would be Commercial with a UH overlay.

This alternative also proposes to add 17 acres to La Center’s UGA on the northern city boundary. The area is proposed to be added for a new elementary school site. The Comprehensive Plan designation is currently R-5, and would be changed to Public Facility.



3. Ridgefield UGA Expansion

This proposal is to add 111 Acres on the north side of the City of Ridgefield, near I-5. This additional area would be converted to residential uses. The current designation of Agriculture would be changed to a mix of low-, medium-, and mixed-use residential Comprehensive Plan designations all with an Urban Holding overlay.

4. Washougal UGA Expansion

This alternative proposes to add approximately 41 acres to the City of Washougal UGA for residential development. The site is located on the northern edge of the existing UGA. The proposed addition currently has a Comprehensive Plan designation of R-5, and would be changed to Urban Low with a UH overlay.

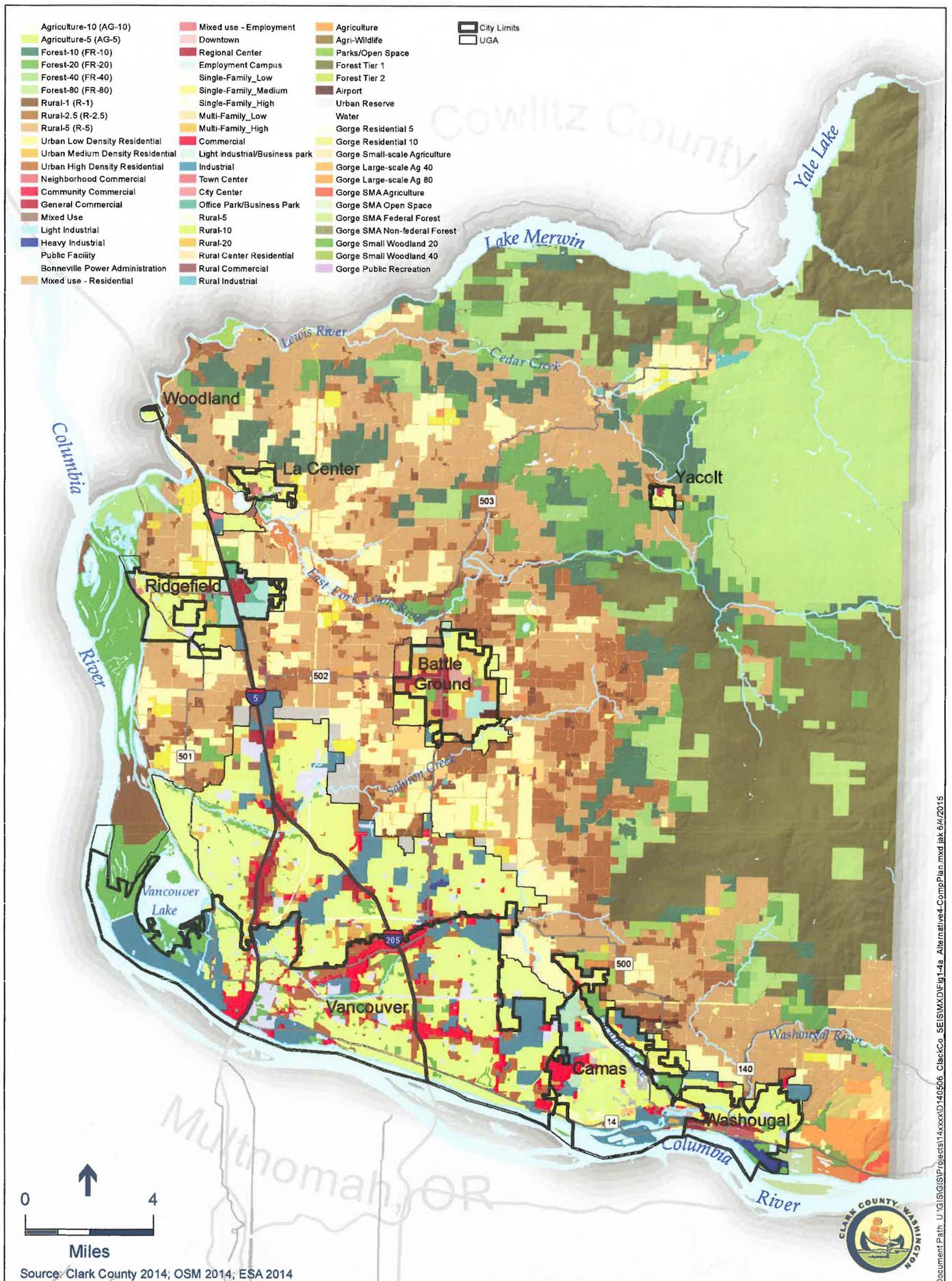


1.2.4 Alternative 4 – Rural, Agriculture, and Forest Changes

Like Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. The changes are proposed to correct discrepancies between the actual predominant lot sizes and the existing zoning in rural areas; encourage clustering options to preserve resource lands, open space, and non-residential agriculture uses; and provide additional economic opportunities in the rural areas. See Figure 1-4a for proposed Alternative 4 Comprehensive Plan Map and Figure 1-4b for the proposed Alternative 4 Zoning Map.

1. Rural Lands

Under this alternative, the R-10 and R-20 designations would be eliminated, and R-1 and R-2.5 zones would be added to the R-5 zone. It would reduce the size of most Rural zones. Approximately 9,880 new parcels could be created at full build-out with this zoning change.



Document Path: U:\GIS\GISProjects\14xxxx\14f506_ClarckCo_SEISM\XD\Fig1-4a_Alternative4-CompPlan.mxd Bak 6/7/2015

Figure 1-4a: Alternative 4- Countywide Modifications Comprehensive Plan Map

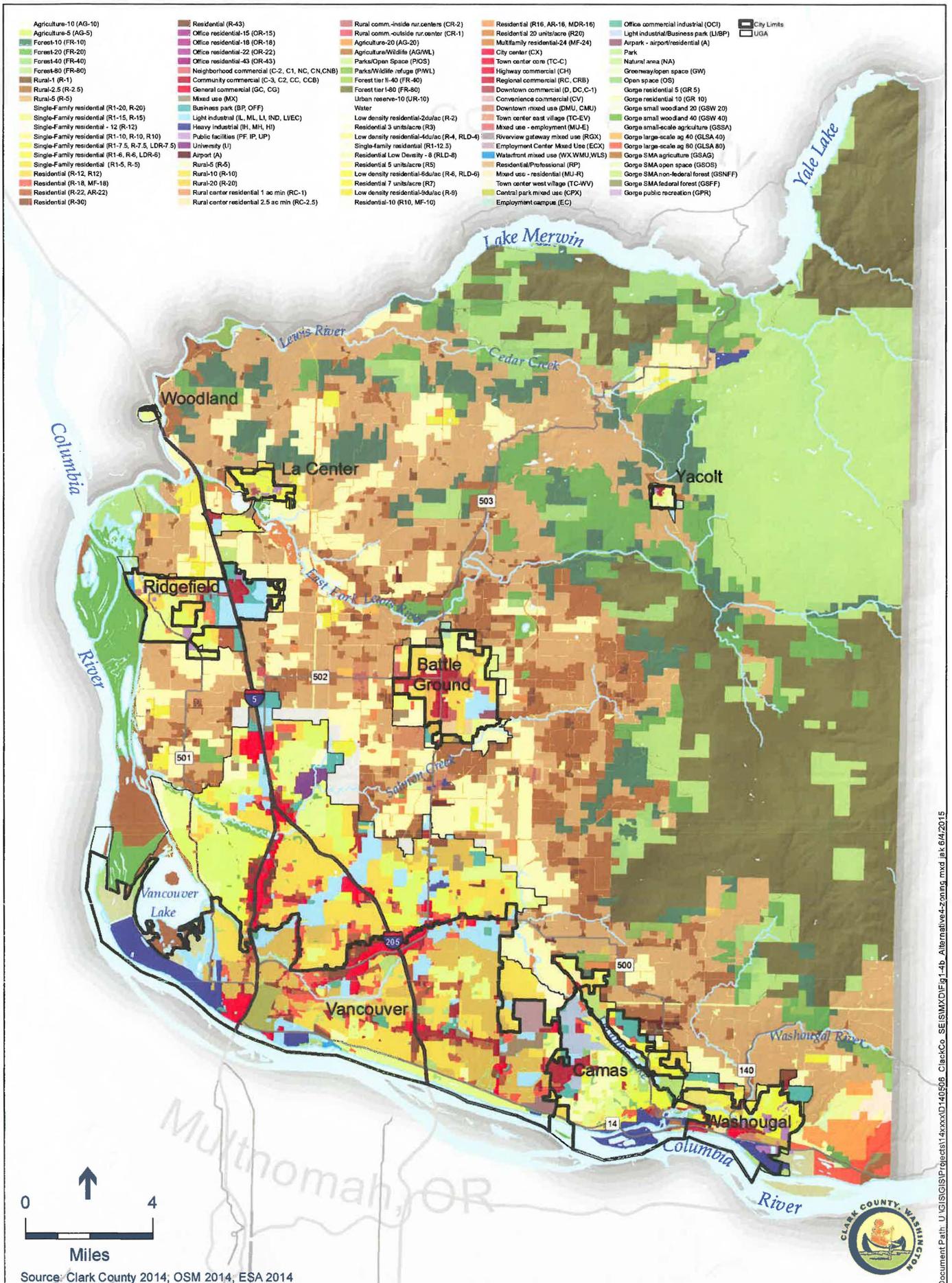


Figure 1-4b: Alternative 4 - Countywide Modification Zoning Map

2. Resource Lands

a. Forest Resources

This alternative would add FR-10 and FR-20 to the existing FR-40 and FR-80 zones. It would reduce the minimum lot area in some forest zones even further than Alternative 2. Approximately 563 new parcels could be created at full build-out with this zoning change.

b. Agricultural Resources

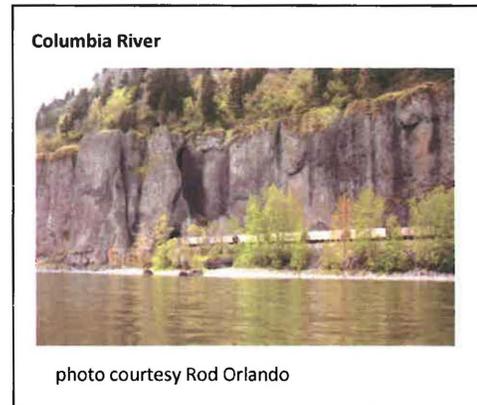
This alternative would eliminate the AG-20 zone and replace it with AG-5 and AG-10 zones. Approximately 1,958 new parcels could be created at full build-out with this zoning change.

2.0 Earth Resources

2.1 Setting Overview

Clark County is located along the western flank of the Cascade mountain range primarily within what is known as the lowlands of the Willamette-Puget Trough which sits between the Cascade Range to the east and the Coastal Range to the west. The general topography is characterized by upland foothill areas to the east that slope down toward the south and west toward the Columbia River.

The geology of the county is predominantly comprised of volcanic lava flows but also include sedimentary rock layers in the foothills of the Cascades as well as beneath the unconsolidated deposits of the lowland areas. The unconsolidated deposits include alluvial and fluvial materials along with some lake deposits and glacial drift. The oldest unit of unconsolidated materials is known as the Troutdale formation which consists chiefly of clay, silt, and fine sand with some areas of coarser sand and occasional gravel deposits. The upper member of the Troutdale formation consists of lightly to moderately cemented gravel. Basaltic lava flows overlie areas of the Troutdale formation and found largely in the foothills area with rocks that are generally heavily weathered. In the alluvial plains which include most of the farmland areas of the county, consist primarily of silt, sand, and gravel.



The coastline of the entire northwest is bordered by an active subduction zone where the Juan de Fuca plate is subducting, or being pushed, beneath the North American plate. Currently, the subduction zone is considered locked (that is, it is not slipping). Strain is therefore accumulating on the locked interface between the plates which can potentially be released at some point in the form of a significant earthquake. A rupture of the Cascadia subduction zone could occur in what is known as megathrust fault. The last rupture was on January 26, 1700. Geologic evidence suggests that the average recurrence of a magnitude 9.0 earthquakes along the Cascadia megathrust is about 500 years, but recurrence intervals vary, ranging from about 250 years to over 1,000 years. The effects of these earthquakes include strong ground shaking that goes on for several minutes, subsidence and/or uplift of coastal areas, liquefaction, and the triggering of landslides. Aftershocks can be both strong and numerous (possibly magnitude 7 or higher).

Soils of the county are based on the soil classification system developed by the Natural Resource Conservation Service (NRCS) completed by the NRCS in 1972. Since soil does not change rapidly, information from the 1972 survey can still be considered reliable, and as a result the findings presented in the 2007 FEIS findings would still be valid today.

The NRCS has classified the soils of Clark County into eight major soil associations:

- Sauvie-Puyallup, found in the bottomlands and flood plains;
- Hillsboro-Gee-Odne, Hillsboro-Dollar-Cove, and Lauren-Sifton-Wind River, found in terraces;
- Hesson-Olequa and Hesson-Olympic, found in uplands; and
- Cinebar-Yacolt and Olympic-Kinney, found in the foothills.

These soil associations have been further classified according to their ability to support different types of land uses, including urban development, agriculture and silviculture. The 1972 soil survey classifies some soils as having limitations to foundations, however it should be noted that there is an assumption that “the limitation ratings for residential foundations are for undisturbed soil and not for layers that have been mixed or reworked for fill material” (NRCS, 1972). In addition, according to the NRCS mapping and soil classifications, it is apparent that most of the county has some type of soil limitation related to septic systems. All septic systems within the county are reviewed prior to permitting by Clark County to ensure that they would function appropriately and that no contamination of surface or ground water is likely to occur.

Figure 2-1 shows agricultural soil capability in the county which remains based on the NRCS data from 1972 and unchanged from the analysis in the 2007 EIS. In general, much of the County contains prime farmland with scattered areas considered to be farmland of statewide importance. Figure 2-2 shows forest soil capability. The best soils for a wide range of agricultural uses are located in the lowlands along rivers, areas that have already received substantial urban development. Special crops, such as vineyards, may be grown on land with other than prime agricultural soils.

2.1.1 What has changed since 2007?

Geologic and Soil Conditions

In general, there has been no change to the soil or geologic conditions of the county since 2007. No new soil data has been released since 2007 that changes the general understanding of the soil conditions or surface geology in the county. In addition, seismic hazards are still present throughout the county and older structures built to outdated building codes are still the most vulnerable to damage and possible collapse. Countywide mapping shows liquefaction hazards remain concentrated in the flatland areas in the western part of the county, largely adjacent to surface waters and their flood zone areas due to associated high groundwater levels and potential coarse sandy deposits that can be susceptible to liquefaction. Landslide hazards, however, are more likely present in upland areas in the eastern part of the county, consistent with findings from 2007.

2.2 Environmental Impacts

2.2.1 What methodology was used to analyze impacts to earth resources from each of the alternatives?

The potential impacts related to earth resources (i.e., soils and geology including geotechnical and seismic hazards) were based on existing conditions and identified hazards that have been mapped throughout the county by the NRCS and the Washington Division of Geology and Earth Resources.

2.2.2 What are the impacts to earth resources from each alternative?

Alternative 1 – No Action Alternative

As described in the 2007 FEIS, the County includes areas where existing soil conditions are not suitable for development without implementing geotechnical methods such as conditioning of site soils, removal of weak soils, placement of engineered fill, and foundation design in order to prevent damage. Other hazards to development including unstable and steep slopes susceptible to landslides, groundshaking hazards from seismic activity, liquefaction hazards, lands with high erosion potential, and nearby volcanic activity are also present within the County. Much of the county also contains tight soils that are

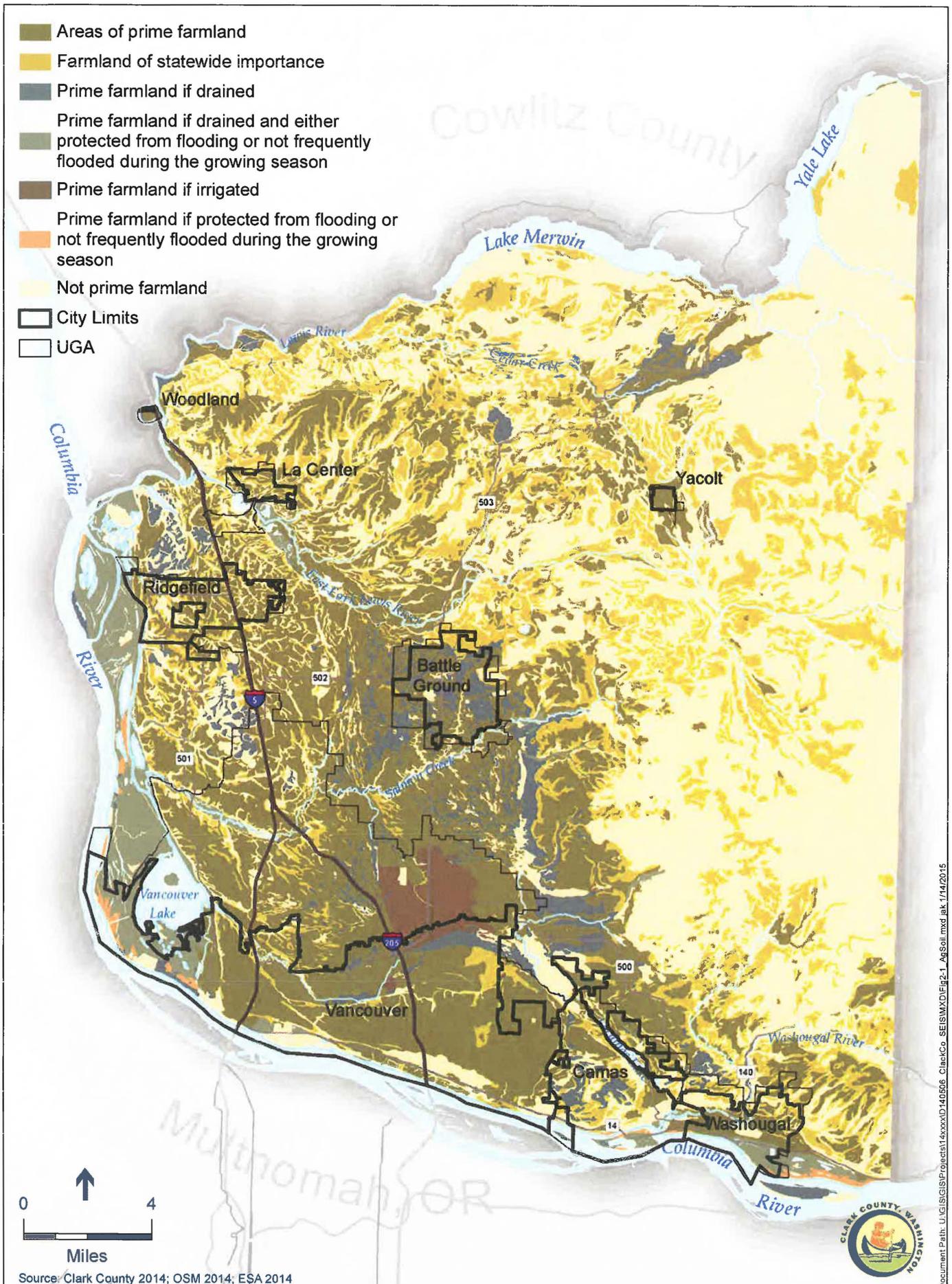


Figure 2-1: Soil Capabilities for Agricultural Use

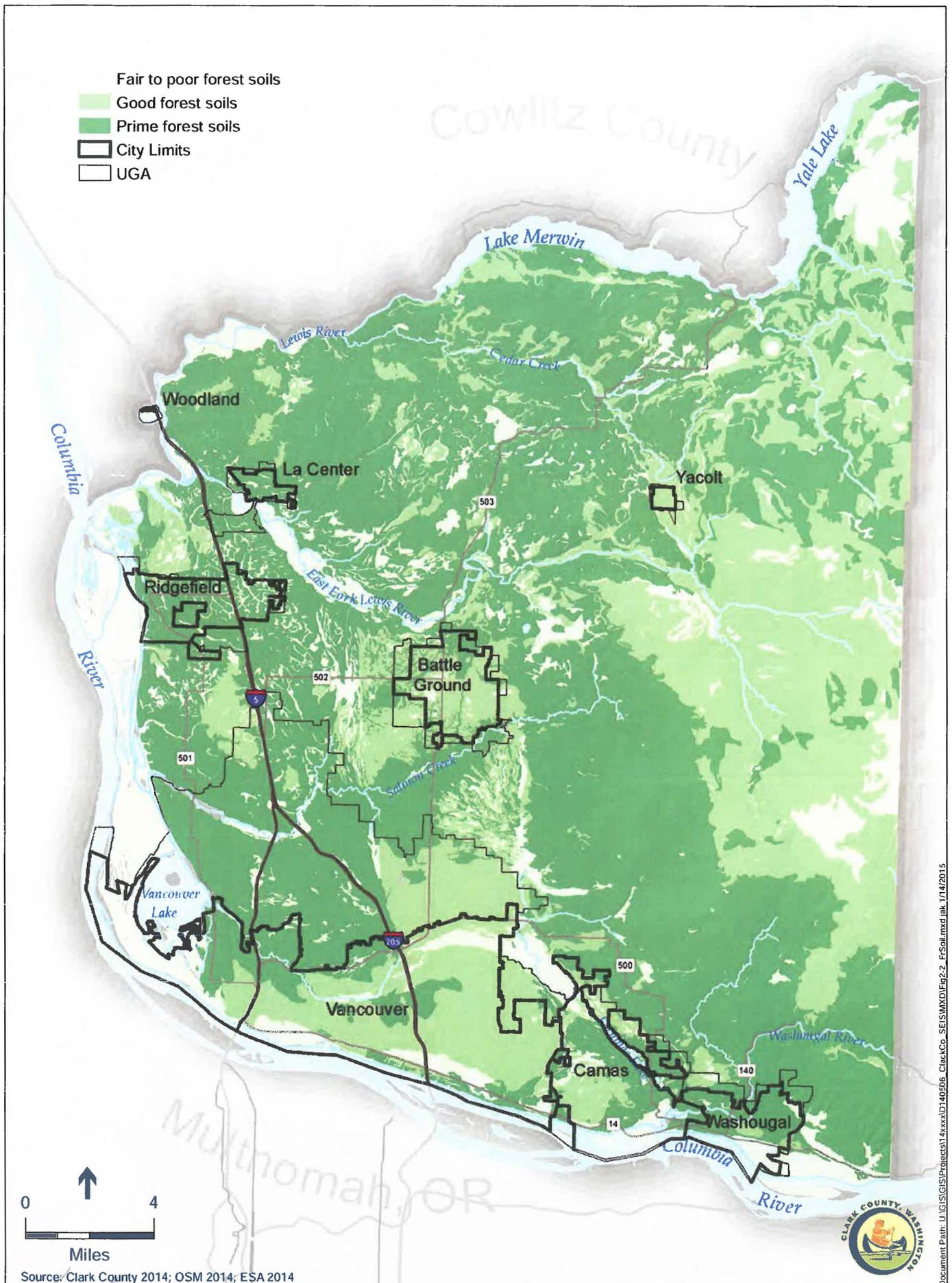
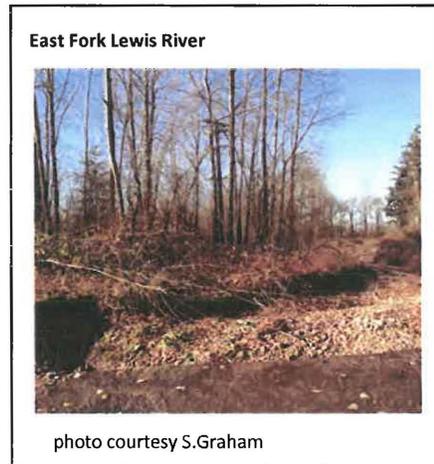


Figure 2-2: Soil Capabilities for Forest Use

not conducive to septic systems (Figure 2-3). However, with implementation of current geotechnical engineering practices in accordance with grading and building code requirements, these hazards can generally be addressed through site preparation and foundation design.

Soil characteristics also determine whether an area is particularly suited to agriculture or timber production. The GMA requires local jurisdictions to identify and protect agricultural and timber lands of long-term commercial significance. There have been no substantive changes to soils suitable for agriculture and timber with most of the western half of Clark County containing soils suitable for agriculture and nearly all of the county containing either prime or good forest soils. With no change to the UGAs under this Alternative, there would be no additional impacts related to prime soils and timber lands in addition to those identified in the 2007 FEIS.



Alternative 2 –Countywide Modifications

The rural and urban adjustments including policy changes, zoning changes, and growth boundary changes would overall accommodate a more moderate growth plan compared to the one adopted in 2007. As a result, there could be an overall reduction in new construction that could have been susceptible to some of the geotechnical and seismic hazards present in the County. However, some of the zoning changes that would reduce minimum lot size requirements could result in more structures in areas where these hazards (e.g., liquefaction or landslides) are present. Regardless, all construction, as noted above in Alternative 1 would be subject to grading and building code requirements which include measures to identify these hazards and provide recommendations to reduce the potential for adverse effects through implementation of geotechnical engineering techniques and practices in accordance with current building code requirements. As such, regardless of location, implementation of current grading and building code requirements would ensure that all new construction would reduce the potential for these hazards to adversely affect these improvements.

Alternative 2 would incorporate slightly reduced population growth rates which should result in reduced pressure to convert existing prime soil and forest areas. However, the reduced minimum lot areas under the revised zoning requirements create more divisible areas. Regardless, the GMA would still require local jurisdictions to identify and protect agricultural and timber lands of long-term commercial significance. Therefore, provided the reduced lot sizes do not result in conversions to other uses, there would be no additional impacts related to soils under this Alternative.

Alternative 3 – City UGA Expansion

Expansion of the city growth boundaries for Battle Ground, La Center, Ridgefield, and Washougal would result in increased development into largely undeveloped areas. Soil, geological, and seismic hazards are generally site specific and can only really be identified through site specific investigations. While hazards such as liquefaction, weak soils, and slope stability may be present in the proposed areas of expansion under this alternative, application of geotechnical measures such as site preparation through compaction of engineered fills, for example, and foundation design can reduce these hazards to less than significant levels.

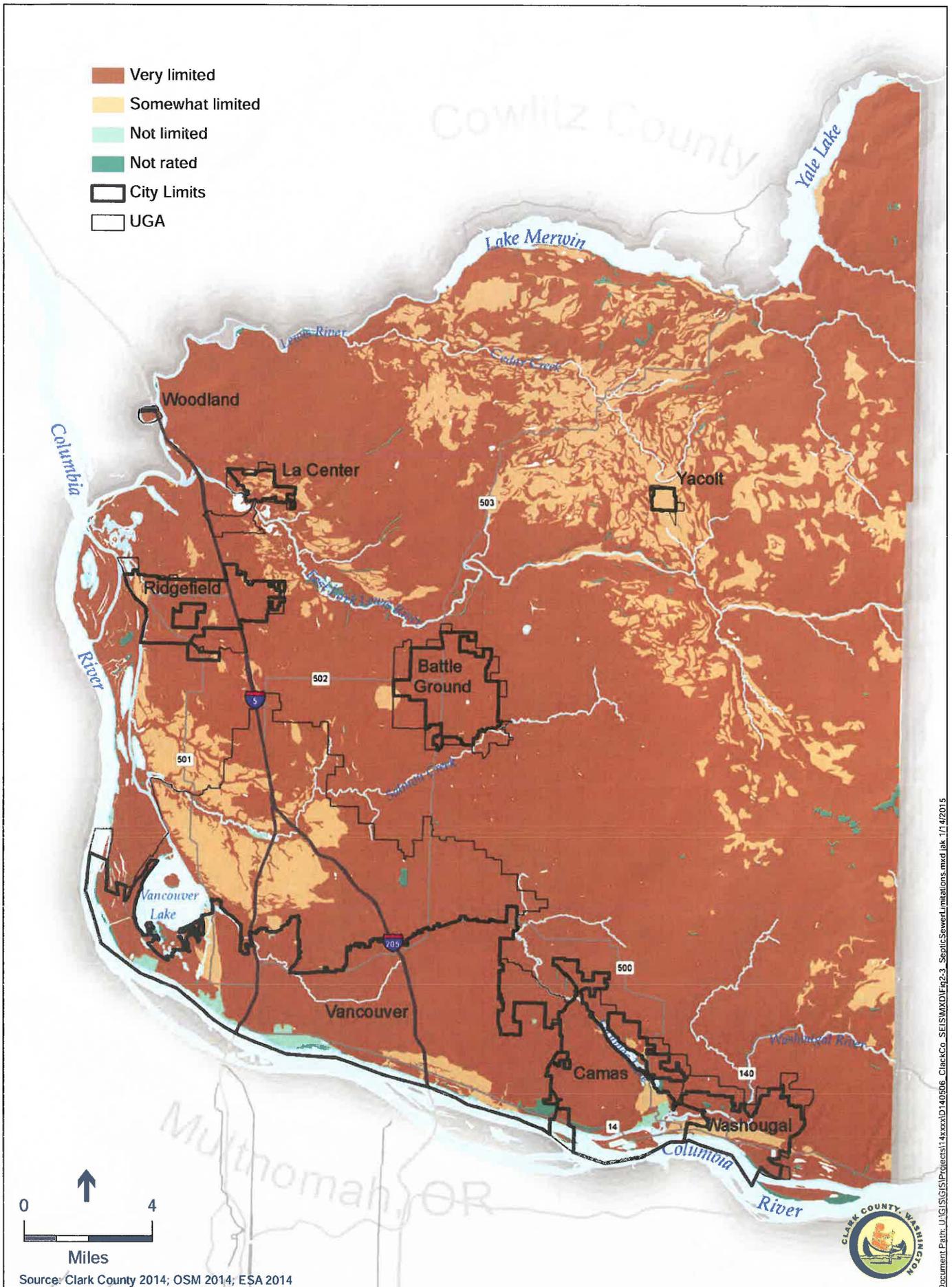


Figure 2-3: Soil Limitations to Septic Sewer Systems

Alternative 4 – Rural, Agriculture, and Forest Changes

Similar to Alternative 2, the rural and urban adjustments under this alternative include policy changes, zoning changes, and growth boundary changes to accommodate a more moderate growth plan compared to the one adopted in 2007. The creation of the “Rural Lands” designation, implemented by R-1, R-2.5, and R-5 zones, would reduce the size of most Rural zones. These reductions could result in more structures in areas where geotechnical hazards (e.g., liquefaction or landslides) are present. Regardless, all construction, as noted above in Alternative 1 would include measures to minimize these hazards through implementation of regulatory grading and building code requirements. As such, regardless of location, implementation of current grading and building code requirements would ensure that all new construction would reduce the potential for these hazards to adversely affect these improvements.

Although Alternative 4 would also incorporate reduced population growth rates compared to the 2007 plan, more lots would be created in resource lands which would increase pressure to convert existing prime soil and forest areas. Both agricultural and forest lot areas would have reductions in minimum lot size areas even further than that of Alternative 2. More divisible areas could potentially result in increased activities on these lots, but provided that reduced lot sizes do not result in conversions to other uses, there should be no substantive changes or impacts related to soils under this Alternative. The GMA still requires local jurisdictions to identify and protect agricultural and timber lands of long-term commercial significance.

How do the potential impacts between the alternatives compare?

Alternative 1 assumes a rate of growth that is higher than those provided in both Alternatives 2, 3 and 4, so in terms of proposed development, the risks and constraints of the county’s earth resources would generally be reduced for Alternatives 2, 3, and 4. However, the proposed changes in zoning under Alternatives 2 and 4 could put pressure on prime soils and forest areas with the reduction of minimum lot sizes, more so with Alternative 4. Local protections of these land uses would still remain. Alternative 3 proposes expansion of UGAs for Battle Ground, La Center, Ridgefield, and Washougal, which contain areas considered to have weak soils for foundations. High landslide areas are found in all UGAs, but mostly within the La Center and Ridgefield UGAs. Implementation of grading and building code requirements are typically sufficient to provide foundation design that can minimize any damage that may occur as a result of the presence of these hazards.

Table 2-1 summarizes the earth resources impacts of the alternatives.

Table 2-1. Summary of Earth Resources Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Assumes higher rate of growth than Alternatives 2, 3 & 4, but all within currently developed areas and UGAs.	Second highest potential for impacts. Changes in zoning could put pressure on prime soils and forest areas with the reduction of minimum lot sizes. Local protections of these land uses would still remain. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts on prime soils and forest areas.	High hazard areas in proposed UGA expansion areas. Implementation of grading and building code requirements would provide mitigation.	Highest potential for impacts of all alternatives. Changes in zoning could put pressure on prime soils and forest areas with the reduction of minimum lot sizes. Local protections of these land uses would still remain. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts on prime soils and forest areas.

2.2.3 Are there adverse impacts that cannot be avoided?

Any new construction would be designed and built in accordance with current building code standards and seismic design criteria.

2.3 Mitigation

2.3.1 Are there mitigation measures beyond regulations that reduce the potential for impacts?

Compliance with project-specific SEPA conditions, if applicable, would mitigate potential impacts from individual development proposals. Proposals would also be required to comply with existing excavation, grading and building permits, as well as critical areas ordinances and other development codes.

3.0 Water Resources

This chapter addresses the following types of water resources within Clark County and the cities:

- Surface water bodies (streams, lakes, and rivers);
- Floodplains;
- Shorelines;
- Critical aquifer recharge areas; and
- Wellhead protection areas.

Chapter 4 Fish and Wildlife describes stream and riparian habitats in the county.

3.1 Surface Water

3.1.1 What has changed since 2007?

The location of streams, rivers, and lakes within Clark County has remained relatively unchanged since 2007. Figure 3-1 shows the location of major streams, lakes, and watershed boundaries within Clark County. Changes to water quality and surface water regulations are described below.

3.1.2 Water Quality

There have been some minor changes to surface water conditions of the County since 2007, particularly with respect to water quality. Appendix A identifies streams, rivers, and lakes in Clark County that are currently listed on the 2012 Washington State 303(d) list of impaired water bodies for not meeting current surface water quality standards (Washington Administrative Code (WAC) 173-201A). The appendix also identifies the parameters that are not being met for that water body. In general, most 303(d) listed surface waters identified in the 2006 DEIS and 2007 FEIS are still on the list; however, 11 new surface waters have been added, including Big Tree, Cedar, and Yacolt Creeks and Merwin Lake. Some surface waters that were previously identified are no longer on the 303(d) list and have been removed. Additional parameters have been added or removed from particular water bodies.

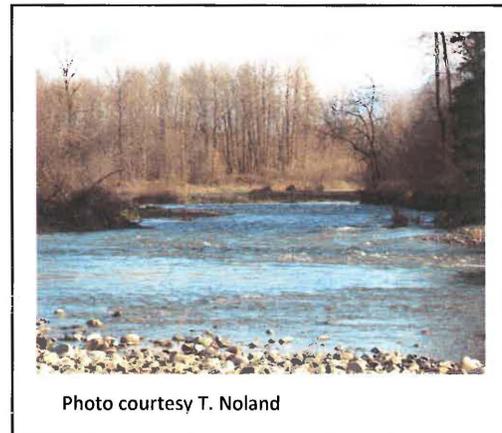


Photo courtesy T. Noland

The most common causes of surface water quality impairment are high temperatures, low dissolved oxygen levels, and presence of fecal coliform bacteria. All of these impacts are typically due to human activities or development, such as removing vegetation during development that otherwise shades streams or adding new impervious areas from roads, roofs, and parking lots that increases the potential for stormwater runoff to carry sediment and pollutants into streams. Runoff from agriculture has also negatively impacted many waterways in the county.

Clark County has regulations in place to protect water quality (Clark County Code (CCC) 40.385, Stormwater and Erosion Control; CCC 13.26, Water Quality). The County adopted a modified version of the Washington State Department of Ecology's Stormwater Management Manual for Western Washington. The County is currently updating its Stormwater Manual and development codes. The cities also have stormwater, drainage, and erosion control requirements. For non-exempt activities, the codes

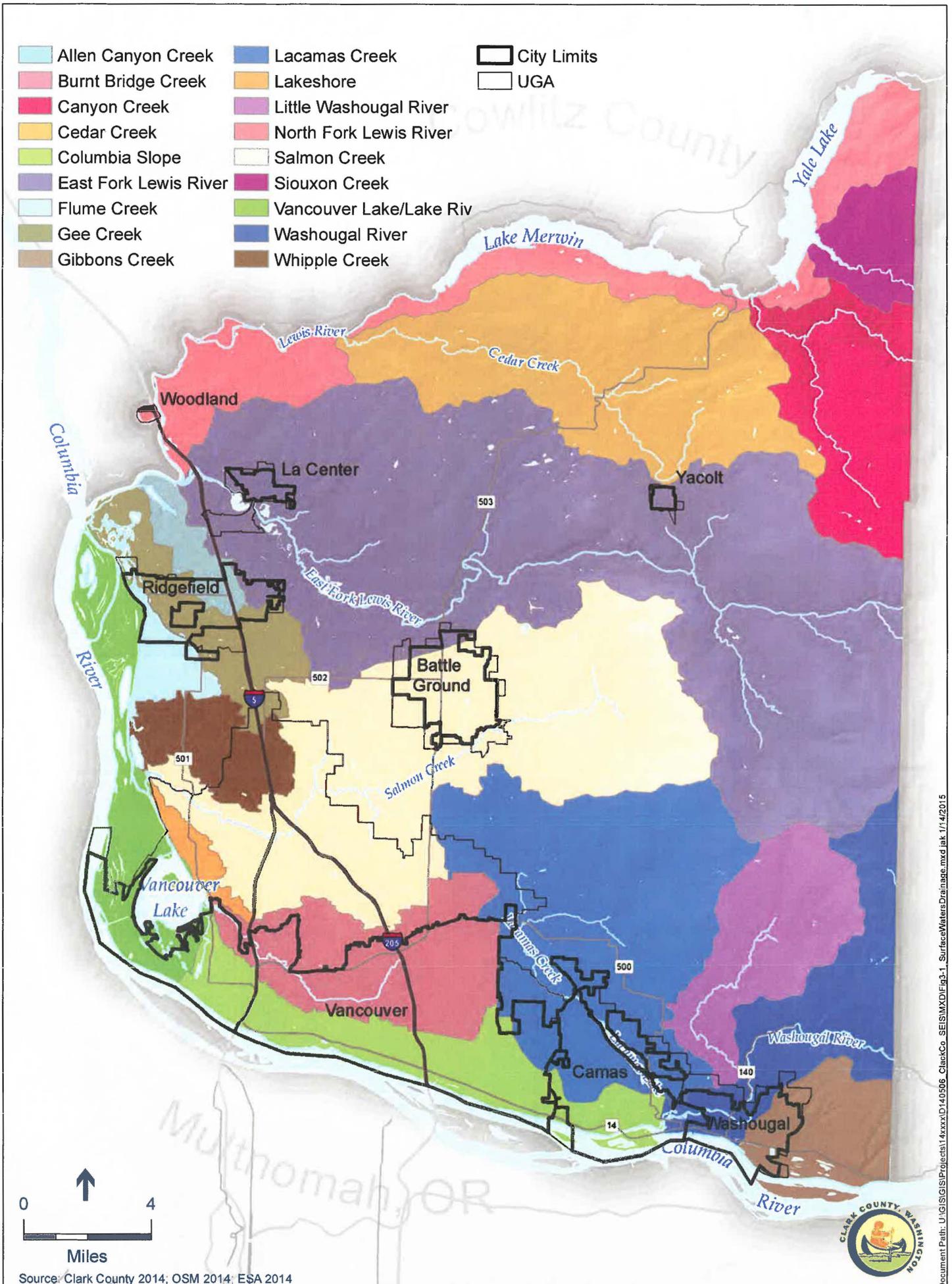


Figure 3-1: Major Surface Waters and Drainage Basins

generally require applicants to prepare a stormwater management plan, implement best management practices (BMPs) to protect water quality during construction, and install detention and water quality treatment for stormwater runoff.

3.1.3 Shoreline Master Plan

Clark County's Shoreline Master Program (SMP) was approved by the Department of Ecology on August 9, 2012. The SMP took effect on September 12, 2012. Clark County, Battle Ground, Camas, La Center, Ridgefield, Vancouver, Washougal, and Yacolt all partnered in the effort to update their respective SMPs.

In the course of implementing the SMP, a discrepancy in the regulations was discovered through a development proposal on Carty Lake relating to dredging and dredge material disposal. Ecology also noted that Carty Lake was not on the list of lakes subject to shoreline jurisdiction. To address these issues, a limited amendment to the Clark County SMP has been approved. Shoreline designations are shown on Figure 3-2. The SMP provides requirements for development along shorelines to protect ecological functions. Within each shoreline designation, slightly different requirements may apply depending on the proposed activity.

3.1.4 Floodplain Regulations

Since 2007, the areas of special flood hazard identified by the Federal Emergency Management Agency (FEMA) have been updated in a report entitled "Flood Insurance Study, Clark County, Washington and

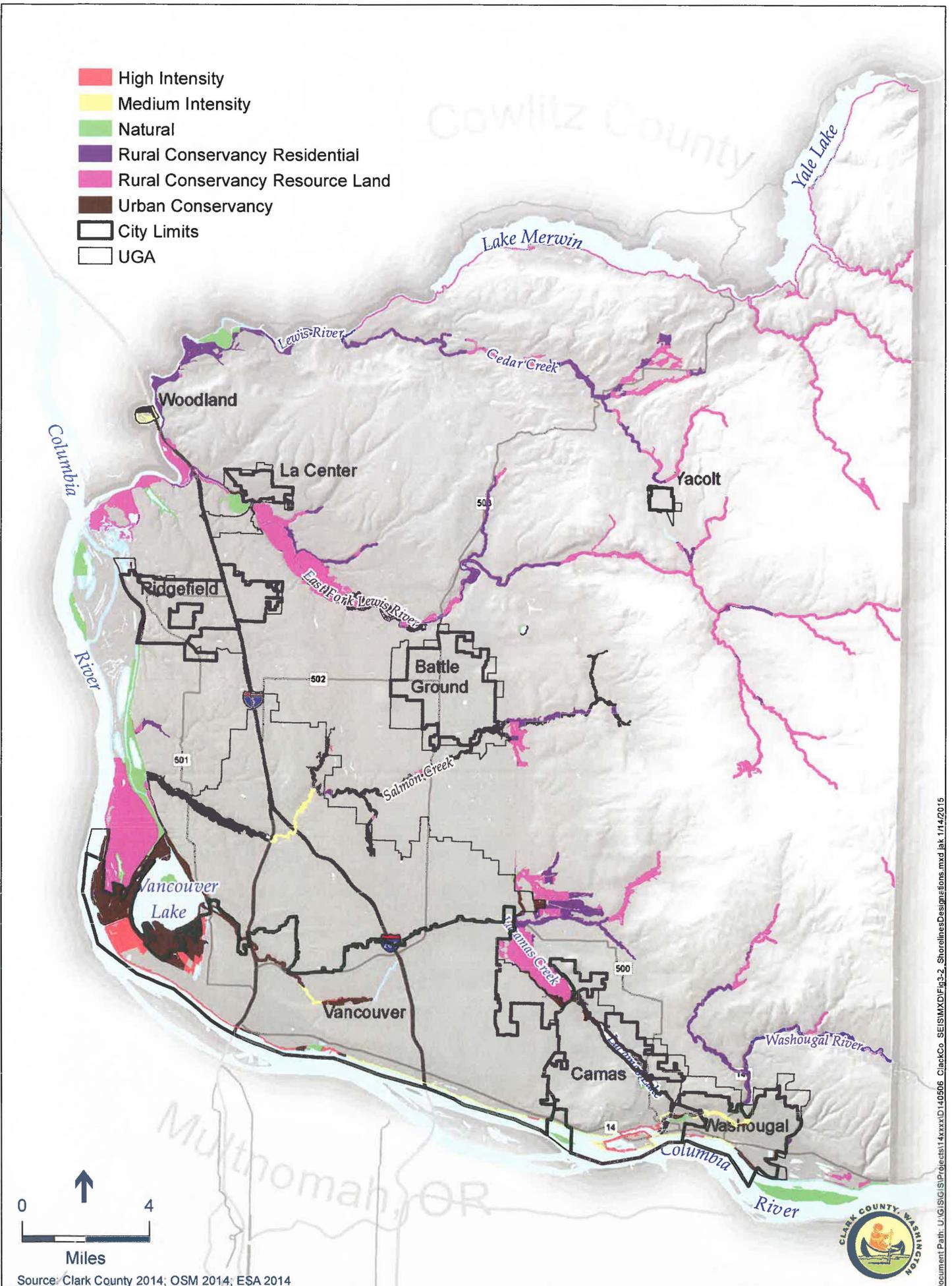
<p><i>The floodway is the area needed to move the 1-percent flood downstream; the state of Washington does not allow construction in the floodway.</i></p> <p><i>The floodway fringe is the portion of the floodplain lying on either side of the floodway.</i></p> <p><i>The 500 Year Flood Area is an area that has a .2-percent chance of being equaled or exceeded in any given year; it is not the flood that will occur once every 500 years.</i></p>

Incorporated Areas," effective September 5, 2012, and accompanying Flood Insurance Rate Maps (FIRMs). Revisions were adopted by reference into the Clark County Code (CCC 40.420.010). Significant flood zones are the Floodway, Floodway Fringe and 500 Year Flood Area. Floodplain areas in Clark County are shown on Figure 3-3. The County's flood hazard regulations restrict uses that increase erosion or flood risks; require flood protection for vulnerable uses; control alteration of floodplains and stream channels; limit filling and dredging in the floodplain; and regulate the construction of flood barriers.

3.2 Groundwater Resources

3.2.1 How have conditions changed since 2007?

There has been little change in groundwater resources since 2007. However, GIS mapping of groundwater resources and the land use/zoning potentially affecting the resources has vastly improved, allowing for more accurate long-term planning.



Document Path: U:\GIS\GIS\Projects\14xxxx\140506_ClarkCo_SEIS\WXD\Efig-2_ShorelinesDesignations.mxd jak 1/14/2015

Figure 3-2: Shoreline Designations

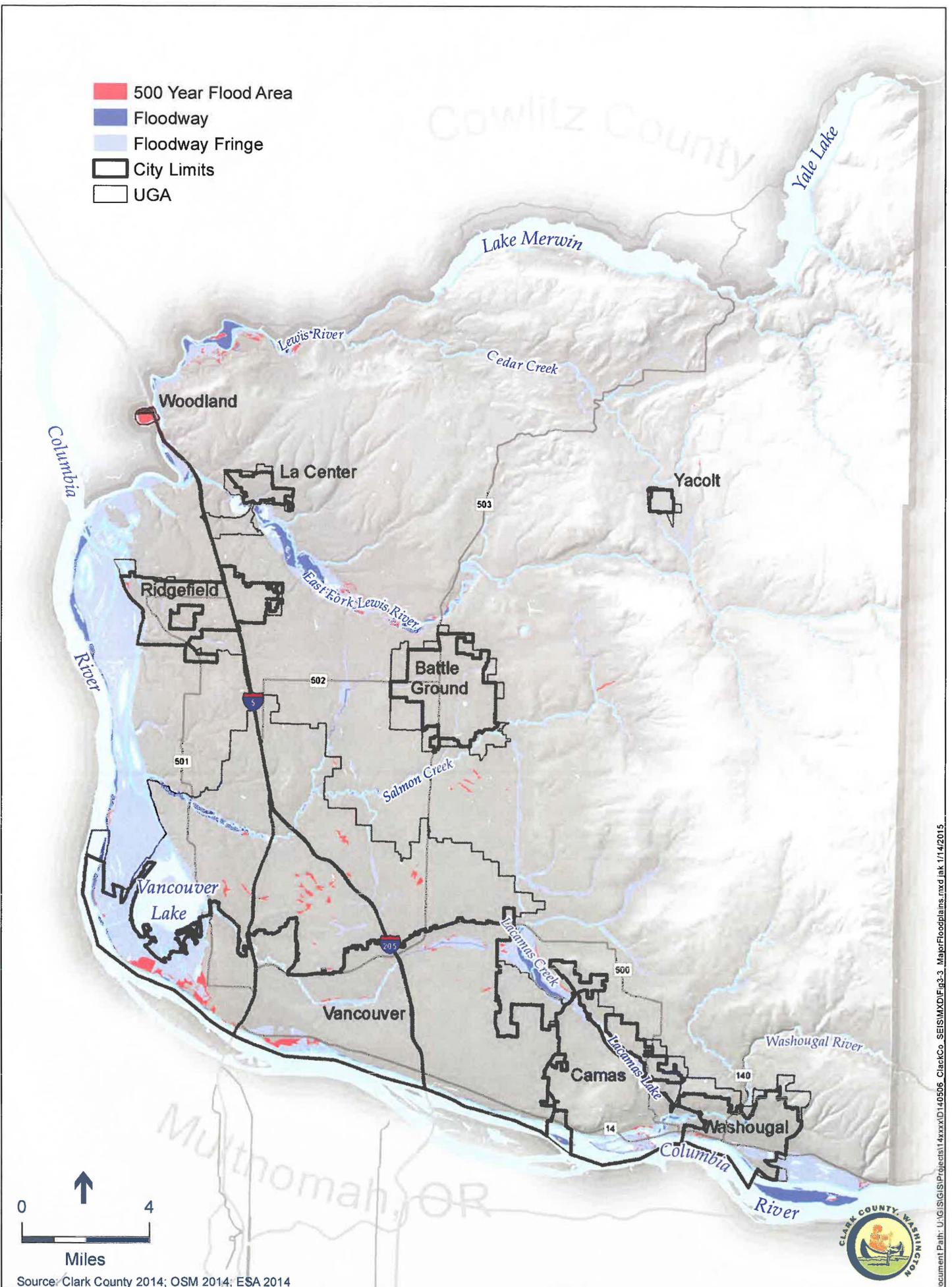


Figure 3-3: Major Flood Zones

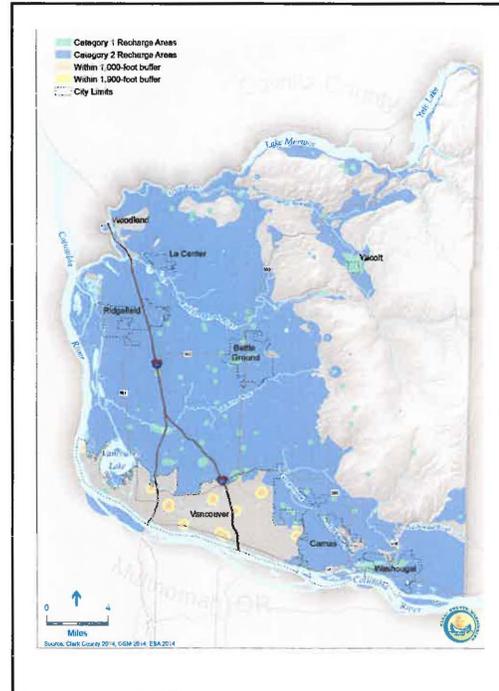
Document Path: U:\GIS\GIS\Projects\14xxxx\140906_ClickCo_SEIS\MXD\Figs 3_MajorFloodplains.mxd Ink 1/14/2015

3.2.2 Critical Aquifer Recharge Areas

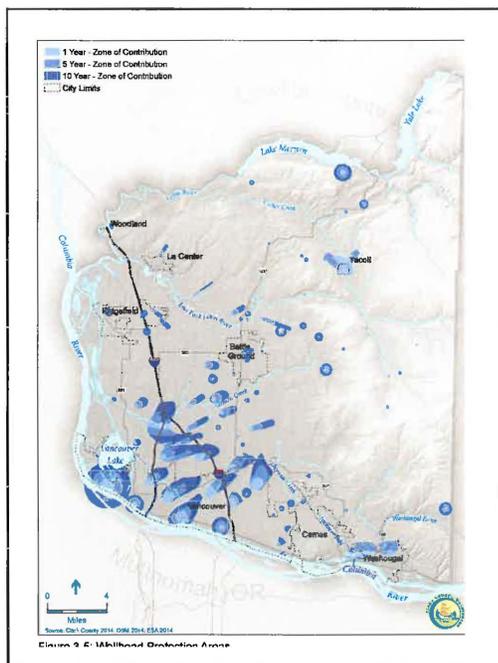
Groundwater provides 95% of the drinking water in Clark County. All of Clark County’s lowlands can be considered an aquifer recharge area, as groundwater lies beneath virtually all populated areas and is used as drinking water. Although most of the county’s groundwater is of good quality, there are areas where it has been degraded or contaminated due to human activities. Groundwater contamination often occurs where water demand and consumption are greatest.

The County’s critical aquifer recharge area (CARA) ordinance (CCC 40.410) was established for preventing degradation, and where possible, enhancing the quality of groundwater for drinking water or business purposes. The CARA review is intended to limit potential contaminants within designated critical aquifer recharge areas. The CARA ordinance took effect August 1, 1997, and was revised in 2005.

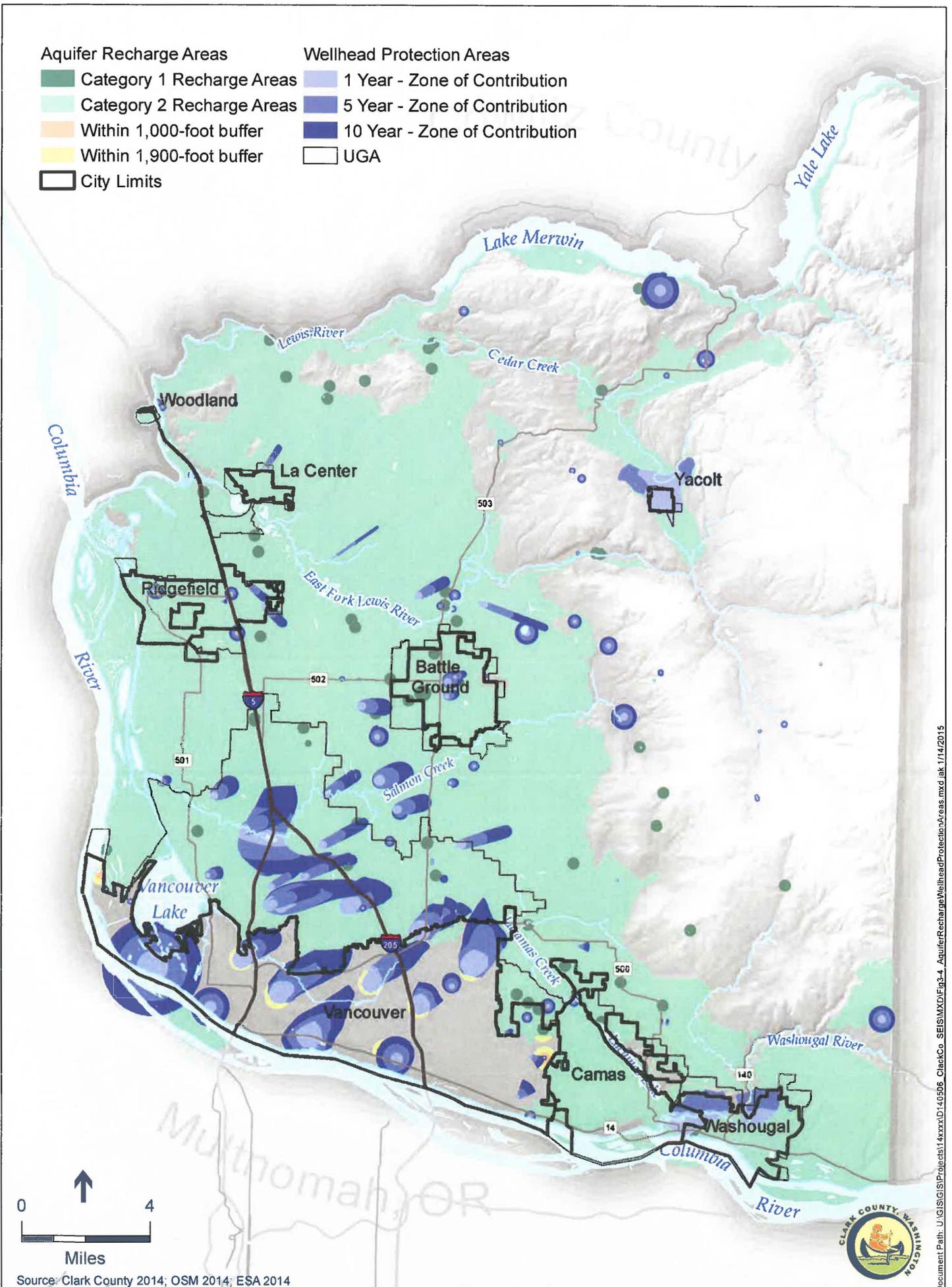
The ordinance applies to activities in designated CARAs that include most of Clark County west of the Cascade foothills (Figure 3-4). These areas are divided into two categories based on how close they are to public drinking water. Certain activities are prohibited in Category 1 areas because they are close to public wells. These activities are permitted in Category 2 areas but require a CARA permit. There are no activities prohibited in Category 2 areas, but they may be subject to other limitations specified within the CCC. Specific BMPs are required for certain types of activities to prevent groundwater contamination.



3.2.3 Wellhead Protection Areas



The federal Safe Drinking Water Act requires every state to develop a wellhead protection program. The state Department of Health (DOH) administers the wellhead protection program in Washington. Wellhead protection helps local communities protect their groundwater-based drinking water supplies. A component of the Wellhead Protection Program is delineating wellhead protection areas. A wellhead protection area is defined as the surface and subsurface area surrounding a well or well field that contaminants are likely to pass through and eventually reach the water well(s). In simpler terms, it is the area managed by a community to protect groundwater-based public drinking water supplies (DOH, 2010). The program works with other federal, state, and local groundwater protection programs including Sole Source Aquifer Designation, Groundwater Management Area Program, Aquifer Protection Area Designation, and Critical Aquifer Recharge Area management under the Growth Management Act.



Document Path: U:\GIS\GISProjects\14xxxx\149506 ClarkCo_SEIS\MXD\Fig3-4_AquiferRechargeWellheadProtectionAreas.mxd jak 1/14/2015

Figure 3-4: Critical Aquifer Recharge Areas & Wellhead Protection Areas

Wellhead protection areas in Clark County are shown on Figure 3-4. Since 2007, no changes to the wellhead protection areas have been documented in Clark County. The “zones of contribution” shown on the figure are based on how long it would take a particle of water to travel from the zone boundary to the well (1 year, 5 years, 10 years).

3.3 Environmental Impacts

3.3.1 What methodology was used to analyze impacts to water resources resulting from each of the alternatives?

Water resources can be affected by increased development due to increased impervious surfaces and intensified activities. More impervious surface can result in additional stormwater runoff carrying pollutants into water bodies and changing the amount and timing of water within streams. Some types of land uses, such as industrial facilities and some commercial operations, have the potential to release contaminants into surface and groundwater. Contaminated water sources could limit the amount and type of development allowed within an area due to reduced water quality, or could be cost prohibitive due to required treatment. The project team calculated the acreage of lands added to the UGAs under each alternative using GIS mapping and assessed the types of land uses that could occur with changes in zoning.

3.3.2 What are the impacts to water resources resulting from each alternative?

Alternative 1 – No Action Alternative

Alternative 1 plans no expansion of UGAs. The impacts to surface water bodies, floodplains, shorelines, CARAs, or wellhead protection areas would be the same as those identified in the 2007 FEIS. Population growth over the next 20 years would primarily occur within existing UGAs. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions.

All of the existing UGAs contain surface water and groundwater resources that could be affected by ongoing development. This includes hundreds of miles of streams, over 600 acres of floodprone areas, over 300 acres in shoreline jurisdiction, and over 30,000 acres in Category 1 CARAs and wellhead protection areas (see Table 3-1 and Chapter 4 for stream lengths). More intensive development within the UGAs could impact these resources; for example by increasing surface runoff and pollutants entering water bodies. However, activities potentially affecting these aquatic resources are regulated at state, federal, and local levels (for example, through local codes that require stream buffers and protection of groundwater; the federal Clean Water Act; local SMPs; and the state Hydraulic Code). Application of current stormwater standards would reduce the impacts of new development and could improve conditions in areas that were developed prior to adoption of current stormwater requirements.

Table 3-1. Alternative 1 – No Action - Existing Water Resources (acres)

Water Resource	Total Acres in Existing UGAs
Floodprone Area	
Floodway Fringe	571
Floodway	36
500 year flood	9
Total Floodprone Area	616
Shorelines	314
Category 1 CARA	4,085
Wellhead Protection Areas (Zones of Contribution)	
1-year	5,235
5-year	9,532
10-year	12,169
Total Wellhead Protection Area	29,936

Alternative 2 –Countywide Modifications

Rural Areas

Reducing minimum lot sizes may allow for increased density of development, potentially leading to impacts on water resources. However, some of the areas affected by this alternative are already at or below the minimum lot sizes that would be allowed under this alternative. These existing smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. Water resource impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development.



As shown in Table 3-2, Alternative 2 could allow creation of approximately 8,200 new lots with the potential for additional development, potentially affecting over 34,000 acres spread across most of the drainage basins in the county (see Figure 6-2 in Chapter 6).

Table 3-2. Acreage Potentially Affected by Changes in Zoning – Alternative 2

Proposed Zoning Change	Potential New Parcels	Potential Acreage Affected
R20 to R10	5,823	5,823 parcels @ 10 acres each = 58,230 acres
AG20 to AG10	1,937	1,937 parcels @ 10 acres each = 19,370 acres
FR40 to FR20	460	460 parcels @ 20 acres each = 9,200 acres
Total	8,220	34,393 acres

Development of new lots would be subject to project-specific review and regulations intended to avoid and minimize impacts on aquatic resources. Nevertheless, some level of cumulative impact may occur as the basins become more developed. Over time, development tends to increase the proportion of impervious surface, which increases pollutants entering surface and groundwater, and it reduces the amount of vegetation cover in a basin, leading to changes in hydrology and alteration of biological communities. The level of impact for an individual drainage basin would depend on many factors, such as geology and hydrology of the basin, how much of the basin is already developed, the effectiveness of existing and new stormwater management systems, the location and intensity of new development, and the sensitivity of resources such as fish-bearing streams.

As stated in Section 3.2.2 above, there are areas within the county where groundwater has been degraded or contaminated due to increased development, as well as increased water demand and consumption. When demand increases there is a risk of pumping water out faster than it can infiltrate to replenish the aquifer. The additional development that would be allowed under Alternative 2 would in turn increase the number of new water wells in rural areas, and thus increase the risk of both contamination and reducing water supply. Construction of new houses, roads, and other facilities allowed by this zoning change would likely increase impervious surface area, leading to an increase in stormwater runoff that could impact stream habitat.

Overall, this alternative could have a moderate level of impact on water resources if the parcels are built out to their full potential under the proposed zoning changes.

Changing the mixed use comprehensive zoning designation to match existing development would not result in more intensive development or other changes in land uses that would impact water resources.

Urban Growth Areas

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts are expected from this proposed change.

City of Ridgefield: Alternative 2 proposes to increase the UGA by approximately 155 acres. This would bring 0.5 miles of stream into the UGA (see Chapter 4 for stream lengths). The UGA expansion area is

mapped as Category 2 CARA. The area that would be brought into the UGA consists of the Tri-Mountain Golf Course and a narrow strip along I-5. The proposal could have site-specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would add increased impervious surface and intensity. Impacts are localized and would be mitigated during project review.

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. This could result in moderate impacts to water resources in the area with increased impervious surface and more intense activities. Impacts are localized and could be mitigated during project review.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Alternative 3 – City UGA Expansion

City of Battle Ground

Alternative 3 proposes expansion of the City of Battle Ground UGA by approximately 82 acres. This would bring an additional 0.4 miles of stream, 4.7 acres of floodprone area, 0.04 acres of jurisdictional shoreline, and 29 acres of Category 1 CARA into the UGA (see Table 3-3 and Chapter 4 for stream lengths). The UGA expansion area is also mapped as Category 2 CARA. Portions of the affected area are already developed with rural land uses, but water resources may be affected by more intensive development and activities (e.g., increased stormwater runoff and pollutant loading, decreased water supply, etc.). Impacts are localized and could be mitigated during project review.

Table 3-3. Alternative 3 – City UGA Expansion- Existing Water Resources (acres)

Water Resource	Battleground	La Center	Ridgefield	Washougal
Floodprone Area				
Floodway Fringe	4.7	0.01	0	0
Floodway	0	0	0	0*
500 year flood	0	0	0	0
Total Floodprone Area	4.7	0.01	0	0
Shorelines	0.04	0	0	0
Category 1 CARA	29	0	0	0
Wellhead Protection Areas (Zones)				
1-year	0	0	0	0
5-year	0	0	0	0
10-year	0	0	0	0
Total Wellhead Protection Area	0	0	0	0

*Approximately 16 acres of floodway area would be included in the Washougal UGA; however this is a result of mapping corrections and does not represent areas that would be added to the UGA under Alternative 3.

City of La Center

Alternative 3 proposes expansion of the City of La Center UGA by approximately 78 acres. This would bring an additional 0.6 miles of stream and less than 1 acre of floodprone area into the UGA (see Table 3-3 and Chapter 4 for stream lengths). The UGA expansion area is also mapped as Category 2 CARA.

While part of the UGA expansion area is currently developed, most of the land consists of pasture and forested areas. Bringing this area into the UGA would allow more intensive development, with the potential for negative effects on water resources. Impacts are localized and could be mitigated during project review.

City of Ridgefield

Alternative 3 proposes expansion of the City of Ridgefield UGA by 111 acres. This would bring 1 mile of additional fish-bearing stream into the UGA (see Chapter 4). No additional floodprone areas, jurisdictional shorelines, or Category 1 CARAs would be brought into the UGA (Table 3-3). The UGA expansion area is mapped as Category 2 CARA.

City of Washougal

Alternative 3 proposes expansion of the City of Washougal UGA by 41 acres. No additional streams, floodprone areas, jurisdictional shorelines, or Category 1 CARAs would be brought into the UGA (Table 3-3). The UGA expansion area is mapped as Category 2 CARA.

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas.

Compared to Alternative 2, Alternative 4 would allow a higher density of development outside of the UGAs in the county than would occur with the 2007 Comprehensive Plan.

Reducing minimum lot sizes may allow for increased density of development, potentially leading to impacts on water resources. Water resource impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed with Alternative 4. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 3-4, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, spread across most of the drainage basins in the county (see Figure 1-4b).

Table 3-4. Acreage Potentially Affected by Changes in Zoning – Alternative 4

Proposed Zoning Change	Number of Potential New Parcels	Potential Acreage Affected
Agriculture		
Ag20 to Ag10	1,780	1,780 parcels @ 10 acres each = 17,800 acres
Ag20 to Ag5	178	178 parcels @ 5 acres each = 890 acres
Subtotal Agriculture	1,958	9,94518,690 acres
Rural		
R20/R10/R5 to R1	739	739 parcels @ 1 acre each = 739 acres
R20/R10/R5 to R2.5	3,019	3,019 parcels @ 2.5 acres each = 7,548 acres
R20/R10 to R5	6,122	6,122 parcels @ 5 acres each = 30,610 acres
Subtotal Rural	9,880	13,11238,897
Forest Resource		
FR80	7	7 parcels @ 80 acres each = 560 acres
FR80 to FT40	30	30 parcels @ 40 acres each = 1,200 acres
FT80/FR40 to FT20	93	93 parcels @ 20 acres each = 1,860 acres
FT80/FR40 to FT10	433	433 parcels @ 10 acres each = 4,330 acres
Subtotal Forest	563	7,950
TOTAL	12,401	65,537 acres

As described for Alternative 2, some level of cumulative impact may occur as the basins become more developed. Increased development leads to more impervious surface, which increases pollutants entering surface and groundwater. Reduction in vegetation cover in a basin can lead to changes in hydrology and alteration of biological communities. The level of impact for an individual drainage basin would depend on many factors, such as geology and hydrology of the basin, how much of the basin is already developed, the effectiveness of existing and new stormwater management systems, the location and intensity of new development, and the sensitivity of resources such as fish-bearing streams. Development of new lots under Alternative 4 would be subject to project-specific review and regulations intended to avoid and minimize impacts on aquatic resources.

As previously stated, groundwater contamination has already occurred in some areas due to increased development and water consumption. When demand increases, water withdrawal can overwhelm the aquifer's ability to infiltrate. The additional development that would be allowed under Alternative 4 would in turn increase the number of new water wells in rural areas, and thus increase the risk of both contamination and reducing water supply.

Table 3-4. Acreage Potentially Affected by Changes in Zoning – Alternative 4

Proposed Zoning Change	Number of Potential New Parcels	Potential Acreage Affected
Agriculture		
Ag20 to Ag10	1,780	1,780 parcels @ 10 acres each = 17,800 acres
Ag20 to Ag5	178	178 parcels @ 5 acres each = 890 acres
Subtotal Agriculture	1,958	9,94518,690 acres
Rural		
R20/R10/R5 to R1	739	739 parcels @ 1 acre each = 739 acres
R20/R10/R5 to R2.5	3,019	3,019 parcels @ 2.5 acres each = 7,548 acres
R20/R10 to R5	6,122	6,122 parcels @ 5 acres each = 30,610 acres
Subtotal Rural	9,880	13,11238,897
Forest Resource		
FR80	7	7 parcels @ 80 acres each = 560 acres
FR80 to FT40	30	30 parcels @ 40 acres each = 1,200 acres
FT80/FR40 to FT20	93	93 parcels @ 20 acres each = 1,860 acres
FT80/FR40 to FT10	433	433 parcels @ 10 acres each = 4,330 acres
Subtotal Forest	563	7,950
TOTAL	12,401	65,537 acres

As described for Alternative 2, some level of cumulative impact may occur as the basins become more developed. Increased development leads to more impervious surface, which increases pollutants entering surface and groundwater. Reduction in vegetation cover in a basin can lead to changes in hydrology and alteration of biological communities. The level of impact for an individual drainage basin would depend on many factors, such as geology and hydrology of the basin, how much of the basin is already developed, the effectiveness of existing and new stormwater management systems, the location and intensity of new development, and the sensitivity of resources such as fish-bearing streams. Development of new lots under Alternative 4 would be subject to project-specific review and regulations intended to avoid and minimize impacts on aquatic resources.

As previously stated, groundwater contamination has already occurred in some areas due to increased development and water consumption. When demand increases, water withdrawal can overwhelm the aquifer's ability to infiltrate. The additional development that would be allowed under Alternative 4 would in turn increase the number of new water wells in rural areas, and thus increase the risk of both contamination and reducing water supply.

Overall, this alternative could have a high level of impact on water resources, such as contamination and decreased water supply, if the parcels are built out to their full potential under the proposed zoning changes.

3.3.3 How do the potential impacts between the alternatives compare?

Table 3-5 summarizes the water resources impacts of the alternatives.

Table 3-5. Summary of Water Resources Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential for impacts. More intensive development within UGAs could affect aquatic resources.	Second highest potential for impacts of all alternatives due to potential for more intensive development of over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts on aquatic resources. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Moderate potential for impacts. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could contribute to cumulative impacts on aquatic resources.

3.4 Are there adverse impacts that cannot be avoided?

Development projects that propose to impact water resources are regulated by local critical areas codes and state regulations governing water quality. These regulations require impacts to be avoided and minimized, and unavoidable impacts require compensatory mitigation. These measures help to ensure no net loss of ecological functions on an individual project scale. However, some small level of impact may still occur with each new development. While mitigation is typically required, it is not always successful. Some small-scale activities are exempt from local critical areas review. These small impacts added together can contribute to cumulative effects on local aquatic resources as the drainage basins become more developed. Cumulative impacts would include an increased number of water wells, which in turn increase the potential for groundwater contamination and reduction of water supply, increases in impervious surface that contribute to stormwater runoff, and vegetation clearing that considerably degrade the quality of streams and other surface waters.

3.5 Mitigation

3.5.1 Are there mitigation measures beyond regulations that reduce the potential for impacts?

In addition to the regulations discussed above, the County could encourage low impact development (LID) features for new development where appropriate, to reduce stormwater impacts. LID approaches are being considered as part of the County’s update to its stormwater manual. The County could consider incentives for private property owners to add LID features such as rain gardens to existing developed areas.

The measures identified in Chapter 4 for fish and wildlife would also benefit water resources. For example, restoring riparian vegetation along streams would provide more shade and help to lower water temperatures, which would also increase dissolved oxygen levels in the stream.

Provisions for clustering under Alternatives 2 and 4 could help minimize the amount of new wells needed to supply drinking water and the amount of vegetation clearing that would impact streams and wetlands. Zoning code changes to allow lower minimum lot sizes under either Alternatives 2 or 4 could include requirements for cluster development when considering applications for subdivision. This mitigation measure could help reduce the effects of increased development on water resources.

4.0 Fish and Wildlife Resources

This chapter addresses the following resources within Clark County and the cities:

- Fish and wildlife habitats, including riparian habitats (streams), priority upland habitats, and state priority species;
- Federally listed threatened and endangered species;
- Migratory species; and
- Wetlands.

The status of these resources has not likely changed substantially since the 2007 FEIS, with the exception of additional federal species listings.

4.1 Fish and Wildlife Habitats

4.1.1 What has changed since 2007?

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal and Yacolt). These regulations typically cover activities affecting streams and adjacent riparian areas; lakes and naturally occurring ponds; priority habitats and species designated by WDFW; and habitat for federally listed species. Some jurisdictions in Clark County also specifically protect stands of Oregon white oak, locally significant waterfowl or shorebird areas, and significant stands of camas lily. The updated ordinances incorporate best available science for fish and wildlife habitats as required by GMA. This typically results in additional protections for fish and wildlife habitats, such as updated mapping and stream classification, detailed habitat assessment requirements, wider buffers, and more specific requirements for mitigation.

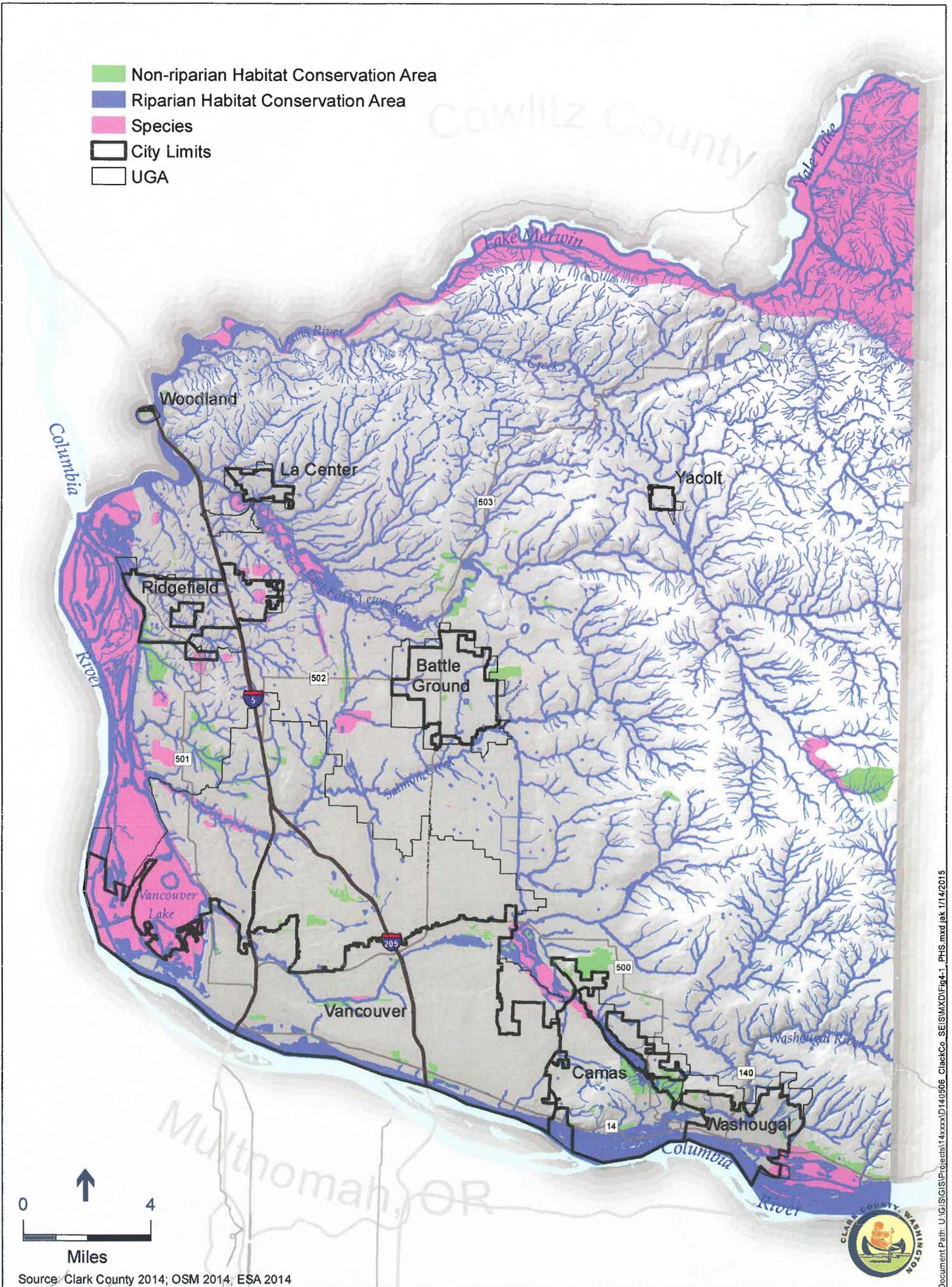
In addition, Clark County and most of its cities adopted updated Shoreline Master Programs in 2012 and 2013, and FEMA updated the areas of special flood hazard and these were adopted into Clark County code. The shorelines and floodplains are discussed further in Chapter 3, Water.

4.1.2 Riparian Habitats (Streams)

As shown on Figure 4-1, Clark County contains many streams, rivers, and lakes forming a network of drainages and riparian habitats across the county. The county is bordered by two large rivers: the Columbia to the south and the Lewis to the north. Other major drainages in the county include the East Fork Lewis River, Salmon Creek, Cedar Creek, Lacomas Creek, and Washougal River.

Streams and adjacent upland buffers (riparian habitat) are regulated under local critical areas codes. The codes assign a regulatory buffer width depending on whether the stream supports fish and other factors. In-water work also requires compliance with the state Hydraulic Code and the federal Clean Water Act. Larger streams and lakes are also regulated under the state Shoreline Management Act (see Chapter 3).





Document Path: U:\GIS\GIS\Projects\14xxxx\140506 ClarkCo_SEIS\MXD\Fig4-1_PHS.mxd jak 1/14/2015

Figure 4-1: Priority Habitats and Species

4.1.3 Priority Upland Habitats

According to WDFW PHS mapping, Clark County supports the following types of priority upland habitats (descriptions are provided in Appendix B):

- Aspen stands
- Herbaceous balds
- Oregon white oak woodlands
- Caves
- Snags and logs
- Biodiversity areas and corridors
- Old-growth/mature forests
- West side prairies
- Cliffs
- Talus

The county also supports several high-quality vegetation communities including prairies, wetlands, balds and bluffs, Douglas fir forests dominated by native understory species, native willow stands, and Oregon white oak communities (WNHP, 2014b).

As shown on Figure 4-1, mapped upland priority habitats are generally sparse but scattered throughout the county. Priority upland habitats are regulated by local critical areas codes. Federal regulations also apply to habitats supporting federally listed species, bald eagles, and migratory birds (see Sections 4.3 and 4.4).

4.1.4 State Priority Species

Clark County supports numerous state priority species including rare plants, fish, and wildlife (Appendix B provides a species list). These species require protective measures for their survival due to their population status, sensitivity to habitat alteration, and/or recreational, commercial, or tribal importance. Priority species include State Endangered, Threatened, Sensitive, and Candidate species; animal aggregations (e.g., heron colonies, bat colonies) considered vulnerable; and species of recreational, commercial, or tribal importance that are vulnerable (WDFW, 2013). The priority species list for Clark County also includes several species that are federally listed under the Endangered Species Act (ESA); these are discussed in Section 4.3.

Sensitive species are typically found in less developed areas, such as within forest lands in the northeastern part of the county, and in larger parks and wildlife refuges. However, these species also use river corridors, lakes, and larger wetlands even in more developed settings. State priority species are regulated by local critical areas codes. Federal regulations also apply to federally listed species, bald eagles, and migratory birds (see Sections 4.3 and 4.4).

A number of marine mammals occur in the Columbia River portion of Clark County, including harbor seals, California sea lions, and Steller sea lions. Marine mammal species are protected under the federal Marine Mammal Protection Act.

4.1.5 Environmental Impacts

What methodology was used to analyze impacts to habitat from each of the alternatives?

Impacts to fish and wildlife habitat are related to the spatial distribution of growth. Generally, growth patterns that convert land to urban uses are more likely to result in the loss and fragmentation of fish and wildlife habitat. Growth patterns that promote more compact development within existing UGAs are more likely to preserve this habitat, although more stress may be placed on terrestrial and aquatic

habitat within urban areas as the level and intensity of development increase. To assess impacts to fish and wildlife habitat, the project team used GIS mapping to identify priority habitats and species located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses. In December 2014 they consulted the following readily available mapping sources to ensure the most current information is used for this analysis:

- Clark County GIS online mapping including wetlands, riparian and non-riparian priority habitats, and priority species;
- Priority habitats and species (PHS) mapping from the Washington Department of Fish and Wildlife (WDFW);
- SalmonScape mapping from WDFW;
- Washington Natural Heritage Program data on rare plant species and plant associations;
- Listed species occurrence and critical habitat data from the U.S. Fish and Wildlife Service (USFWS) and NOAA Fisheries.

No fieldwork has been conducted for this analysis to ground truth the mapping data.

What are the impacts to habitat from each alternative?

Alternative 1 – No Action

Alternative 1 plans no expansion of UGAs. The impacts to fish and wildlife would be the same as those identified in the 2007 FEIS. Growth over the next 20 years would primarily occur within existing cities and UGAs. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. Forest and rural lands often provide important habitat for fish and wildlife, in addition to their other environmental functions and services. Impacts to habitat for terrestrial listed species would be the same as identified in the 2007 FEIS.

All of the existing UGAs contain mapped priority habitats and streams except for Woodland which has no mapped streams (Tables 4-1 and 4-2). The most common priority habitats within UGAs are biodiversity areas/corridors and oak woodlands. Bald eagles are known to use most of the UGAs.

Riparian areas (streams), priority upland habitats, and priority species could be affected by ongoing development within existing UGAs. Impacts would be minimized by local ordinances requiring stormwater management, buffers for streams and wetlands, and consideration of priority wildlife species during project-specific review.

Table 4-1. Alternative 1 No Action - Priority Habitats and Species Acreage within UGAs

	Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt
UGA Size (acres)	6,820	11,850	1,774	6,021	67,397	5,385	449
Priority Spec. Hab.	0	259	28	389	14,437	429	0
Non-riparian HCA*	57	1,192	28	244	1,659	152	0
Riparian HCA*	759	5,583	456	2,012	18,609	2,224	113
Total	816	7,034	512	2,645	34,705	2,805	113
% of UGA w/Priority Habitat and HCAs*	12%	59%	29%	44%	51%	52%	25%

*Habitat Conservation Area (HCA)

Table 4-2. Alternative 1 No Action - Stream Miles within UGAs

	Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt
Fish-Bearing	14.1	30.0	4.9	20.6	75.7	13.0	1.4
Non-Fish-Bearing	1.8	12.5	6.0	24.2	8.6	4.6	0.1
Total	15.9	42.5	10.9	44.8	84.3	17.6	1.5

Alternative 2 –Countywide Modifications

Changes in Zoning and Land Use Designations

Rural Areas

Reducing minimum lot sizes may allow for increased density of development, potentially leading to loss or fragmentation of habitat. Clark County's Legacy Lands Program managers have expressed concern about the conversion of agricultural and forest lands to development, particularly on smaller parcels near urban areas (Clark County, 2014a).

Some of the areas affected by this alternative are already at or below the minimum lot sizes that would be allowed under this alternative. Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development. As discussed in Chapter 6 Land Use, many of the lots in areas that would be affected by Alternative 2 are already at the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional habitat impacts with the proposed change in zoning. However, Alternative 2 could result in the creation of approximately 8,220 new developable lots, potentially affecting over 34,000 acres (Table 4-3). Developing these new lots could fragment remaining wildlife habitats and make them less useable for species that are sensitive to human disturbance. More common species that currently use rural, agricultural and forest resource areas are likely already accustomed to some level of human disturbance and may continue to use these areas. Construction of new houses, roads, and other facilities allowed by

zoning would likely increase impervious surface area, leading to an increase in stormwater runoff that could impact stream habitat. See Chapter 3, Water, for further discussion of the potential cumulative effects of development on aquatic resources.

Table 4-3. Number of Parcels Potentially Affected by Changes in Zoning – Alternative 2

Proposed Zoning Change	Potential New Parcels	Potential Acreage Affected
R20 to R10	5,823	5,823 parcels @ 10 acres each = 58,230 acres
Ag20 to Ag10	1,937	1,937 parcels @ 10 acres each = 19,370 acres
Fr40 to Fr20	460	460 parcels @ 20 acres each = 9,200 acres
Total	8,220	34,393 acres

Urban Growth Areas

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts are expected from this proposed change.

City of Ridgefield: Alternative 2 proposes to increase the UGA by approximately 156 acres. This would bring an additional 0.5 mile of stream and 28 acres of riparian habitats into the UGA (Tables 4-4 and 4-5). This includes short stream segments within the golf course and crossing under I-5. The riparian habitat that would be affected consists of buffer areas surrounding water features and streams on the Tri-Mountain Golf Course. The percentage of UGA lands occupied by mapped habitat areas would decrease slightly (44% to 43%). The proposal could have site specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would add increased impervious surface and increased activities, potentially making the area unsuitable for species such as waterfowl that may current use the golf course as a foraging or resting area. Impacts are localized and would be addressed during project review.

Table 4-4. Alternative 2 - Ridgefield UGA Priority Habitats and Species

	Ridgefield UGA		
	Existing	Alt 2	Change
Size of UGA (acres)	6,021	6,177	+156
Priority Habitat for Species	389	389	0
Non-riparian Habitat Conservation Areas	244	244	0
Riparian Habitat Conservation Areas	2,012	2,040	+28
Total	2,645	2,673	+28
% of UGA with priority habitat and HCAs	44%	43%	-1%

Table 4-5. Alternative 2 - Ridgefield UGA Stream Miles

	Ridgefield UGA		
	Existing	Alt 2	Change
Fish-Bearing	20.6	20.7	0.1
Non-Fish-Bearing	24.2	24.6	0.4
Total	44.8	45.3	0.5

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Such changes are site specific and could add increased impervious surface (affecting streams) and more intensive land uses (affecting local wildlife). Impacts are localized and would be addressed during project review.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Alternative 3 – City UGA Expansion

City of Battle Ground

Alternative 3 proposes expansion of the City of Battle Ground UGA by approximately 82 acres. This would bring an additional 18 acres of riparian habitats into the UGA (Table 4-6). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (12%).

This alternative would add 0.4 miles of stream to the Battle Ground UGA (Table 4-7). Most of this stream length is along Mill Creek, a fish-bearing stream. While portions of the affected area are already developed with rural land uses, fish and wildlife may experience negative effects from more intensive development within the UGA expansion area, such as habitat fragmentation, loss of native vegetation,

increased noise and lights, and increased stormwater runoff. These impacts would represent a small portion of the available wildlife habitat in the county but could be important for local wildlife populations. Impacts would be localized and addressed during project review.

Table 4-6. Alternative 3 Battle Ground UGA - Priority Habitats and Species Acreage

	Battle Ground UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	6,820	6,902	+81
Priority Habitat for Species	0	0	0
Non-riparian HCA	57	57	0
Riparian HCA	759	777	+18
Total	816	835	+18
% of UGA with Priority Habitat and HCAs	12%	12%	0

Table 4-7. Alternative 3 Battle Ground UGA Stream Miles

	Battle Ground UGA		
	Existing	Alt. 3	Change
Fish-Bearing Streams	14.1	14.5	0.4
Non-Fish-Bearing Streams	1.8	1.8	0
Total	15.9	16.3	0.4

City of La Center

Alternative 3 proposes expansion of the City of La Center UGA by approximately 78 acres. This would bring an additional 17 acres of riparian habitats into the UGA (Table 4-8). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (29%).

An additional 0.6 miles of stream would be included in the expanded UGA (Table 4-9). While part of the UGA expansion area is currently developed, most of the land consists of pasture and forested areas. Bringing this area into the UGA would allow more intensive development, with potential impacts similar to those for the Battle Ground UGA discussed above. Impacts would be localized and addressed during project review.

Table 4-8. Alternative 3 - La Center UGA Priority Habitats and Species Acreage

	La Center UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	1,774	1,853	+79
Priority Habitat for Species	28	28	0
Non-riparian Habitat Conservation Areas	28	28	0
Riparian Habitat Conservation Areas	456	473	+17
Total	512	529	+17
% of UGA with Priority Habitat and HCAs	29%	29%	0

Table 4-9. Alternative 3 - La Center UGA Stream Miles

	La Center UGA		
	Existing	Alt. 3	Change
Fish-Bearing Streams	4.9	5.0	0.1
Non-Fish-Bearing Streams	6.0	6.5	0.5
Total	10.9	11.5	0.6

City of Ridgefield

Alternative 3 proposes expansion of the City of Ridgefield UGA by 111 acres. This would bring an additional 21 acres of riparian habitats into the UGA (Table 4-10). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (44%).

Alternative 3 would bring 1 mile of additional fish-bearing stream (tributary to Allen Creek) into the UGA (Table 4-11).

Table 4-10. Alternative 3 – Ridgefield UGA Priority Habitats and Species Acreage

	Ridgefield UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	6,024	6,133	+107
Priority Habitat for Species	390	390	0
Non-riparian Habitat Conservation Areas	244	249	+5
Riparian Habitat Conservation Areas	2,016	2,037	+21
Total	2,650	2,676	+26
% of UGA with Priority Habitat and HCAs	44%	44%	0

Table 4-11. Alternative 3 – Ridgefield UGA Stream Miles

	Ridgefield UGA		
	Existing	Alt. 3	Change
Fish-Bearing Streams	16	17	+1
Non-Fish-Bearing Streams	24	24	0
Total	40	41	+1

City of Washougal

Alternative 3 proposes expansion of the City of Washougal UGA by 41 acres. Approximately 16 acres of riparian habitat area would be added to the UGA (Table 4-12). The percentage of UGA lands occupied by mapped habitat areas would remain approximately the same (51-52%).

Alternative 3 would add approximately 0.2 miles of stream to the UGA (Table 4-13).

Table 4-12. Alternative 3 – Washougal UGA Priority Habitats and Species Acreage

	Washougal UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	5,362	5,420	+58
Priority Habitat for Species	426	426	0
Non-riparian Habitat Conservation Areas	152	153	+1
Riparian Habitat Conservation Areas	2,198	2,214	+16
Total	2,776	2,793	+17
% of UGA with Priority Habitat and HCAs	52%	51%	-1%

Table 4-13. Alternative 3 – Washougal UGA Stream Miles

	Washougal UGA		
	Existing	Alt. 3	Change
Fish-Bearing Streams	7	7	0
Non-Fish-Bearing Streams	5	5.2	+0.2
Total	12	12.2	+0.2

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas. Compared to the other alternatives, Alternative 4 would allow the highest density of development outside of the UGAs in the county.

Reducing minimum lot sizes could allow for increased density of development, potentially leading to impacts on wildlife habitat. Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see Chapter 6).

Table 4-14. Number of Parcels Potentially Affected by Changes in Zoning – Alternative 4

Proposed Zoning Change	Number of Potential New Parcels	Potential Acreage Affected
Agriculture		
Ag20 to Ag10	1,780	1,780 parcels @ 10 acres each = 17,800 acres
Ag20 to Ag5	178	178 parcels @ 5 acres each = 890 acres
Subtotal Agriculture	1,958	18,690 acres
Rural		
R20/R10/R5 to R1	739	739 parcels @ 1 acre each = 739 acres
R20/R10/R5 to R2.5	3,019	3,019 parcels @ 2.5 acres each = 7,548 acres
R20/R10 to R5	6,122	6,122 parcels @ 5 acres each = 30,610 acres
Subtotal Rural	9,880	38,897
Forest Resource		
FR80	7	7 parcels @ 80 acres each = 560 acres
Fr80 to Fr40	30	30 parcels @ 40 acres each = 1,200 acres
Fr80/FR40 to Fr20	93	93 parcels @ 20 acres each = 1,860 acres
Fr80/FR40 to Fr10	433	433 parcels @ 10 acres each = 4,330 acres
Subtotal Forest	590	7,950
TOTAL	5,277	65,537 acres

Development of new lots under Alternative 4 would be subject to project-specific review and regulations intended to avoid and minimize impacts on wildlife. Nevertheless, some level of cumulative impact may occur. Developing these new lots could fragment remaining wildlife habitats and make them less useable for species that are sensitive to human disturbance. More common species that currently use rural, agricultural and forest resource areas are likely already accustomed to some level of human disturbance and may continue to use these areas. Construction of new houses, roads, and other facilities allowed by zoning would likely increase impervious surface area, leading to an increase in stormwater runoff that could impact stream habitat. See Chapter 3, Water, for further discussion of the potential cumulative effects of development on aquatic resources.

Overall, Alternative 4 could have a high level of impact on wildlife habitat if the parcels are built out to their full potential under the proposed zoning changes.

How do the potential impacts to habitat between the alternatives compare?

Table 4-15 provides a summary and comparison of the fish and wildlife habitat impacts of all the alternatives.

Table 4-15. Summary of Fish and Wildlife Habitat Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential for impacts. More intensive development allowed under current zoning could cumulatively affect fish and wildlife.	Second highest potential for impacts of all alternatives due to potential for more intensive development on over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts such as habitat fragmentation. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Moderate potential impacts. Potential localized impacts to habitat with UGA changes; could be mitigated during project-specific review.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could have cumulative impacts on wildlife habitat.

Are there adverse impacts to habitat that cannot be avoided?

Development projects that propose to impact fish and wildlife habitats are regulated by local critical areas codes. Impacts to streams also require approval under the state Hydraulic Code and federal Clean Water Act. These regulations require impacts to be avoided and minimized, and unavoidable impacts require compensatory mitigation. These measures help to ensure no net loss of habitat functions on an individual project scale. However, even when projects comply with regulations and provide mitigation, there may be a cumulative loss of habitat functions at a larger scale; for example, through fragmentation of habitat by development of new structures and roads.

4.1.6 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to habitat?

In addition to mitigation measures required by regulation for individual projects, the jurisdictions could provide incentive programs, education, and taxation policies that encourage the conservation and restoration of fish and wildlife habitats.

Clark County has incentive programs to protect wildlife habitat, such as current use taxation, along with acquisition programs such as Conservation Futures. The County’s 2014 Conservation Areas Acquisition Plan provides a vision for preserving and enhancing a countywide system of conservation lands, including greenways, habitat, farmland, and forest resource lands. The plan identifies specific project opportunities to pursue over the next six years, identifies high-value conservation lands, and highlights a variety of funding mechanisms (Clark County, 2014a).

Cities could establish a regional program to identify and protect priority habitat areas. This program could include transfer of development rights (TDR) for those cities that do not have such programs, purchase of the land using funds earmarked for that purpose, and property taxation that recognizes the restrictions on development.

The shoreline master programs adopted by Clark County and the cities in 2012 include a voluntary restoration program. Implementation of restoration projects identified in this plan could help to further restore fish and wildlife habitats, potentially at a larger scale by forming partnerships among jurisdictions, nonprofit organizations, and other entities.

Provisions for clustering under Alternatives 2 and 4 could help minimize the amount of habitat loss. Zoning code changes to allow lower minimum lot sizes under either Alternatives 2 or 4 could include requirements for cluster development when considering applications for subdivision. This mitigation measure could help reduce the effects of increased development on fish and wildlife habitat.

4.2 Threatened and Endangered Species

The Endangered Species Act (ESA) of 1973 provides the primary framework within which Clark County and its cities must work to address the conservation of federally listed threatened and endangered species. The County must comply with the ESA by ensuring that its policies, programs, and regulations do not result in harm to listed species, including harm to designated critical habitat. The following species listed by the federal government as threatened or endangered are known to occur in Clark County:

Plants

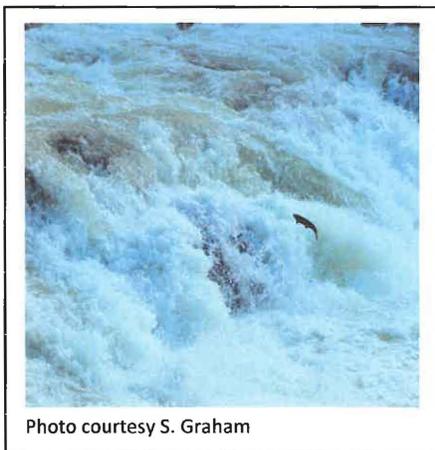
- Bradshaw’s desert parsley
- Golden paintbrush
- Water howellia

Fish

- Chum salmon
- Coho salmon
- Chinook salmon
- Steelhead
- Sockeye salmon
- Pacific eulachon
- Green sturgeon
- Bull trout

Wildlife

- Oregon spotted frog
- Northern spotted owl
- Streaked horned lark
- Yellow billed cuckoo
- Columbian white-tailed deer
- Gray wolf
- Fisher



Appendix B provides information about the status and habitat associations of these species.

Fish species are the most widely distributed of the listed species in Clark County (Figure 4-2). The Columbia River is a major migratory route for listed salmon and steelhead, both as adults and as smolts. The East Fork Lewis, North Fork Lewis, and Washougal Rivers support populations of listed species and have been specifically identified as key watersheds to support recovery in the *Lower Columbia River Salmon Recovery Fish and Wildlife Subbasin Plan*. Salmon Creek, Whipple Creek, Flume Creek, and other smaller tributaries all support populations of federally listed salmon, and these streams are important for

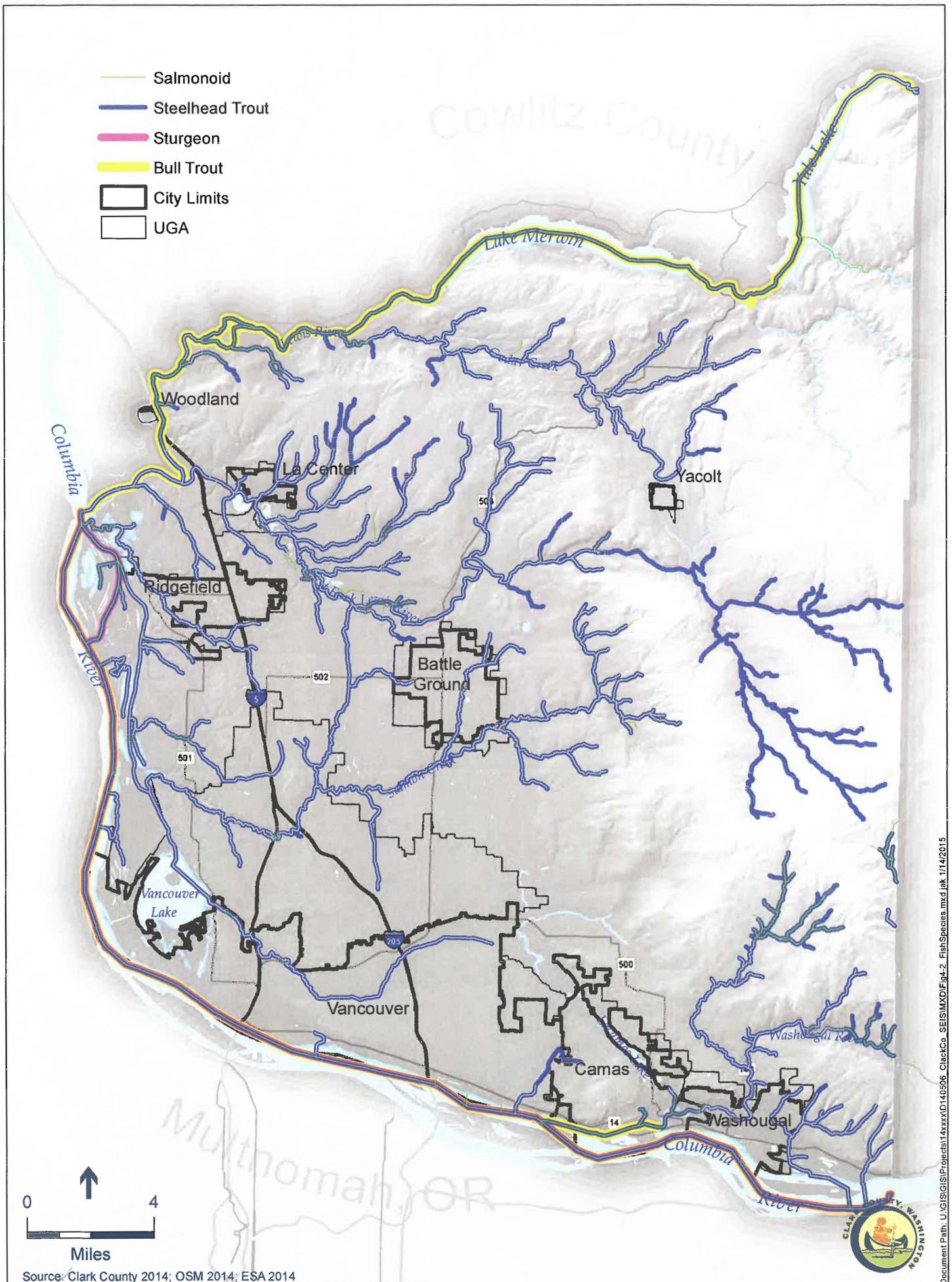


Figure 4-2: Threatened and Endangered Fish Species

stabilizing existing fish populations (Clark County, 2014a). The Columbia River and numerous streams in the county are designated as critical habitat for these species.

No critical habitat has been designated for federally listed plant or terrestrial wildlife species in Clark County. These species may still occur where suitable habitat is present (see Appendix B for habitat requirements). In addition, numerous species that may be found in Clark County have been designated by the federal government as Species of Concern; these are listed in Appendix B. Species of Concern are those that are in decline and potentially eligible as candidates for listing.

4.2.1 What has changed since 2007?

Since 2007 the federal government has listed or proposed to list several additional species under the Endangered Species Act: Pacific eulachon, Oregon spotted frog, streaked horned lark, yellow billed cuckoo, and fisher.

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal, and Yacolt). The updated ordinances provide additional review of activities affecting fish and wildlife habitats including habitats used by threatened and endangered species.

In addition, Clark County and most of its cities adopted updated SMPs in 2012 and 2013, and updated FEMA flood hazard areas were adopted into county code. Shorelines and floodplains are discussed further in Chapter 3, Water. Both shorelines and floodplain areas provide important habitat for listed species including salmonids.

4.2.2 Environmental Impacts

What methodology was used to analyze impacts to threatened and endangered species from each of the alternatives?

Potential impacts to threatened and endangered species are related to the spatial distribution of growth. Generally, growth patterns that convert more land to urban uses are more likely to result in the loss and fragmentation of habitat for these species. Growth patterns that promote more compact development within existing UGAs are more likely to preserve habitat, although more stress may be placed on terrestrial and aquatic habitat within urban areas as the level and intensity of development increase. To assess impacts to listed species, the project team used GIS mapping to identify known species locations and critical habitats located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses.

What are the impacts to threatened and endangered species from each alternative?

Alternative 1 – No Action Alternative

Alternative 1 would not expand UGAs or increase zoning densities. Growth and development over the next 20 years would primarily be accommodated within existing UGAs. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. Impacts to habitat for terrestrial listed species would be the same as identified in the 2007 FEIS.

Alternative 2 –Countywide Modifications

Rural Areas

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of habitat for listed species. Some of the areas affected by this alternative are already at or below the minimum lot sizes that would be allowed under this alternative. Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive development.

As discussed earlier in Section 4.2.2, Alternative 2 could allow the creation of approximately 8,200 lots, potentially affecting over 34,000 acres. As discussed in Chapter 3, Water, the parcels affected by this alternative are scattered across several drainage basins, all of which include streams that support listed fish species. Listed plant and wildlife species may also occur in the areas proposed for changes in zoning, although their occurrence is likely to be limited to specific types of habitat (e.g., prairies) and in rural areas that provide specific habitat structures (e.g., mature forest). Numerous regulations are in place to protect federally listed species. However, cumulative impacts to habitat are possible given the amount of land that could be affected with more intensive development in currently rural areas. Over time, development on individual lots could fragment habitats and make them less suitable for sensitive species.

Urban Growth Areas

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts are expected from this proposed change.

City of Ridgefield: The stream segments affected by the proposed UGA expansion are not known to support listed fish species (WDFW, 2014b). The UGA expansion area is occupied by a golf course and I-5, and it is unlikely to provide habitat for listed terrestrial species. The proposal could have site-specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would add increased impervious surface and intensity. Impacts are localized and would be mitigated during project review.



City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Listed fish species could be indirectly affected by increased surface runoff; these changes would be localized and addressed during project review.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Alternative 3 – City UGA Expansion

City of Battle Ground

The proposed expansion of the City of Battle Ground UGA by approximately 82 acres would add 0.4 miles of stream to the city limits, including Mill Creek which is known to support listed fish species (WDFW, 2014b). More intensive development of the UGA expansion area could have negative impacts if there is an increase in stormwater runoff that adds pollutants or changes the flow regime in the stream, or if riparian vegetation is removed. Proposed projects would be reviewed and impacts addressed through the permitting process.

City of La Center

Alternative 3 proposes expansion of the City of La Center UGA by approximately 78 acres, adding 0.6 miles of stream to the city limits including McCormick Creek which supports listed fish species (WDFW, 2014b). Potential impacts would be similar to those for the City of Battle Ground UGA expansion under this alternative.

City of Ridgefield

Alternative 3 would add 1 mile of stream to the city limits with the proposed addition of 111 acres to the UGA. The stream is a fish-bearing tributary to Allen Creek that is mapped as supporting listed fish species (WDFW, 2014b). Potential impacts would be similar to those for the City of Battle Ground UGA expansion under this alternative.

City of Washougal

Alternative 3 would add 0.2 miles of stream with the proposed 41-acre Washougal UGA addition. This stream (a tributary of the Washougal River) supports listed fish species immediately downstream of the UGA expansion area (WDFW, 2014b).

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas. Compared to Alternative 2, Alternative 4 would allow a higher density of development outside of the UGAs in the county than would occur with the 2007 Comprehensive Plan.

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of habitat for listed species. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see Chapter 6). Habitat impacts are more likely to occur when larger parcels are upzoned to allow for more intensive

development. As discussed in Chapter 3, Water, the parcels affected by this alternative are scattered across several drainage basins, all of which include streams that support listed fish species. Listed plant and wildlife species may also occur in the areas proposed for changes in zoning, although their occurrence is likely to be limited to specific types of habitat (e.g., prairies) and in rural areas that provide specific habitat structures (e.g., mature forest). Numerous regulations are in place to protect federally listed species. However, cumulative impacts to habitat are possible given the amount of land that could be affected with more intensive development in currently rural areas. Over time, development on individual lots could fragment habitats and make them less suitable for sensitive species.

How do the potential impacts to threatened and endangered species between the alternatives compare?

Table 4-16 provides a summary and comparison of the potential impacts of the alternatives on listed species.

Table 4-16. Summary of Listed Species Impacts by Alternative

Alternative 1 -No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential impacts. More intensive development throughout the county could affect listed fish.	Second highest potential for impacts of all alternatives due to potential for more intensive development on over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts such as habitat fragmentation. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Moderate potential impacts. Potential localized impacts to listed fish species with UGA changes; could be mitigated during project-specific review.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could contribute to cumulative impacts such as habitat fragmentation.

Are there adverse impacts to threatened and endangered species that cannot be avoided?

Habitats for listed species are protected by both local critical areas regulations and the federal Endangered Species Act. Activities affecting habitat for listed fish species are also regulated by the state Hydraulic Code and the federal Clean Water Act. These measures help to ensure no net loss of habitat functions on an individual project scale. However, even when individual projects comply with regulations and provide mitigation, there may be a cumulative loss of habitat functions at a larger scale; for example, through fragmentation of habitat by development of new structures and roads.

4.2.3 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to threatened and endangered species?

The measures described in Section 4.1 for fish and wildlife habitat would also benefit listed species.

Restoration projects identified by the Lower Columbia Fish Recovery Board could also serve as a template for mitigating cumulative impacts to listed fish species. The Recovery Board includes Clark County and four neighboring counties. They have emphasized the need to acquire, restore, and enhance aquatic, riparian and associated uplands habitat as part of region-wide efforts to recover federally listed salmon populations. Several government agencies, non-profits, and tribes have been working together to implement projects on the East Fork Lewis, Washougal, and North Fork Lewis Rivers (Clark County, 2014a).

4.3 Migratory Species

Clark County and the Lower Columbia River are located within an extensive bird migration route known as the Pacific Flyway that extends from the Bering Sea in Alaska along the Pacific Seaboard to South America. In addition, the wetlands and floodplains associated with the Columbia River, lower East Fork Lewis, and other tributaries are a key part of an area known as the Lower Columbia region, which extends downstream from Bonneville Dam to the Pacific Ocean. The Lower Columbia's floodplain and wetland areas are highly important for migrating and wintering waterfowl, neotropical migrant birds, and shorebirds. The USFWS has compiled a list of migratory bird species of concern in Clark County (Appendix B). This provides a sampling of the many bird species that pass through the county each year.

The county provides locally important migration corridors for terrestrial wildlife. These migration routes may include areas that are necessary for long-term shifts in wildlife species distributions, or that are used to facilitate movement to and from breeding habitats or summer and winter ranges. Examples include travel corridors that are used by frogs and salamanders moving to and from seasonal wetlands for breeding, as well as habitats used by elk moving between their summer and winter ranges. It is important to maintain interconnected systems of habitat and open space lands, particularly river and stream corridors, in order to enhance seasonal migrations and the general movement of wildlife populations.

Migratory fish species (salmon and steelhead) are discussed in Section 4.1. The following section focuses on migratory birds and other wildlife.

Habitats for some migratory species are protected by local critical areas regulations; for example, locally important waterfowl or shorebird concentration areas, or elk winter range. Migratory birds are specifically protected under the federal Migratory Bird Treaty Act. The Endangered Species Act regulates activities affecting migratory fish and wildlife species that are federally listed. Finally, the federal Bald and Golden Eagle Protection Act covers bald eagles.

What has changed since 2007?

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal and Yacolt). In addition, Clark County and most of its cities adopted updated Shoreline Master Programs in 2012 and 2013. These updates provide for additional review of activities affecting habitats that may be used by migratory species,

particularly those associated with rivers, streams, wetlands, and floodplains. Shorelines and floodplains are discussed further in Chapter 3, Water.

4.3.1 Environmental Impacts

What methodology was used to analyze impacts to migratory species from each of the alternatives?

Potential impacts to migratory species are related to the spatial distribution of growth. Generally, growth patterns that convert more land to urban uses are more likely to result in the loss and fragmentation of habitat for these species. Growth patterns that promote more compact development within existing UGAs are more likely to preserve this habitat, although more stress may be placed on terrestrial and aquatic habitat within urban areas as the level and intensity of development increase. To assess impacts, the project team used GIS mapping to identify habitats for migratory species located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses.

What are the impacts to migratory species from each alternative?

Alternative 1 – No Action Alternative

Alternative 1 would not expand UGAs or increase zoning densities. Concentrating growth and development within existing UGAs would preserve agricultural and open space lands that may provide migratory habitat for birds and other wildlife. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. Wildlife species that use connected riparian corridors or greenways as part of migration routes could be indirectly affected by more intensive development; for example through increased noise, light, and disturbance. Impacts to migratory species from Alternative 1 would be the same as described in the 2007 FEIS.

Alternative 2 –Rural Urban Adjustments

Proposed Rural Lands Changes

Reducing minimum lot sizes may allow for increased density of development in rural areas. Important large migratory areas such as those in the national wildlife refuges would not be affected. However, rural areas that are used by migratory species for foraging or resting could have increased human disturbance and may become less suitable over time.

Proposed UGA Modifications

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts to habitat are expected from this proposed change.

City of Ridgefield: Alternative 2 proposes a UGA expansion of approximately 156 acres to encompass the Tri-Mountain golf course and a narrow strip along I-5. While this area is not mapped as priority

habitat, the golf course may be used to a limited extent by migratory species such as waterfowl and neotropical songbirds, particularly on and near golf course ponds and streams. The proposal could have site specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would increase land use intensity and could remove habitat that these species use as part of larger foraging or resting areas.

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Such changes are site specific and could have localized effects on habitat for migratory species.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Alternative 3 – City Expansion

Alternative 3 proposes expansion of the UGAs for Battle Ground, La Center, Ridgefield, and Washougal. While portions of the affected areas are already developed, remaining undeveloped areas such as pastures and riparian forest may be used by migratory species such as waterfowl and neotropical songbirds. Development of these areas would represent an incremental loss of foraging and resting habitat for these species.

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas. Compared to Alternative 2, Alternative 4 would allow a higher density of development outside of the UGAs in the county than would occur with the 2007 Comprehensive Plan.

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of habitat for migratory species. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see in Chapter 6).

Reducing minimum lot sizes may allow for increased density of development in rural areas. Important large migratory areas such as those in the national wildlife refuges would not be affected. However, rural, agricultural, and forest areas that are used by migratory species for foraging or resting could have increased human disturbance and may become less suitable over time.

How do the potential impacts to migratory species between the alternatives compare?

Table 4-17 summarizes the impacts of the alternatives on habitat for migratory wildlife species.

Table 4-17. Summary of Migratory Wildlife Habitat Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential impacts of all alternatives. More intensive development could have localized effects on migratory corridors such as greenbelts. Regulations and mitigation requirements would minimize impacts.	Second highest potential for impacts of all alternatives due to potential for more intensive development on over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts such as habitat fragmentation. Potential localized impacts to migratory habitat with UGA changes.	Moderate potential impacts. Potential localized impacts to migratory species habitat with UGA changes.	Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could contribute to cumulative impacts on habitat for migratory species.

Are there adverse impacts to migratory species that cannot be avoided?

Development projects that propose to impact fish and wildlife habitats are regulated by local critical areas codes. These regulations require impacts to be avoided and minimized, and unavoidable impacts require compensatory mitigation. These measures help to ensure no net loss of habitat functions on an individual project scale. However, even when projects comply with regulations and provide mitigation, there may be a cumulative loss of habitat functions at a larger scale; for example, through fragmentation of habitat and increased human disturbance. In addition, migratory species may seasonally use areas that are not specifically regulated by code and are therefore more likely subject to development pressures.

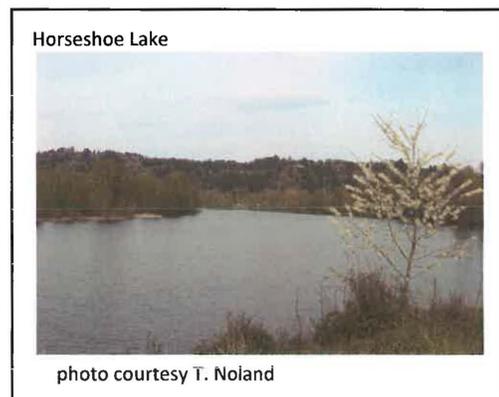
4.3.2 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to migratory species?

The measures described in Section 4.1 for fish and wildlife habitat would also benefit migratory species.

4.4 Wetlands

Figure 4-3 shows mapped wetlands throughout the county. Activities that alter wetlands are subject to regulation by local jurisdictions, the state Department of Ecology, and the U.S. Army Corps of Engineers. Wetland buffers are required under local critical areas codes.



What has changed since 2007?

Since publication of the Final EIS in 2007, several jurisdictions have adopted updated critical areas ordinances (the Cities of Camas, La Center, Ridgefield, Washougal and Yacolt). The updated ordinances

incorporate best available science for wetlands as required by GMA, for example by adopting the Washington Department of Ecology wetland rating system and buffer widths that reflect both wetland functions and the intensity of proposed land uses.

In addition, Clark County and most of its cities adopted updated Shoreline Master Programs in 2012 and 2013. The SMPs include policies and regulations to protect the functions of wetlands within shoreline jurisdiction, as well as voluntary restoration plans to improve degraded ecosystem functions. Also, FEMA updated the areas of special flood hazard and these were adopted into Clark County code. The shorelines and floodplains are discussed further in Chapter 3, Water.

4.4.1 Environmental Impacts

What methodology was used to analyze impacts to wetlands from each of the alternatives?

Impacts to wetlands are related to the spatial distribution of growth. Generally, growth patterns that convert more land to urban uses are more likely to result in the filling or draining of wetlands, or removal of vegetation from wetland buffers. Growth patterns that promote more compact development within existing UGAs are more likely to preserve this habitat, although more stress may be placed on wetlands within urban areas as the level and intensity of development increase. To assess impacts to wetlands, the project team used GIS mapping to identify priority habitats and species located within the expanded UGAs for each alternative, and within areas where changes in zoning would allow more intensive land uses.

What are the impacts to wetlands from each alternative?

Alternative 1 – No Action

Alternative 1 would not expand UGAs or increase zoning densities. Confining growth and development within existing UGAs would protect rural wetlands but may increase development pressure on wetlands inside of urban areas. However, the rural areas could accommodate some of the projected growth under the current zoning. As discussed in Section 1.2.1, approximately 7,000 new lots could be created under full build-out conditions. All of the existing UGAs contain wetlands (Table 4-18), and there are wetlands throughout the rural county areas. More intensive development could increase stormwater runoff, disturb wetland wildlife, and alter buffer vegetation around urban wetlands.

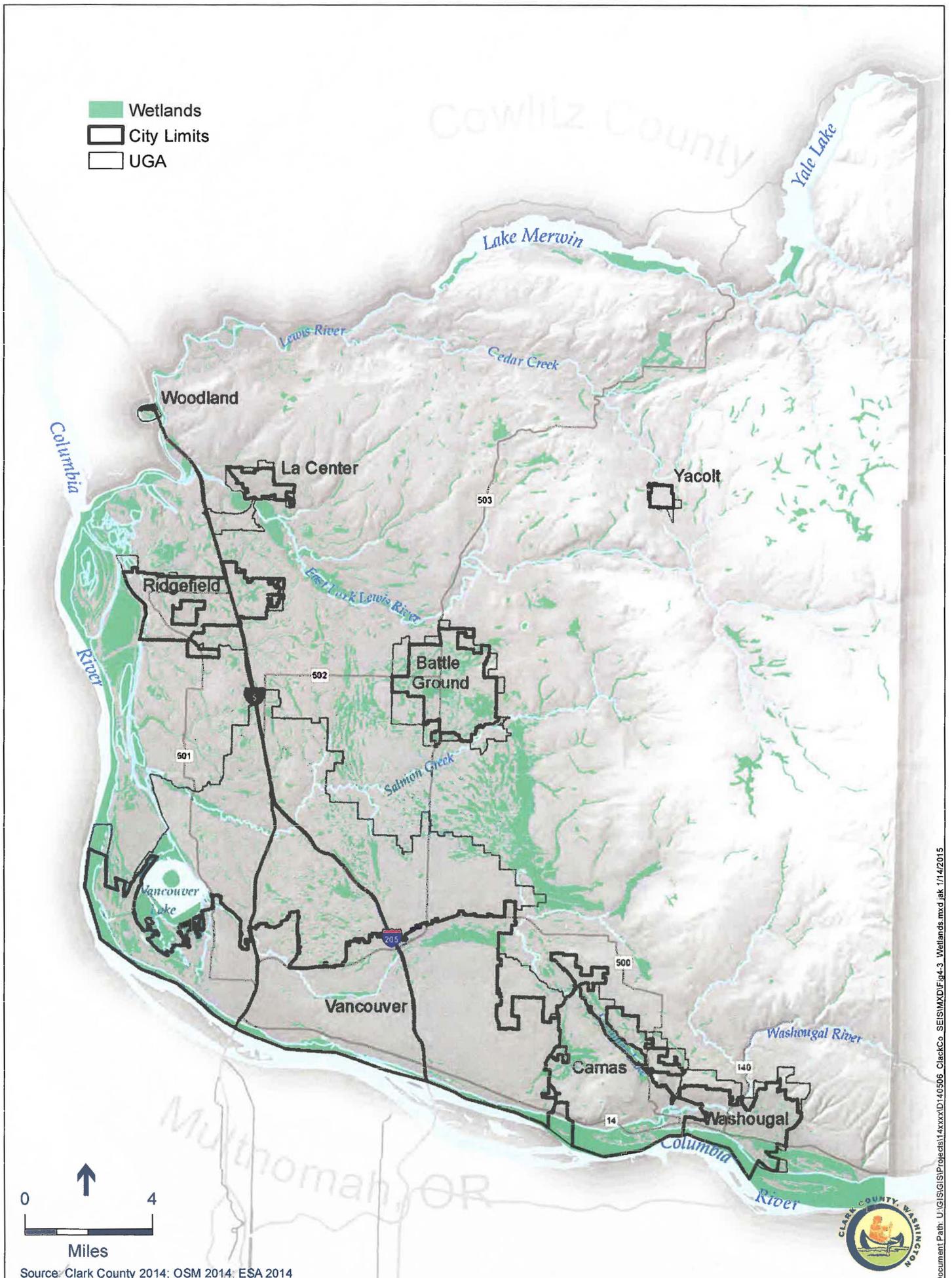


Figure 4-3: Clark County Mapped Wetlands

Table 4-18. Alternative 1 - Wetland Acreage within UGAs

	Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt
UGA Size (acres)	6,820	11,850	1,774	6,021	67,397	5,385	449
Mapped Wetlands	1,616	2,946	69	673	9,510	1,054	10
% of UGA with Mapped Wetlands	24%	25%	4%	11%	14%	20%	2%

Alternative 2 –Countywide Modifications

Proposed Rural Lands Changes

As discussed in Section 4.2.2, many of the lots in areas that would be affected by Alternative 2 are already at the minimum size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional wetland impacts with the proposed change in zoning. However, Alternative 2 would allow the creation of approximately 8,200 new lots with the potential for additional development, potentially affecting over 34,000 acres.

Activities affecting wetlands and wetland buffers are regulated, but impacts could still occur with development on these parcels. For example, County code provides exemptions for certain small-scale alterations such as placement of fences and utilities in buffers. Exempt activities, while individually small, can contribute to cumulative impacts on wetland functions over time. With conversion of vegetated areas to impervious surfaces such as roads and buildings, increased stormwater runoff can affect wetland hydrology.

Proposed UGA Modifications

City of Battle Ground: Alternative 2 proposes to change the current land use designations to be consistent with how properties are being used and to reduce the potential for an incompatible land use to locate in the midst of residential use in the future. No impacts are expected from this proposed change.

City of Ridgefield: Alternative 2 proposes a UGA expansion of approximately 156 acres. This would bring an additional 45 acres of wetlands located within the Tri-Mountain Golf Course into the City's UGA (Table 4-19). The percentage of UGA lands occupied by mapped wetlands would increase by approximately 1%. The proposal could have site specific impacts when urban holding is lifted, which would allow development for industrial or office use. Such development would add increased impervious surface and intensity. Impacts are localized and would be mitigated during project review.

City of Vancouver: Alternative 2 proposes to change approximately 1,100 acres of zoning in the Discovery/Fairgrounds Subarea Plan from Light Industrial to Office Campus or Business Park uses, and to change approximately 465 acres of zoning in the Salmon Creek/University District Subarea Plan from urban low density to accommodate more mixed-uses and higher density residential uses. Such changes

are site specific and could add increased impervious surface and intensity. Impacts are localized and would be mitigated during project review.

City of Washougal: Alternative 2 proposes to correct an inconsistency between County and City zoning classifications within the southern portion of the Washougal Urban Growth Area. No impacts are expected.

Table 4-19. Alternative 2 Countywide Modifications - Wetland Acreage in Ridgefield UGA

	Ridgefield UGA		
	Existing	Alt. 2	Change
Size of UGA (acres)	6,021	6,177	+156
Mapped Wetlands	673	718	+45
% of UGA with Mapped Wetlands	11%	12%	+1%

Alternative 3 – City UGA Expansion

City of Battle Ground

Alternative 3 proposes expansion of the City of Battle Ground UGA by approximately 82 acres. This would bring an additional 29 acres of wetlands into the City’s UGA (Table 4-20). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (24%). More intensive development could increase stormwater runoff, disturb wetland wildlife, and alter buffer vegetation around these wetlands. While they represent a small percentage of the overall wetland area in Clark County, the mapped wetlands in the UGA expansion area may still be important for local water quality improvement, flood control, and wildlife habitat. Impacts would be addressed during permit review.

Table 4-20. Alternative 3 - Wetland Acreage in Battle Ground UGA

	Battle Ground UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	6,820	6,902	+81
Mapped Wetlands	1,616	1,645	+29
% of UGA with Mapped Wetlands	24%	24%	0

City of La Center

Alternative 3 proposes expansion of the City of La Center UGA by approximately 78 acres. This would bring an additional 4 acres of wetlands into the City’s UGA (Table 4-21). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (4%). Potential impacts on wetlands resulting from UGA expansion would be similar to those for Battle Ground under this alternative.

Table 4-21. Alternative 3 - Wetland Acreage in La Center UGA,

	La Center UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	1,774	1853	+79
Mapped Wetlands	69	73	+4
% of UGA with Mapped Wetlands	4%	4%	0

City of Ridgefield

Alternative 3 proposes expansion of the City of Ridgefield UGA by approximately 111 acres. This would bring an additional 2 acres of wetlands into the City’s UGA (Table 4-22). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (11%). Potential impacts on wetlands resulting from UGA expansion would be similar to those for Battle Ground under this alternative.

Table 4-22. Wetland Acreage in Ridgefield UGA

	Ridgefield UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	6,024	6,133	109
Mapped Wetlands	677	679	+2
% of UGA with Mapped Wetlands	11%	11%	0

City of Washougal

Alternative 3 proposes expansion of the City of Washougal UGA by approximately 41 acres. This would bring an additional 17 acres of wetlands into the City’s UGA (Table 4-23). The percentage of UGA area occupied by mapped wetlands would remain essentially the same (19%). Potential impacts on wetlands resulting from UGA expansion would be similar to those for Battle Ground under this alternative.

Table 4-23. Wetland Acreage in Washougal UGA

	Washougal UGA		
	Existing	Alt. 3	Change
Size of UGA (acres)	5,362	5,420	+58
Mapped Wetlands	1,033	1,050	+17
% of UGA with Mapped Wetlands	19%	19%	0

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture

uses and provide additional economic opportunities in the rural areas. Compared to Alternative 2, Alternative 4 would allow a higher density of development outside of the UGAs in the county than would occur with the 2007 Comprehensive Plan.

Reducing minimum lot sizes may allow for increased density of development in rural areas, potentially leading to loss or fragmentation of wetlands. Some of the lots in areas that would be affected by Alternative 4 are already at or below the minimum lot size that would be allowed. These smaller lots would not be subject to subdivision and are unlikely to experience additional impacts with the proposed change in zoning. However, as shown in Table 4-14, Alternative 4 could allow the creation of approximately 12,400 new lots with the potential for additional development, potentially affecting over 65,500 acres spread across most of the drainage basins in the county (see Chapter 6).

Activities affecting wetlands and wetland buffers are regulated, but impacts could still occur with development on these parcels. For example, County code provides exemptions for certain small-scale alterations such as placement of fences and utilities in buffers. Exempt activities, while individually small, can contribute to cumulative impacts on wetland functions over time. With conversion of vegetated areas to impervious surfaces such as roads and buildings, increased stormwater runoff can affect wetland hydrology.

How do the potential impacts to wetlands between the alternatives compare?

Table 4-24 summarizes the wetland impacts of the alternatives.

Table 4-24. Summary of Wetland Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
<p>Moderate potential impacts. More intensive development under current zoning could affect wetlands, but regulations and mitigation requirements would minimize impacts.</p>	<p>Second highest potential for impacts of all alternatives due to potential for more intensive development of over 34,000 acres. Individual projects on upzoned parcels could have individually small but cumulatively moderate impacts to wetlands and buffers. Potential localized impacts with UGA changes; could be mitigated during project-specific review.</p>	<p>Moderate potential impacts. Potential localized impacts to wetlands with UGA changes; could be mitigated during project-specific review.</p>	<p>Highest potential for impacts of all alternatives due to potential for more intensive development on 65,500 acres. Individual projects on upzoned parcels could contribute to cumulative impacts on wetlands and buffers.</p>

Are there adverse impacts to wetlands that cannot be avoided?

Development projects that propose to impact wetlands or wetland buffers are regulated by local critical areas codes. These regulations require impacts to be avoided and minimized, and unavoidable impacts require compensatory mitigation. These measures help to ensure no net loss of wetland functions on an individual project scale. However, even when projects comply with regulations and provide mitigation, there may be a cumulative loss of wetland functions at a larger scale; for example, changes in

stormwater runoff that alter wetland hydrology. Even when protected in native growth areas, wetlands and their buffers are often subject to increased disturbance, illicit dumping, and other effects of adjacent developments.

4.4.2 Mitigation

Are there mitigation measures beyond regulations that reduce the potential for impacts to wetlands?

The measures described in Section 4.1 for fish and wildlife habitat would also benefit wetlands.

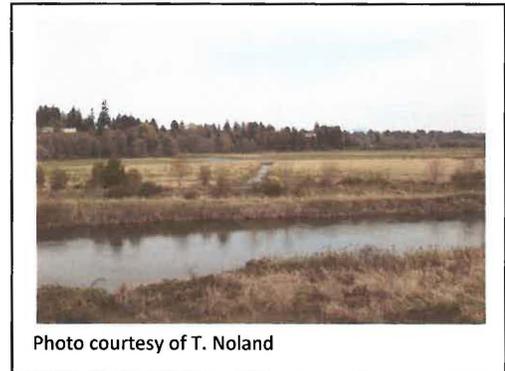
5.0 Energy & Natural Resources

The demand for energy and natural resources will increase in Clark County as growth occurs. Because scenic resources are often associated with natural resource areas, scenic resources are also considered in this chapter. Given the geographic size and economy of the region, the pattern with which that growth is accommodated has less to do with consumption of resources than overall growth. Since most providers of energy and natural resource industries are private, and the export and import of these resources has a large influence on the disposition of these resources, this chapter will focus discussion around consumption and conservation, including conservation of scenic resources, rather than production (Clark County, 2006).

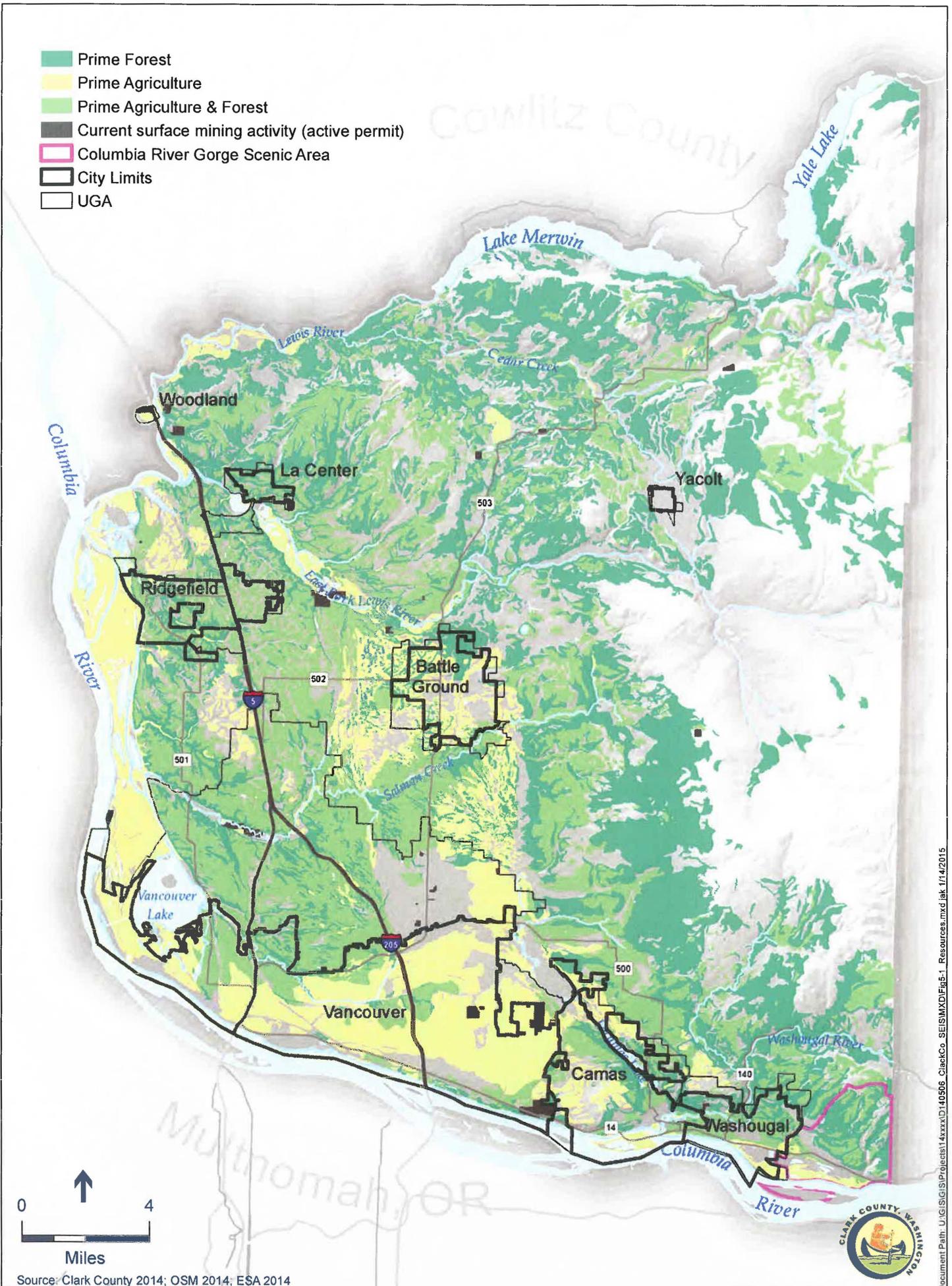
Different land use patterns and transportation options in the various alternatives will affect the total miles traveled and consequently, the amount of fuel used for commuting and other travel and will also affect the resources consumed for development. The densities implied by the four alternatives would result in different consumption patterns.

5.1 Setting

Clark County is located along the western flank of the Cascade mountain range primarily within what is known as the lowlands of the Willamette-Puget Trough which sits between the Cascade Range to the east and the Coastal Range to the west. The general topography is characterized by upland foothill areas to the east that slope down toward the south and west in several plateaus toward the Columbia River. While these natural features provide resources for industry, with the exception of surface mining areas, they are an integral part of what is often considered a scenic resource. The terrain is usually gently rolling hills with a variety of farmland, rural and estate farms, forested areas, mountain peaks, gravel mine operations and river bottomlands. Policies and regulations have been developed to ensure the conservation of agricultural, forest, and mineral resource lands, and to protect these lands from interference by adjacent uses which can affect the continued use of these lands for production of food, agricultural products, timber, or the extraction of minerals.



Surface waters, vegetation, and topographic variations are natural features that are often elements of scenic resources. The county is also located on the western edge of the Columbia River Gorge National Scenic Area, designated by the US Congress in 1986 in recognition of the unique natural beauty of the area. The Evergreen Highway (between Vancouver and Camas) and Lucia Falls Road (near the Town of Yacolt) are designated scenic routes by County code. The Columbia River Lowlands encompass a large area, extending from the Vancouver Lake area north to the Ridgefield National Wildlife Refuge. The Steigerwald National Refuge protects a large area of lowlands in the southeastern part of the county. Scenic resources can also include elements of the built environment, such as views and panoramas of city landscapes, bridges, and dams. See Figure 5-1 for a compilation of the more significant resource areas.



Source: Clark County 2014; OSM 2014; ESA 2014

Document Path: U:\GIS\GIS\Projects\14xxxx\140506_ClarckCo_SEISM\XD\Fig5-1_Resources.mxd lak 1/14/2015

Figure 5-1: Natural Resources

5.1.1 What has changed since 2007?

Over the last hundred plus years the lowlands have been changed by human activities and intervention. The construction of dams and dikes and the introduction of plant, animal, and fish species have dramatically altered the natural environment. Over the past seven years, population and economic growth was hindered by events of the 2008 Great Recession so little has changed with regard to energy, natural and scenic resources as described in the 2007 Comprehensive Plan EIS. The County embarked on a rural land study which has led to a proposal to reduce lot sizes in the Rural, Agriculture, and Forest zones in this 2016 Comprehensive Plan Update. In 2014, the County adopted revisions to surface mining mapping and regulations to comply with new state guidelines.

5.2 Environmental Impacts

5.2.1 What methodology was used to analyze impacts to natural resources from each of the alternatives?

Assessing impacts on specific resources from programmatic actions is a challenge due to the fact that project specific development patterns are unknown. Most land subject to development review is not governed by design standards that can protect natural and scenic resources, nor are regulations in place to reduce energy consumption. Impacts to these resources are usually considered negative as it usually involves conversion of these open and pervious landscapes to ones that cover the landscape (e.g., conversion of an orchard to a residential subdivision). This section considers how the growth patterns of the alternatives may impact energy usage and natural and scenic resource areas.

5.2.2 What are the impacts to energy, natural and scenic resources from each alternative?

As described in the 2007 Comprehensive Plan EIS, most of the impacts on energy and natural resources would result from the population and employment growth, and not necessarily the way in which that growth is accommodated. That said, it is generally recognized that the more compact the urban form, the greater the efficiencies that can be gained in serving that form with urban services such as energy distribution, and reducing fragmentation, deterioration, and loss of natural features. For example, more dense development requires fewer street lights than suburban densities. Low density land use patterns generally have higher impacts associated with transportation fuel costs compared to more dense development which better support alternative transportation modes. Efficient land uses and cost-effective provision of services can often have energy conservation as a benefit.



Photo courtesy of T. Noland

The demand for electricity, natural gas, and other natural resources will increase in Clark County and other parts of the region as the economy revives and growth in population and jobs occurs. The cost of supplying these services can vary depending on the land use pattern of that growth but most of the increase in consumption would occur with growth in general.

Since population and employment growth is the same for all alternatives there would be little difference in energy usage for non-transportation-related activities. Alternatives 2 and 4 would likely have greater effects on transportation fuel consumption because of the potential for an increased number of new

parcels in the resource zones. However with those new parcels there is optimism that resource production will be actualized. Fossil fuel consumption has an impact on air quality, the impacts on the environment from transportation energy use are contained in the Climate section of the 2007 Comprehensive Plan EIS.

No changes to UGAs under either Alternative 2 or Alternative 3 would directly impact the Columbia River Gorge National Scenic Area, the Columbia River shoreline, the Vancouver Lake Lowlands, the Steigerwald Refuge, or the Ridgefield Wildlife Refuge, all areas with recognized scenic values.

Alternative 1 – No Action Alternative

No new impacts not otherwise discussed in the 2007 FEIS are anticipated. Alternative 1 would not involve the expansion of any UGAs. Urban growth and development over the next 20 years would occur primarily within existing UGAs on land already targeted for urban development. However, the current zoning does allow for some growth in the rural county areas. Approximately 7,000 new lots could be created under full build-out conditions of Alternative 1. Projects would be subject to review for compliance with policies and regulations that protect critical areas such as habitats, and parks and open space. Projects would also continue to be assessed for their impact on natural and scenic resources under the SEPA process. To the extent that Alternative 1 encourages redevelopment and revitalization of existing urban areas, it could have a positive impact on urban visual resources. However, more intense development within the rural areas allowed under the current zoning could cumulatively contribute to overall degradation of energy, natural and scenic resources throughout the county by increasing the demand for power and replacing natural landscapes with development.

Alternative 2 – Countywide Modifications

Of the four alternatives, Alternative 2 has the second most potential to affect energy, natural and scenic resources. The majority of changes proposed under this alternative are technical fixes to correct map inconsistencies, and a reduction in the number of comprehensive land use designations. There are minor adjustments within the UGAs of all the cities (except Camas and Yacolt). The largest of these is a 156-acre expansion of Ridgefield's UGA. The Urban Holding Overlay indicates a potential that this open space could be converted to industrial and office uses.

The other aspect of this alternative is the proposed reduction in minimum lot area for resource lands, which has the potential to create approximately 8,200 new parcels. This could affect the scenic rural views in these areas by replacing natural landscapes with development. This amount of new development would create a need for expanded infrastructure in all areas of the county. As shown in Figure 1-2b, the parcels that could potentially be affected by this change are spread all over the county. A portion of the potential development would occur where at least some infrastructure currently exists; however, a majority of the potential new development would require new roads, longer commutes, and ultimately the use of more transportation fuels and other natural resources. Full development under this alternative, along with construction of infrastructure and production of natural resources, would not happen quickly, but incrementally over the planning period. In addition, individual projects would be required to undergo additional environmental analysis under SEPA. Alternative 2 would not likely have significant impacts on energy use and natural resource production.

Alternative 3 – City Expansion

This proposal has the potential to extend urban characteristics of La Center at I-5 to the north with expansion of the UGA for additional commercial development. Views of this area from the Interstate would be altered with the conversion of 61 acres (56 parcel acres and 5 ROW acres) of farmland/open

space to commercial, as well as 17 acres along the north La Center boundary for a new elementary school. Alternative 3 would expand Battle Ground's western UGA with the potential of converting existing rural densities to mixed use development on 82 acres. Another UGA expansion under Alternative 3 includes adding 111 acres on the north side of the City of Ridgefield, near I-5. This additional area would be converted from agriculture to residential uses. And finally, this alternative would add approximately 41 acres to the City of Washougal UGA for residential development.

All of the proposed UGA expansions under Alternative 3 would include more intensive development at full build-out than currently exists, resulting in increased demand for natural resources such as timber, natural gas, and electricity. However, concentrating new development within the UGAs helps to minimize the increased demand for transportation fuels. The conversion of rural areas to more intensive development could change the scenic character of these areas. The UGA's are areas planned for future development, so these conversions would not be considered significant.

Alternative 4 – Rural, Agriculture, and Forest Changes

This alternative would have the greatest potential to affect energy, natural, and scenic resources due to the amount of development that could occur with the proposed reduction in minimum lot sizes. Although the changes proposed would correct map inconsistencies and reduce the number comprehensive land use designations, it would also create the potential for development of approximately 12,400 new lots. This amount of development could change the character of the landscape by bringing development to the natural landscapes that are considered a scenic resource in Clark County. If fully developed under Alternative 4, this amount of wide-spread development would constitute a significant impact to the landscape character of the County.

As with Alternative 2, this amount of new development would create the need for expanded infrastructure in all areas of the county, as shown in Figure 1-4b. A portion of the potential development would occur where at least some infrastructure currently exists; however, a majority of the potential new development would require new roads, longer commutes, and ultimately the use of more transportation fuels and other natural resources. Full development under this alternative, along with construction of infrastructure and production of natural resources, would not happen quickly, but incrementally over the planning period. In addition, individual projects would be required to undergo additional environmental analysis under SEPA. Alternative 4 would not likely have significant impacts on energy use and natural resource production.



Photo courtesy of S. Graham

5.2.3 How do the potential impacts between the alternatives compare?

With the potential to increase residential development in the rural area by approximately 5,300 new units, Alternative 4 is the most likely to affect rural views and increase consumption of energy and natural resources than the other alternatives, which encourage more development within and near existing urban areas. As described in the 2007 Comprehensive Plan EIS, the more compact the urban form, the greater the efficiencies that can be gained in serving that form with energy resources. Alternative 3 would enable the most energy conservation than the other alternatives because new urban development would be concentrated within the UGAs.

Table 5-1 summarizes the energy and natural resources impacts of the alternatives.

Table 5-1. Summary of Energy and Natural Resources Impacts by Alternative

Alternative 1 - No Action	Alternative 2 - Countywide Modifications	Alternative 3 - City UGA Expansion	Alternative 4 - Rural, Agriculture, and Forest Changes
Moderate potential for impacts. More intensive development under the current zoning could affect scenic and natural resources, but regulations and mitigation requirements would minimize most impacts.	Second highest potential for impacts of all alternatives due to potential for more intense development across the County. Would require the use of more fossil fuels and other natural resources. Development would occur incrementally over the planning period and mitigation would minimize impacts.	Low potential for impacts. Potential localized impacts with UGA changes; could be mitigated during project-specific review.	Highest potential for impacts of all alternatives due to potential for the most intense development throughout the County. Would require the use of more fossil fuels and other natural resources. Development would occur incrementally over the planning period and mitigation would minimize impacts.

5.2.4 Are there adverse impacts that cannot be avoided?

Growth and development by their nature consume energy and natural resources. It is unavoidable. The comprehensive planning process is intended to reduce and minimize those adverse impacts of growth to ensure certain resources, such as scenic views, are not irretrievably lost. Planning at the countywide scale allows consideration of the wide range of needs required to build communities and is an effective way to manage development in ways that restore damage from past activities and to continue efforts to replenish resources for the next generation. The moderate growth projections and alternatives for managing that growth analyzed in this SEIS would not likely result in significant unavoidable adverse impacts to energy and most natural resources. Alternative 4 could have significant unavoidable impacts to the landscape and scenic views within Clark County due to the wide-spread development that would be allowed with the reduction in minimum parcel sizes.

5.3 Mitigation

In addition to the measures discussed below, impacts and mitigation would be identified and applied on a project-by-project basis under subsequent environmental review.

5.3.1 Are there mitigation measures beyond regulations that reduce the potential for impacts?

The primary energy and natural resource conserving measures available to local jurisdictions is to adopt a compact urban form that supports alternative energy, efficient transportation (walking, bicycling, and transit) and reduces impact on pervious landscapes.

Beyond participating with providers to promote energy conservation, local jurisdictions could add similar policies to their comprehensive plans that deal in general with “sustainable” practices that support citizen and business efforts to reduce energy consumption and promote recycling. Policies could recognize the link between reducing energy consumption and protecting the environment on a regional, state, and national level. Implementation of tree preservation ordinances and revising building

codes to allow more innovative “green” building design ideas would also be helpful. For example Battle Ground, Camas, and Vancouver comprehensive plans contain policies promoting energy conservation and sustainability.

Scenic resources, such as views of the snow-capped mountains, have generally not been recognized as a critical or sensitive resource in need of protection to the same extent as other natural resources. Emblematic of the northwest, scenic resources add value to the County’s economy, as well. The first step in mitigation of the potential impacts of development on these resources would be to inventory the views from major public routes, public facilities, and viewpoints particularly those used by tourists to the area. Policies and programs could then be developed to protect these scenic resources from alterations. For example, the City of Camas identifies public places consisting of viewpoints, parks, scenic routes, and view corridors to preserve the visual integrity of the wooded hillsides that provide the backdrop for the city. The City may condition or deny a proposal to eliminate or reduce its adverse impacts on designated public views or open space networks. Shoreline Master Programs also include policies to minimize effects on visual access to shorelines.

The City of Battle Ground’s Comprehensive Plan Livability Goal 5 encourages new development design that protects and promotes significant views. Objectives under this goal call for preserving public views, promoting the creation of new views through innovative development design, exploring location of new public spaces and parks to preserve significant views, and seeking to protect the views of the night sky.

Provisions for clustering under Alternatives 2 and 4 would minimize the need for additional infrastructure, leave the largest amount of open space and scenic views intact, and would be more efficient for providing energy and other natural resources. Zoning code changes to allow lower minimum lot sizes under either Alternatives 2 or 4 could include requirements for cluster development when considering applications for subdivision. This mitigation measure would reduce the effects on the rural landscape and scenic views.

The Regional Transportation Council’s (RTC) Regional Transportation Plan (RTP) update is not required to include any specific greenhouse gas (GHG) emissions or vehicle miles traveled (VMT) reductions. However, consistent with local, regional, state and national transportation policies, the plan does include strategies and project recommendations that support GHG and VMT reductions. Examples of these strategies and projects in RTC’s RTP update include the following:

- Transit expansion, both fixed bus and high capacity transit;
- Transportation demand management strategies;
- Commute trip reduction programs;
- Congestion management processes; and
- Transportation system management/operations and intelligent transportation system strategies.

6.0 Land and Shoreline Use

Land use planning in Clark County is guided by the GMA, which was adopted to ensure that development occurs in a planned manner, that there are adequate services available, and that critical resources are protected. The GMA requires that comprehensive plans establish land use designations and growth boundaries to guide development and ensure that the land supply can accommodate projected demands for housing and employment over a 20-year period. All of these characteristics of the county's growth impact qualities of life and the ability of the County and its cities to provide adequate and affordable housing for its citizens. Planning for shoreline areas of Clark County is also guided by the Shoreline Management Act, which was adopted to provide orderly development of shorelines, protect shoreline ecology, preserve public access to shorelines, and ensure adequate shoreline area for water dependent uses.

6.1 Setting

Clark County is part of the Portland Metropolitan Area. Its land use and transportation patterns are tied to the economic context of the larger region: one-third of the county's labor force, more than 60,000 workers, commutes to Portland on a daily basis, while only 11,000 commute in the opposite direction. The lack of a sales tax in Oregon has led to significant reduction in retail sales, reducing both investment and tax revenues for local

governments. However, County and City policies have been instrumental in shifting those patterns. The north county cities have seen population growth rates above state levels

as have the eastern port cities. Land use in Clark County is made up of predominantly forest lands in the eastern side of the county, and scattered agriculture, parks/open space, and rural lands throughout the remaining portions of Clark County. Commercial, residential, and industrial land uses are the predominant land uses within the County's incorporated cities and towns. Clark County land and shoreline use has remained relatively unchanged since 2007. Over the last seven years, minor comprehensive plan designation and zoning changes have occurred, both within incorporated cities and unincorporated Clark County.

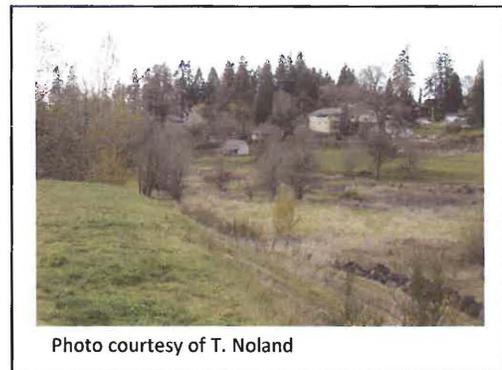


Photo courtesy of T. Noland

6.1.1 Population

Clark County's population is estimated at 448,800, making it the 5th most populous county in Washington State. Clark County has a very evenly spread population between rural and city regions with only 52% of the population residing in incorporated areas. The county was the fastest-growing in the state in the 1990s, and was second-fastest over the past decade. This growth was spurred by in-migration of new residents. Beginning in 2000 and continuing to 2010, growth started to decline, and in 2010, more people moved out of the county than moved in for the first time since 1984. However, even with this decline of in-migration, between 2000 and 2010 Clark County still experienced a 28.3% increase in population which is above the state increase of 18.2%. Vancouver is the largest city in the county and the fifth largest in the state, with a population of 167,400, making up 72% of the county's incorporated population. The next largest city is Camas with a population of 20,320 making up 9% of the incorporated population (OFM, 2015).

When compared with the state and nation, Clark County's population has a greater proportion of its population under 18 years old, and a smaller proportion of middle-age and older residents. Table 6-1 provides demographic data about Clark County in relation to similar demographic data for Washington State.

The county is less diverse in terms of race and ethnicity than the state. In 2013, 87.7% of Clark's population was white compared with 81.2% at the state level and 77.7% nationally. Just over 8% of Clark County's population is Hispanic or Latino, versus 11.9% of the state and 17.1% of the nation (U.S. Census Bureau, 2015).

Table 6-1. Demographic Comparison: Clark County and Washington State

	Clark County	Washington State
Population estimate for 2015	448,800	6,968,170
Population 2000	345,238	5,894,121
Percent change, 2000 to 2015	28.3%	18.2%
Population by age, 2013		
Under 5 years old	6.5%	6.4%
Under 18 years old	25.6%	22.9%
65 years and older	13.2%	13.6%
Females, 2013	50.6%	50.0%
Race/ethnicity, 2013		
White alone, not Hispanic or Latino	87.7%	81.2%
Black	2.1%	4.0%
American Indian, Alaskan Native	1.1%	1.9%
Asian, Native Hawaiian, Other Pacific Islander	5.3%	8.6%
Hispanic or Latino, any race	8.4%	11.9%

Source: U.S. Census Bureau QuickFacts

6.1.2 Community Framework Plan

The Community Framework Plan embodies the countywide planning policies required by the GMA and envisions urban growth areas (UGAs) with specific boundaries and rural centers within larger natural resource and rural areas. The Framework Plan emphasizes distinctions between urban, rural and resource lands to maintain a range of options to ensure the quality of life valued by county residents. It encourages growth in UGAs and rural centers, with each area center separate and distinct from the others. These centers of development are of different sizes; they contain different combinations of housing, shopping, and employment areas. Each provides places to live and work. The centers are oriented and developed around neighborhoods to allow residents the ability to easily move through the center and to feel comfortable within areas that create a distinct sense of place and community.

The Community Framework Plan was adopted in 1993, as Clark County’s long-term vision of what the county could become. Conceptual in nature, it proposed changing past trends which if left unchecked, could result in problems similar to those experienced by other regions that failed to adequately plan for future growth, such as inadequate infrastructure, reduced ability to provide emergency services, and diminished quality of life.

In order to achieve this development pattern, each of the UGAs designates a mix of land uses with housing, businesses, and services appropriate to its character and location.

Residential development appropriate to the needs of the workers and residents in these areas is encouraged nearby. Outside of UGAs, the land is predominantly rural with farms, forests, open space, and large lot residences. Shopping and businesses are located in rural centers.

A primary goal of the Framework Plan is to provide housing in close proximity to jobs, resulting in shorter vehicle trips and allowing densities along corridors that support transit.

Most of northern Clark County remains in rural use, with some resource-based industries. The Community Framework Plan continues to guide the development of each jurisdiction’s growth management Comprehensive Plans.

The Land Use and Shoreline Use Elements for the County’s 20-year comprehensive plan determines the general distribution, location and extent of the uses of land, where appropriate, for agriculture, timber production, housing, commerce, industry, recreation, open spaces, public utilities, public facilities, and other uses, as well as transition to urban areas consistent with the Framework Plan (see Figure 1-1a). These comprehensive plan elements include population densities, building intensities, and estimates of future population growth both inside and outside of the UGAs. The Environmental Element within the Comprehensive Plan contains policies to protect shoreline and critical areas, and also directs the development of regulations to address land use-related issues such as protection of groundwater resources, stormwater run-off, flooding, and drainage problems.

Similar to other parts of Washington State and the rest of the nation, Clark County’s economy has experienced higher-than-average unemployment and consequently a lack of development activity since the last comprehensive update in 2007. This has resulted in land use patterns that have remained relatively constant.

6.1.2 Community Framework Plan

The Community Framework Plan embodies the countywide planning policies required by the GMA and envisions urban growth areas (UGAs) with specific boundaries and rural centers within larger natural resource and rural areas. The Framework Plan emphasizes distinctions between urban, rural and resource lands to maintain a range of options to ensure the quality of life valued by county residents. It encourages growth in UGAs and rural centers, with each area center separate and distinct from the others. These centers of development are of different sizes; they contain different combinations of housing, shopping, and employment areas. Each provides places to live and work. The centers are oriented and developed around neighborhoods to allow residents the ability to easily move through the center and to feel comfortable within areas that create a distinct sense of place and community.

The Community Framework Plan was adopted in 1993, as Clark County's long-term vision of what the county could become. Conceptual in nature, it proposed changing past trends which if left unchecked, could result in problems similar to those experienced by other regions that failed to adequately plan for future growth, such as inadequate infrastructure, reduced ability to provide emergency services, and diminished quality of life.

In order to achieve this development pattern, each of the UGAs designates a mix of land uses with housing, businesses, and services appropriate to its character and location.

Residential development appropriate to the needs of the workers and residents in these areas is encouraged nearby. Outside of UGAs, the land is predominantly rural with farms, forests, open space, and large lot residences. Shopping and businesses are located in rural centers.

A primary goal of the Framework Plan is to provide housing in close proximity to jobs, resulting in shorter vehicle trips and allowing densities along corridors that support transit.

Most of northern Clark County remains in rural use, with some resource-based industries. The Community Framework Plan continues to guide the development of each jurisdiction's growth management Comprehensive Plans.

The Land Use and Shoreline Use Elements for the County's 20-year comprehensive plan determines the general distribution, location and extent of the uses of land, where appropriate, for agriculture, timber production, housing, commerce, industry, recreation, open spaces, public utilities, public facilities, and other uses, as well as transition to urban areas consistent with the Framework Plan (see Figure 1-1a). These comprehensive plan elements include population densities, building intensities, and estimates of future population growth both inside and outside of the UGAs. The Environmental Element within the Comprehensive Plan contains policies to protect shoreline and critical areas, and also directs the development of regulations to address land use-related issues such as protection of groundwater resources, stormwater run-off, flooding, and drainage problems.

Similar to other parts of Washington State and the rest of the nation, Clark County's economy has experienced higher-than-average unemployment and consequently a lack of development activity since the last comprehensive update in 2007. This has resulted in land use patterns that have remained relatively constant.

6.1.3 Housing

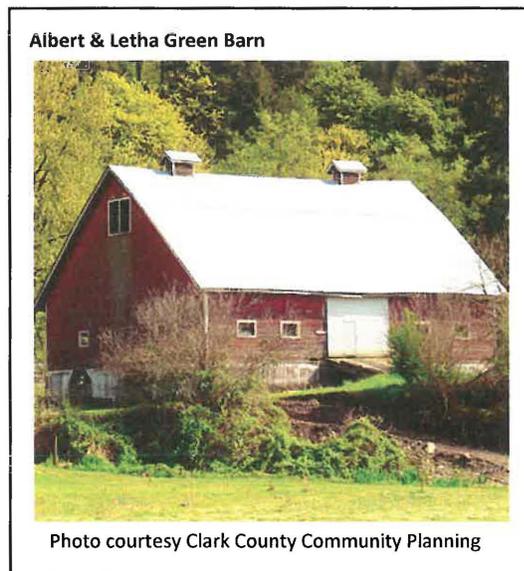
The goal of the Community Framework Plan with regard to housing is to make adequate provision for existing and projected housing needs of all economic segments of the community. These policies are intended to coordinate the housing policies of all the jurisdictions to identify sufficient land to accommodate a range of housing types and prices for existing and future residents.

Clark County's median household income outpaces the nation and the Metropolitan Statistical Area (MSA). Housing affordability in the county is better than the MSA overall, but lags the national benchmark for affordability.

About 60% of Clark County's housing stock has been built since 1980. In comparison, just over 40% of the nation's housing stock was constructed after 1980.

Housing affordability is often measured by the ratio of median home price to median household income. This ratio is essentially the number of years needed to pay for a median-priced housing unit if, in theory, 100 percent of income were applied to the principal until it was paid off. Clark County's index (4.6) is less affordable than the national average (3.7), but compares well to the Portland MSA overall (5.2) (Clark EDC).

6.1.4 Historic and Cultural Resources



Much of the county has been identified as having a high probability for archaeological resources, in part because of the area's rich history and its importance as a settlement location. Many of the high probability areas are located along streams, rivers, and other water bodies. When applications for development are submitted, a pre-determination of the probability rating is required. The model helps staff determine whether an applicant is required to investigate potential resources further in order to protect them from development, or how to mitigate impacts. More intensive development pressures can make it difficult to prevent historic or cultural resources from being disturbed, though having more land available for development does not preclude those pressures from occurring. Land that remains undeveloped or in rural uses can result in protecting resources from future disturbances.

6.2 What has changed since 2007?

Clark County and its incorporated cities have experienced relatively minor changes in population, housing and land use since 2007. The total population within Clark County has increased by 1% since 2007 to 448,800 people. This slight increase was almost entirely within incorporated cities and towns, having virtually no increase outside the UGAs. Land uses have remained mostly constant, with some minor changes scattered throughout the county mostly occurring in Camas, La Center, and Yacolt.

As the population in Clark County has continued to increase, so has the need for housing. From 2000-2014, Clark County's estimated total housing units increased from 134,030 to 172,965, amounting to a 29% increase. Vacant and renter-occupied units were also on the rise, but so was household income and the ability for individuals to secure adequate housing.

The county lost 6% of its employment base in the economic downturn starting in 2008, worse than the nation and state. Unemployment was aggravated by higher than average job losses for Clark County residents working in Portland, as Oregon State also experienced economic challenges during this period. In 2013 the downward employment trend in Clark County reversed and job growth began accelerating, with unemployment rates dropping from a high of 15.3% in 2009 to 8.4% in 2013.

While there was a major update of Clark County's SMP in 2012 to comply with amendments to the State Shoreline Management Act, the changes were relatively minor, simplifying shoreline designations, making them more consistent with the cities, protecting shoreline environmental functions, while encouraging public access and water-dependent use.

A Rural Lands Task Force was established to examine and make recommendations on how the County could facilitate more efficient use of its rural and resource lands.

6.2.1 Population

Population within Clark County has increased since 2007, at a rate slower than seen in fairly recent history. Between 1970 and 2007 Clark County was experiencing an average annual growth rate (AAGR) of 3.3%. The City of Ridgefield remains the fastest growing population between 2007 and 2014 with an AAGR of 7.3%. Between 2005 and 2007 the unincorporated areas of Clark County had a higher growth rate than incorporated areas (3.2% vs 2.8%); since 2007, incorporated areas are now growing more by a slim margin (.6% vs 1.2%).

Table 6-2 provides a summary of population statistics from 1970 to 2014 for each of the local governments in the county. Given the trend in percent change and AAGR (Table 6-3) the county can expect population to increase, especially in incorporated areas. Annual growth rates for Clark County between 2010 and 2013 have been just under 1%. From April 2013 to April 2014, the County's population grew 1.5%, and 2% from April 2014 to April 2015 (OFM, 2015).

Table 6-2. Population throughout Clark County (1970-2014)

Year	Population In Geographic Divisions									
	Clark County	Unincorporated	Incorporated	Battle Ground	Camas	La Center	Ridgefield	Vancouver	Washougal	Yacolt
1970	128,454	74,487	54,267	1,438	5,790	300	1,004	41,859	3,388	488
1980	192,227	134,974	57,168	2,774	5,681	439	1,062	42,834	3,834	544
1990	238,053	173,844	64,115	3,758	6,798	483	1,332	46,380	4,764	600
2000*	345,238	166,279	178,959	9,322	12,534	1,654	2,147	143,560	8,595	1,055
2005	391,675	188,955	202,545	14,960	15,460	2,095	2,630	154,800	11,350	1,160
2006	412,938	196,090	207,410	15,810	15,880	2,315	3,225	156,600	12,270	1,220
2007	418,070	201,135	213,865	16,240	16,280	2,440	3,680	160,800	12,980	1,370
2008	424,733	206,830	217,370	16,710	16,700	2,510	4,015	162,400	13,480	1,470
2009	432,002	210,415	220,785	17,150	16,950	2,545	4,215	164,500	13,870	1,470
2010*	427,044	203,339	222,024	17,571	19,355	2,800	4,763	161,791	14,095	1,566
2011	433,418	204,610	223,390	17,780	19,620	2,835	4,975	162,300	14,210	1,585
2012	438,287	205,885	225,365	17,920	20,020	2,985	5,210	163,200	14,340	1,605
2013	443,817	207,710	227,790	18,130	20,320	3,015	5,545	164,500	14,580	1,615
2014	442,800	210,140	232,660	18,680	20,880	3,050	6,035	167,400	14,910	1,620

*Denotes decennial census years.

Table 6-3. Population Change throughout Clark County (1970-2013)

Area	1970-2005		2005-2007		2007-2013	
	% Change	AAGR	% Change	AAGR	% Change	AAGR
Clark County	204.9%	3.3%	6.7%	3.3%	5.9%	0.8%
Unincorporated	153.7%	2.8%	6.4%	3.2%	4.5%	0.6%
Incorporated	273.2%	3.9%	5.6%	2.8%	8.8%	1.2%
Battle Ground	940.3%	7.1%	8.6%	4.2%	15.0%	2.0%
Camas	167.0%	2.9%	5.3%	2.6%	28.3%	3.6%
La Center	598.3%	5.9%	16.5%	7.9%	25.0%	3.2%
Ridgefield	162.0%	2.9%	39.9%	18.3%	64.0%	7.3%
Vancouver	269.8%	3.9%	3.9%	1.9%	4.1%	0.6%
Washougal	235.0%	3.6%	14.4%	6.9%	14.9%	2.0%
Yacolt	137.7%	2.6%	18.1%	8.7%	18.2%	2.4%

AAGR: average annual growth rate

6.2.2 Land and Shoreline Use

A comparative spatial analysis between the 2007 and 2014 Comprehensive Plan Land Use Maps was conducted for Clark County and its incorporated cities, in order to determine changes in land use designations since the 2007 Comprehensive Plan was adopted. Altogether the region experienced roughly a 9.5% change in land use between 2007 and 2014. Most of these changes can be explained by minor, localized changes, predominantly occurring within the incorporated cities and their UGAs (summarized in Table 6-4). Unincorporated Clark County (areas outside of the UGAs) experienced a roughly 1% change in land use designations between 2007 and 2014. Although corrections of errors in mapping and topology may account for most of this change, the County also annually reviews requests for changes to zoning and land use designations, some of which have been granted.

Table 6-4. Land Use Designation Change by Area

Area	Land Use Designation Changes between 2007 and 2014
Unincorporated Clark County:	Clark County experienced very minor changes to land use designations, with roughly 4,000 acres (a 1% change), some of which could be attributed to mapping discrepancies and annual reviews.
City of Battle Ground:	Battle Ground and its UGA experienced a change in roughly 1,200 acres, (a 9% change) mostly within mixed use designations, with lands changing from industrial, parks/open space, and rural-5 designations, to urban residential, mixed use, and employment center designations.
City of Camas	Camas and its UGA experienced a change in roughly 3,000 acres (a 14% change), mostly from urban residential, single-family and light industrial designations to parks/open space, commercial and industrial designations.
City of La Center	La Center and its UGA experienced a change in roughly 500 acres (a 15% change), most of which is likely attributed to mapping discrepancies from a water designation to urban residential, mixed-use, and industrial. There was likely no real significant reduction to water bodies between 2007 and 2014.
City of Ridgefield	Ridgefield and its UGA experienced a change of roughly 1,000 acres, a 9% change, mostly changes from employment center and office park designations to industrial and light industrial designations.
Vancouver	Vancouver and its UGA experienced a change of roughly 7,500 acres (a 6% change), mostly changes from employment center and general commercial designations to industrial and light industrial designations.
Washougal	Washougal and its UGA experienced a change of roughly 1,100 acres (a 10% change), mostly from Employment Center designation to commercial and Industrial designations.
Town of Yacolt	Yacolt and its UGA experienced a change of roughly 150 acres (an 18% change), mostly from Rural designations to Parks/Open Space and industrial designations.

6.2.3 Mineral Resource Development Practices

State law requires the identification and classification of mineral resource lands from which the extraction of minerals occurs or can be anticipated, and to designate known mineral deposits. Changes in these regulations prompted the County to initiate a study to better implement the surface mining overlay. Changes to both the mapping and County regulations for mineral resource lands were adopted in November 2014.

6.2.4 Floodplain Management

From 2009 to 2012, FEMA undertook a Flood Insurance Study in Clark County to update decades old 100-year floodplain maps and provided other recommendations to reduce flood hazards. The study resulted in changes to the base flood elevations and revisions to the FIRMS. The County’s adoption of the new FIRMs and other requirements allows the County to participate in the National Flood Insurance Program. The Program makes federally-backed flood insurance available for all structures and allows for a 25% discount for property owners to purchase flood insurance.



Photo courtesy of Rod Orlando

6.2.5 Shoreline Management

A major update to Clark County’s SMP was approved by the Department of Ecology and took effect on September 12, 2012. The SMP update involved an inventory of all shoreline resources, revisions of goals, policies and regulations, including incorporating critical area protections, and a development of a restoration plan in compliance with amendments to the SMA. The SMP goals and policies have been incorporated into Chapter 13 of the Comprehensive Plan. The regulations incorporated information from the Flood Insurance Study and the Shoreline Designations are now consistent with floodplain maps. The SMPs are now more consistent across all jurisdictions in Clark County, incorporate provisions for public access, provide greater protection of shoreline habitat, and encourage water dependent uses.

6.2.6 Housing Patterns

As the population in Clark County has continued to increase, so has the need for housing. From 2000-2014, Clark County’s estimated total housing units increased from 134,030 to 172,965, amounting to a 29% increase. Vacant units and renter-occupied units were also on the rise, but so too was household income and the ability for individuals to secure adequate housing. In addition to growing populations, the average persons per households also increased to 2.75 with no significant difference between owner and renter occupied housing. Table 6-5 provides information on occupancy by housing type from 1990 to 2013.

Table 6-5. Housing Occupancy by Type, 1990 - 2013

Housing occupancy type	1990	2000	2004	2013	Percent Change 2000-2013
Total housing units	92,849	134,030	148,993	169,730	26.6%
Vacant Units (percent)	4,409(4.7%)	6,822 (5.1%)	3,538 (2.4%)	10,952 (6.5%)	60.5%
Occupied units	88,440	127,208	145,455	158,755 (93.5%)	24.7%
Owner-occupied units	56,872	85,551	98,903	102,020 (64.3%)	19.2%
Renter-occupied units	31,568	41,657	46,552	56,758 (35.7%)	36.2%

According to the U.S census, housing cost exceeding 30% of a resident’s income is considered a problem, or a housing burden. The majority of the occupied units between 2009 and 2013 are paying prices the U.S census categorizes as a moderate burden (between 30% and 49.9%). An indicator of affordability of rental housing is provided in Table 6-6.

Table 6-6. Occupied Housing Units Paying Rent, 2009 - 2013

	2009	2010	2011	2012	2013
Total Occupied Rental Units*	53,254	49,267	54,122	55,668	54,297
Rent as a Percent of Income	Number of Units (%)				
Less than 15%	5,112 (9.6%)	4,927 (10.0%)	4,330 (8.0%)	4,342 (7.8%)	5,375 (9.9%)
15.0 - 19.9%	6,550 (12.3%)	6,355 (12.9%)	6,170 (11.4%)	7,126 (12.8%)	7,059 (13.0%)
20.0 - 24.9%	5,592 (10.5%)	5,863 (11.9%)	7,198 (13.3%)	7,515 (13.5%)	7,276 (13.4%)
25.0 - 29.9%	7,456 (14.0%)	7,390 (15.0%)	8,046 (14.9%)	6,346 (11.4%)	7,819 (14.4%)
30.0 - 34.9%	7,030 (13.2%)	3,941 (8.0%)	5,845 (10.8%)	6,624 (11.9%)	4,887 (9.0%)
35.0% or more	21,515 (40.4%)	20,791 (42.2%)	22,569 (41.7%)	23,770 (42.7%)	21,882 (40.3)

Source: US Census Bureau American Fact Finder, Selected Housing Characteristics

*Excludes units where gross rent and/or household income were not reported.

Publicly-supported housing is available in Clark County through the Vancouver Housing Authority (VHA) and at least 7 other non-profit agencies providing housing or housing assistance. VHA administers subsidized housing units for 7,500 Clark County residents and VHA workforce housing includes properties for 5,000 people. VHA subsidized housing includes owned/managed properties (1,104 units) and Housing Choice Voucher subsidies paid by VHA to private landlords (about 2,300 units). The average household income in VHA subsidized housing is \$14,096. 61% of the households in VHA subsidized housing are elderly people or people with disabilities. VHA owns 4 emergency shelters for youth families. In 2010, the number of people 75 and over living in households experiencing poverty increased 63.9% (1,945 households) over 2000; Female Householder, No Husband Present with related children under 18 years increased by 171% between 2000 and 2010 (8,132 households); and Married-Couple Families with related children under 18 years increased 45% between 2000 and 2010.

6.2.7 Historic and Cultural Resources

In addition to the historic and cultural resource sites that were inventoried in the 2007 analysis, other sites have been added. The following table (Table 6-7) gives the number of known sites within each jurisdiction.

Table 6-7. Existing Historic Resources in Clark County.

Location	Type	Number of Resources
County	Clark County Register	4
	Inventoried, not registered	29
	National Register	0
Battle Ground	Clark County Register	9
	Inventoried, not registered	36
	National Register	2
Camas	Clark County Register	6
	Inventoried, not registered	29
	National Register	2
La Center	Clark County Register	1
	Inventoried, not registered	6
	National Register	0
Ridgefield	Clark County Register	6
	Inventoried, not registered	58
	National Register	5
Vancouver	Clark County Register	39
	Inventoried, not registered	149
	National Register	17
Washougal	Clark County Register	1
	Inventoried, not registered	29
	National Register	0
	Washington Heritage Register	2
Yacolt	Clark County Register	0
	Inventoried, not registered	2
	National Register	0

Source: Clark County Department of Assessment and GIS, 2014.

6.3 Environmental Impacts

6.3.1 What methodology was used to analyze impacts to land and shoreline use resulting from each of the alternatives?

Population, housing, and economic data was collected to understand the future trends and needs for human habitation in Clark County. A spatial comparison was conducted between Clark County existing mapping and that for each alternative, based on land use data provided by the County and using GIS technology. Raw data from each comparison was gathered and analyzed through various tables and charts. Once the changes to land use types and locations from the existing Comprehensive Plan was tallied for each alternative, compliance with all applicable plans and policies was also evaluated to

determine how well each of the alternatives would support population growth, housing availability, and economic growth.

6.3.2 What are the impacts to land and shoreline use from each alternative?

Land and shoreline use controls play an important role in urban development because they dictate the way land is used, conserved, and developed. As part of a large urbanizing region, the County is working towards managing its land use in a way that will facilitate new population growth while maintaining proper environmental conservation. Each alternative was analyzed for its proposed changes to comprehensive plan land use designations, as well as land use zones and their potential impacts to housing, population, and historic and cultural resources throughout the County. A more detailed summary is provided in the table for each of the alternatives below.

Alternative 1 – No Action Alternative

This alternative would maintain the existing 2007 Comprehensive Plan as currently updated (see Figure 1-1a and Figure 1-1b). There would be no change in the UGAs, policies or implementation ordinances. This analysis incorporated the planning assumptions described in Chapter 1, and concludes that there are no impacts not otherwise identified in the 2007 Comprehensive Plan EIS.

The 2007 EIS indicated variability in projected land capacity to accommodate the projected population growth, which at that time was slightly higher than the planning assumptions used in this analysis. Market factor, urban/rural population dispersion, and city projections for redevelopment and densities accounted for this variability which resulted in a deficit of land to accommodate the projected growth or a slight surplus, depending on which factors were adjusted. The projected growth target for 2035 of 577,431 is roughly 2% less than the 584,310 target used in the 2007 analysis, indicating that the use of the existing UGAs together with the urban reserve and urban holding overlays provides an effective strategy to respond to growth declines and pressures that are inevitable over a 20-year horizon.

The majority of unincorporated Clark County has moderate to moderate-high or high probability for containing archaeological resources. Among the 432 historic resources identified in Clark County, only 103 of them lie outside of the UGAs. Confining growth to existing UGAs as required by the 2007 Comprehensive Plan, could increase the pressure to remove urban historic resources, usually structures such as homes, schools, and churches, to make way for higher density and higher intensity development. Identification of mitigation measures for potential impacts would occur at a project-specific level. Alternative 1 is similar to the other Alternatives in that there do not appear to be many opportunities for reducing impacts to these types of resources.

Table 6-8. Summary of Impacts: Alternative 1 - No Action

Element	Impact
Population	No additional impact than identified in the 2007 EIS. Adequate capacity exists to accommodate projected growth.
Land & Shoreline Use	Localized impacts. No additional impact than identified in the 2007 EIS. Most growth accommodated in UGAs.
Housing	No additional impact than identified in the 2007 EIS. Adequate capacity exists to accommodate projected housing demand.
Historic & Cultural	Localized impacts. No additional impact than identified in the 2007 EIS.

Alternative 2 – Countywide Modifications

Alternative 2 proposes Countywide modifications to rural land use designations, as well as some minor local changes to UGAs.

Rural County Area:

The proposed changes to rural County lands would help organize and consolidate the Comprehensive Plan land use designations County-wide.

Rural Lands

The 2016 Comprehensive Plan proposes to consolidate comprehensive plan land use designations, and create a “Rural Lands” designation which will be implemented by R-5, R-10, R-20 zones. It would change some rural zones from R-20 to R-10. The impacts would be minimal since only approximately 20% of the 266 parcels in the R-20 zone are 20 acres or more in size. The change in zoning would have the potential for approximately 139 new 10-acre parcels to be created in the Rural zone.

Resource Lands (see Table 6-9)

- 1) The proposal would create one “Forest” comprehensive plan land use designation (rather than the Tier I and Tier II designations currently in existence), and would be implemented by Forest-80 and Forest-20. This change would also eliminate FR-40 zoning, replacing it with FR-20, reducing the minimum lot area in that zone. The impacts of the change in zoning are minimal since only 10% of the 10,304 parcels are 40 acres or more in size. The change in zoning would have the potential for approximately 414 new 20-acre parcels to be created in the Forest zone.
- 2) The County proposes to reduce the minimum parcel size for agriculture land from twenty (AG-20) to ten acres (AG-10). The impacts of the change in zoning are moderate. Less than 18% of the 2,609 parcels are 20 acres or more in size. The change in zoning would have the potential to create approximately 1,512 new 10-acre lots. This could increase property valuation and diminish the ability of the County to attract larger scale agricultural operations.

Rural Centers

This alternative would change the “Rural Center Mixed Use (RC-MX) Overlay “and “Rural Center Residential” comprehensive plan designations to one “Rural Center” comprehensive plan designation implemented by Rural Center Commercial -1 (RC-1) and Rural Center Commercial-2.5 (RC-2.5) zones, and Rural Center Commercial – Mixed Use (RC-MX) overlay.

Table 6-9. Proposed Rural Center and Rural Commercial Designations

Current Comprehensive Plan	Current Zoning	Proposed Comprehensive Plan	Proposed Zoning	Impact
Rural Center Mixed Use (RC-MX) Overlay		Rural Center (RC)	Rural Center Mixed Use (RC-MX) Overlay	No impact, this is a change in name only for the Comprehensive Plan.
Rural Center Residential	RC-1 RC-2.5		RC-1 RC-2.5	No impact, this is a change in name only for the Comprehensive Plan.
Rural Commercial (CR)	CR-1	Rural Commercial (CR)	CR-1	No impact, this is a change in name only for the Comprehensive Plan.
Rural Center Commercial (RC)	CR-2		CR-2	No impact, this is a change in name only for the Comprehensive Plan.

Urban Reserve

These lands are on the fringe of the UGAs. This designation is intended to protect areas from premature land division and development that would preclude efficient transition to urban development. Currently there are Urban Reserve and Industrial Reserve overlay comprehensive plan designations. They are currently implemented with the Urban Reserve 10 zoning overlay and Industrial Urban Reserve-20 zoning overlay. This alternative would designate one comprehensive plan overlay: Urban Reserve (UR) that would be implemented by a UR-10 zoning overlay for future urban residential development and UR-20 for all other types of future urban land development. This proposed designation change would not change the intent or implementation of the protection. Table 6-10 summarizes the proposed changes. There are approximately 577 acres of proposed Rural and Agricultural zoning under the Urban Reserve overlay.

Table 6-10. Proposed Urban Reserve Overlay

Current Comp plan map	Current Zoning map	Proposed Comp plan map	Proposed Zoning map	Impact
Urban reserve	Urban reserve-10 (UR-10)	Urban reserve overlay	Urban reserve-10 overlay (UR-10)	No impact. This is a change in name only for comp plan
Urban reserve overlay	Urban reserve-10 overlay (UR-10)		Urban reserve-20 overlay (UR-20)	No impact. This is a change in name only for comp plan
Industrial urban reserve overlay	Industrial urban reserve-20 overlay		Urban reserve-20 overlay (UR-20)	No impact. This is a change in name only for comp plan
Railroad industrial urban reserve overlay	Railroad industrial urban reserve overlay		Urban reserve-20 overlay (UR-20)	No impact. This is a change in name only for comp plan

Urban Growth Areas:

Commercial Comprehensive Plan Designation

These changes are proposed to consolidate multiple urban commercial comprehensive plan designations (Neighborhood, Community and General) into one Commercial (C) designation for approximately 2,900 acres scattered throughout the county. Table 6-11 summarizes the proposed changes. This action would not result in any new impacts since this is a change in name only and the underlying zoning would remain the same.

Table 6-11. Proposed Commercial Designations

Current Comprehensive Plan	Current Zoning	Proposed Comprehensive Plan	Proposed Zoning	Impact
General Commercial (GC)	General Commercial (GC)	Commercial	General Commercial(GC)	No impact, this is a change in name only for the Comprehensive Plan.
Community Commercial (CC)	Community Commercial (C-3)		Community Commercial(C-3)	No impact, this is a change in name only for the Comprehensive Plan.
Neighborhood Commercial (NC)	Neighborhood Commercial (C-2)		Neighborhood Commercial(C-2)	No impact, this is a change in name only for the Comprehensive Plan.

Public Facility (PF)

The County proposes to create new Public Facility comprehensive plan and zoning designations which would include existing schools, utilities and government buildings and facilities. Table 6-12 indicates how the proposed changes would be implemented. This action would not result in any new impacts since this is a change in name only and the land uses regulated by the underlying zoning would not be affected.

Table 6-12. Proposed Public Facility Designations

Current Comprehensive Plan	Current Zoning	Proposed Comprehensive Plan	Proposed Zoning	Impact
Public Facility	All zones	Public Facility	Public Facility (PF)	No impact, this is a change in name only for the Comprehensive Plan.
			Airport (A)	No impact, this is a change in name only for the Comprehensive Plan.
			University (U)	No impact, this is a change in name only for the Comprehensive Plan.
Parks/Open Space	Parks/Open Space (P/OS)	Parks/Open Space	Parks/Open Space (P/OS)	No impact, this is a change in name only for the Comprehensive Plan.
	Parks/Wildlife refuge (P/WL)		Parks/Wildlife refuge (P/WL)	No impact, this is a change in name only for the Comprehensive Plan.

Urban Holding

When development policies require a legislative action prior to urban development occurring, the County applies the Urban Holding Overlay. In these cases, identified criteria are established that must be met in order to remove the urban holding zoning and allow the underlying urban zone to be applied. There are currently three Urban Holding zoning overlays: Urban Holding -10, Urban Holding-20, and Urban Holding-40, and no comprehensive plan Urban Holding overlay. For the 2016 Comprehensive Plan Update, the County proposes to create an Urban Holding (UH) overlay comprehensive plan designation which would be implemented with a zoning overlay of Urban Holding -10 (UH-10) for residential and Urban Holding-20 (UH-20) for all other uses. Table 6-13 indicates how the proposed new comprehensive plan designation would be implemented and indicates the potential impacts from implementing this change.

Table 6-13. Proposed Urban Holding Overlay

Current Comprehensive Plan	Current Zoning	Proposed Comprehensive Plan	Proposed Zoning	Impact
None	Urban holding-10 overlay (UH-10)	Urban holding overlay (UH)	Urban holding-10 overlay (UH-10)	No impact. This is a change in name only for comp plan
None	Urban holding-20 overlay (UH-20)		Urban holding-20 overlay (UH-20)	No impact. This is a change in name only for comp plan
None	Urban Holding-40		Urban holding-20 overlay (UH-20)	Incremental impact with potential for increased density.

Battle Ground UGA Modifications

Battle Ground has a number of parcels (totaling less than 60 acres) with an Industrial (I) comprehensive plan designation and UH-40 and Business Park (BP) zoning that are currently in urban low residential use, including Whispering Meadows I and II, Camellia, and Windsong Acres. One parcel is vacant yet surrounded on four sides with urban low residential use. This action would change this area to urban low density residential, R1-20, UH-10 overlay. Table 6-14 summarizes how the current zoning would change under the proposal. No impacts are anticipated. This change would make the land use and zoning designations consistent with how properties are being used and reduce the potential for an incompatible land use to locate in the middle of residential use in the future.

Table 6-14. Battle Ground UGA Urban Holding Zoning

Current Zoning	Proposed Zoning	Impact
R1-15	R1-10, UH 10	No impact
R1-10	R1-10, UH 10	No impact
R1-7.5	R1-7.5, UH 10	No impact
R1-5	R1-5, UH 10	No Impact
R-16	R-18, UH 10	No impact
R-22	R-18, UH 10	No impact

Ridgefield UGA Modifications

This is a five-parcel expansion (approximately 155 acres) of Ridgefield’s UGA, which includes the Tri-Mountain Golf Course. It would add an Urban Holding (UH-20) Overlay and Public Facilities zoning. The proposal could have site specific impacts when urban holding is lifted, which would allow development for industrial or office use. Impacts are localized and would be mitigated during project review. This action would enhance the City’s recreational opportunities and have no adverse impacts to land use.

Vancouver UGA Modifications

1) Special Planning Areas

Three Creeks Special Planning Area

This planning area was created during the adoption of the 2007 Comprehensive Plan. The intent was to conduct further detailed planning efforts in the in the unincorporated urban areas around Hazel Dell, Felida, Lake Shore, Salmon Creek and the County Fairgrounds. The subarea planning effort is nearly complete and removal of the overlay is appropriate. Four subarea planning efforts were initiated: Highway 99, Pleasant Highlands, Discovery/Fairgrounds and Salmon Creek/University District. The Highway 99 Subarea Plan was adopted in 2008 (Clark County, 2008). The Pleasant Highlands Subarea Plan was initiated in 2012 and the effort continues.

Recommendations from the remaining two subareas are a part of the 2007 Comprehensive Plan update and EIS and are discussed in more detail below.

Discovery/Fairgrounds Subarea Plan

This subarea is generally bounded by NE 209th Street on the north; NE 29th Avenue on the east, NE 164th Street on the south, and NW 11th Avenue on the west. In the 2007 Comprehensive Plan the area was approved for zoning at urban densities with a considerable amount of land designated for Light Industrial (ML) uses. The subarea planning effort recognized the environmental constraints in the area and recommends changing most of the ML zoning to Office Campus or Business Park uses, an area of approximately 1,100 acres. The zoning designations allow for more environmentally compatible site design while allowing for more jobs per acre. (Clark County November 20, 2012 staff report to BoCC, <http://www.clark.wa.gov/planning/discovery/docs.html>).

Salmon Creek/University District Subarea Plan

This subarea is generally bounded by NE 190th Street alignment on the north, approximately NE 58th Avenue on the east, Salmon Creek and Interstate 205 on the south; and Interstate 5 on the west. An area of approximately 465 acres which is currently designated as urban low density residential would be re-zoned to accommodate mixed-uses and higher density residential uses. Moderate impacts to adjacent land uses can be expected which would be mitigated on a project by project basis. The change is consistent with Washington State University (WSU) and City of Vancouver vision for future development and promotion of jobs and housing.

2) Vancouver UGA Mixed Use

Land use designation of Mixed Use in approximately 115 acres of the northern part of the Vancouver UGA are proposed to be replaced with the corresponding County Urban Low, Medium, and High designations to better reflect existing development and zoning. The underlying zoning will remain the same, so no impacts are anticipated.

3) Vancouver UGA Urban Reserve

Urban Reserve Overlay designations in two areas in the north Salmon Creek Vancouver UGA are proposed to be removed and Rural (R) designation applied: 1) remove the Urban Reserve (UR-10) zoning designation along NE 50th between 199th and NE 179th and replace it with Rural (R-5); and 2) remove the Urban Reserve overlay on a parcel along NE 50th Avenue south of 199th and

retain the Agricultural zoning. No impacts are anticipated since the underlying zoning would remain.

4) Vancouver UGA Urban Holding

The Urban Holding (UH) designation (577 acres) within two areas of the Vancouver UGA collectively known as Fisher Swale is proposed to be removed. No impacts are anticipated since the underlying Single Family zoning of R1-20, R-10, and R1-7.5 would remain.

Washougal UGA Modifications

This change is to correct an inconsistency between County and City zoning classifications within the northern portion of the Washougal UGA. No new impacts are anticipated. The proposal would replace City zoning of AR-16 (approximately 14 acres) and apply County zoning of R-18; replace R1-15 zoning (approximately 131 acres) with R1-10 zoning; and replace approximately 37 acres of Heavy Industrial zoning to Steigerwald and Port property to Parks and Open Space and apply Urban Holding (UH-20). Using Comprehensive Plan Table 14.1 City Zone to County Zone Consistency Chart, apply county zoning and urban holding-10 overlay.

The projected growth target for 2035 of 128,616 new residents would be accommodated within the existing UGAs and the areas with urban reserve and urban holding overlays. Using the planning assumptions listed in Chapter 1, 12,862 of those new residents would live in rural areas. Alternative 2 would add the potential for an additional 8,220 dwelling units in the unincorporated, non-UGA areas (one for every potential new lot created), or 21,865 new residents, which would easily accommodate the projected population growth for rural Clark County. Table 6-15 summarizes the general impacts to land and shoreline use associated with Alternative 2.

Table 6-15. Summary of Impacts: Alternative 2 Countywide Modifications

Element	Impact
Population	No impact. Adequate capacity exists to accommodate projected population growth.
Land & Shoreline Use	Minor to moderate impact on land and shoreline use because of the potential for conversion of resource uses to increasing rural residential densities.
Housing	The proposed rural lands upzoning could have a minor impact on housing. By reducing the minimum lot sizes, there is potential for an additional 8,220 new lots which could allow for new housing to be constructed.
Historic & Cultural	The proposed rural lands upzoning could have impacts on historic and cultural resources by allowing more intense development in some areas, thus increasing the potential for encountering artifacts and/or historic structures.

Alternative 3 – City UGA Expansion

This alternative assumes the same land and shoreline uses as indicated in the No Action Alternative, except that the UGAs of the Cities of Battle Ground, La Center, Ridgefield and Washougal would be expanded.

Battle Ground UGA Expansion

Alternative 3 would add 82 acres to the UGA along the existing east boundary as Mixed Use with an Urban Holding Overlay area near Dollars Corner, at the intersection of NE 219th Street and NE 92nd Ave.

This would change the existing rural zoning and allow for both commercial and residential development. The existing location and adjacent areas are mostly undeveloped land, with some residential properties scattered throughout. These Rural and Agricultural lands could experience a moderate impact through the UGA expansion, due to more dense urban development. This expansion would occur incrementally over time, which would keep the impact at moderate levels.

La Center UGA Expansion

Alternative 3 proposes to add 61 acres (56 parcel acres + 5 acres of ROW) to the UGA north of the existing La Center City UGA. The general impacts to land and shoreline use of Alternative 3 are summarized in Table 6-16. The purpose of the proposed UGA expansion is to accommodate the opportunity for additional businesses near Interstate 5. The Comprehensive Plan designation would be Commercial with an Urban Holding overlay. This facet of Alternative 3 would also add 17 acres to La Center's UGA on the northern city boundary to accommodate a new elementary school site. The Comprehensive Plan designation for the area is currently R-5 and would be changed to Public Facility. The existing agricultural land use would eventually be converted to commercial uses. This expansion would likely occur incrementally over time, which would keep the impact at moderate levels.

Ridgefield UGA Expansion

There are 111 Acres on the north side of the City of Ridgefield proposed for addition, near I-5 that would be converted from agricultural to residential uses. The current designation of Agriculture would be changed to a mix of low-, medium-, and mixed-use residential Comprehensive Plan designations, all with an Urban Holding overlay. As in the La Center UGA Expansion area, the existing agricultural land uses would likely be incrementally converted to commercial uses, which would keep the impact at moderate levels.

Washougal UGA Expansion

This feature of Alternative 3 would add approximately 41 acres to the City of Washougal UGA for residential development. The site is located on the northern edge of the existing UGA. The proposed addition currently has a Comprehensive Plan designation of R-5, and would be changed to Urban Low. This residential development would likely occur incrementally over time, which would keep the impact at low levels.

Table 6-16. Summary of Impacts: Alternative 3 City UGA Expansion

Element	Impact
Population	The proposed UGA expansions would have no impact. Adequate capacity exists to accommodate projected population growth.
Land & Shoreline Use	The proposed UGA expansions would have localized impacts to overall land and shoreline use given the minimal 312 acres of proposed change.
Housing	The proposed UGA expansions would have minor impacts to housing given the minimal 312 acres of proposed change.
Historic & Cultural	The proposed UGA expansions could intensify development in and near UGAs, increasing the potential for impact to cultural resources and/or historic structures. Impacts addressed on a project level.

Alternative 4 – Rural, Agriculture, and Forest Changes

As with Alternative 2, Alternative 4 incorporates changes in policy direction and land use/zoning. This alternative is proposed to essentially retrofit new zoning to the actual predominant lot sizes, while encouraging clustering options to preserve resource lands, open space, and non-residential agriculture uses and provide additional economic opportunities in the rural areas. The difference between this alternative and Alternative 2 is that an even higher density of development would be allowed outside of the UGAs in the county. This alternative would likely generate significant impacts to transportation (see also Chapter 7 of this SEIS) and public services (see also Chapter 8 of this SEIS). Under full build-out conditions, Alternative 4 could result in the creation of approximately 12,400 new lots, potentially impacting over 65,500 acres.

Rural Lands

Similar to Alternative 2, Alternative 4 would consolidate comprehensive plan land use designations, and create a “Rural Lands” designation; however, under this alternative the new designation would be implemented by R-1, R-2.5, and R-5 zones. It would reduce the minimum size requirements that apply to most rural residential lots, allowing increased density of residential development in rural areas, where adequate public facilities and services may not exist or be reasonably available. Approximately 9,880 new parcels could potentially be created with this proposed zoning change.

Resource Lands

Forest Resources

This alternative would change the existing Forest Tier I and Forest Tier II comprehensive land use designations to FR-10, FR-20, FR-40 and FR-80, which would be exactly mirrored by new zoning designations. This feature of the alternative would reduce the minimum lot area in some forest zones even further than Alternative 2. Approximately 563 new parcels could be created at full build-out with this zoning change.

Agricultural Resources

This alternative would change areas zoned AG- 20 to AG-10 and AG-5, reducing the minimum lot area in that zone. Approximately 1,958 new parcels could be created at full build-out with this zoning change.

The projected growth target for 2035 of 128,616 new residents would be accommodated with the use of the existing UGAs together with the urban reserve and urban holding overlays. Using the planning assumptions listed in Chapter 1, 12,862 of those new residents would live in rural areas. Alternative 4 would add the potential for an additional 12,401 dwelling units in the unincorporated, non-UGA areas, which would include capacity for approximately 32,987 new residents. The result could be that a greater percentage of the expected population growth would locate in rural areas instead of urban areas. Table 6-17 summarizes the general impacts to land and shoreline use associated with Alternative 4.

Table 6-17. Summary of impacts: Alternative 4 Countywide Modifications

Element	Impact
Population	Minor to moderate impact. Adequate capacity exists to accommodate projected population growth.
Land & Shoreline Use	Minor to moderate impact on land and shoreline use because of the potential for conversion of resource uses to increasing rural residential densities.
Housing	The proposed rural lands upzoning could have a minor to moderate impact on housing. By reducing the minimum lot sizes, there is potential for an additional 9,305 new lots which could allow for new housing to be constructed. This would represent a housing surplus in the rural county areas.
Historic & Cultural	The proposed rural lands upzoning could have impacts on historic and cultural resources by allowing more intense development in some areas, thus increasing the potential for encountering artifacts and/or historic structures.

6.3.3 How do the potential impacts between the alternatives compare?

A comparison of general impacts is provided in Table 6-18. Alternatives 1, 2, and 3 would have minor, or minor to moderate impacts on land and shoreline use in Clark County. Since Alternative 1 does not propose any changes to the existing land use designations, there would be no impacts beyond what was analyzed in the 2007 Comprehensive Plan EIS. Alternative 2 proposes some land use changes to rural, agricultural, and forest lands, and which could result in approximately 8,220 additional new parcels with the potential to convert resource uses to rural residential. Some additional changes to UGA boundaries are proposed in Alternative 2. These would not result in any impacts to land use however, because the proposed changes are meant to match the actual existing land uses. Alternative 3 proposes two new urban areas in Battle Ground and La Center, but these expansions would have very minor impacts to land use given the small sizes of the proposed changes. Alternative 4 could potentially have significant adverse land use impacts within Clark County by allowing substantial residential uses, up to 12,400 new parcels, proposed outside of UGAs.

Table 6-18. Impact Summary Table

	Alternative 1 No Action	Alternative 2 Countywide Modifications	Alternative 3 City UGA Expansion	Alternative 4 Rural, Agriculture, and Forest Changes
Population	No impact. Proposed land use designations would adequately accommodate projected population growth.	No impact. Proposed land use designations would adequately accommodate projected population growth.	No impact. Proposed land use designations would adequately accommodate projected population growth.	No impact. Proposed land use designations would adequately accommodate projected population growth.
Land & Shoreline Use	Localized impacts. Most growth accommodated in and near existing UGAs. No additional impact beyond that identified in the 2007 EIS.	Minor to moderate impact on land use because of the potential for conversion of resource uses to increasing rural residential densities. Higher rural densities could also put more pressure on shorelines within the area for non-water dependent uses.	No impact. Small acreage of commercial and mixed use development is appropriate adjacent to existing UGAs.	Moderate impact on land use because of the potential for conversion of resource uses to increasing rural residential densities. Higher rural densities could also put more pressure on shorelines within the area for non-water dependent uses.
Housing	No impact. Adequate capacity exists to accommodate projected housing demand.	Has the potential to add 8,220 units to the housing stock in the rural area. More than is needed for population target.	Proposed mixed use has the potential to increase housing stock near UGAs.	Has the potential to add 12,400 units to the housing stock in the rural area creating a housing surplus based on the 2035 population target.
Historic & Cultural	Impacts addressed on a project level.	Impacts addressed on a project level.	Impacts addressed on a project level.	Impacts addressed on a project level.

6.3.4 Are there adverse impacts that cannot be avoided?

Significant adverse land use and shoreline impacts are avoided with Alternatives 1, 2, and 3, which are moderate strategies to accommodate growth over the next 20 years. The UGAs established in 2007 have adequate capacity, ensure flexibility to address changing circumstances, and provide the blueprint for investment of measured approaches to building infrastructure necessary to accommodate growth opportunities. According to the persons-per-household and estimated total housing of 172,965, the amount of available housing is sufficient to support the population of Clark County, however because the majority of the occupied units between 2009 and 2013 were paying prices the U.S census categorizes as a moderate burden (between 30% and 49.9% of income) a focus on providing affordable housing would ensure the growing population does not suffer an unreasonable housing burden.

The land use patterns proposed with Alternative 4, and to a lesser extent Alternative 2, would not support state regulations enacted to control sprawl in Washington State. Residential development in

rural areas usually leads indirectly to development of commercial facilities to serve the residential development. New residential development that could occur with build-out following this land use pattern would also lead to the need for new or improved roads and new facilities to provide essential public services (water, sewer, electricity, etc). Development of rural areas for low-density development also generally leads to greater vegetation and habitat loss with fewer opportunities to preserve wildlife habitat, as well as impingement on land available and used for agriculture or forestry.

6.4 Mitigation

No additional mitigation would be necessary for Alternatives 1, 2 or 3 since there would be no probable significant adverse environmental impacts associated with those alternatives. The indirect impacts to transportation and public services could be mitigated placing an Urban Holding overlay on newly upzoned areas so that adequate public infrastructure may be assured prior to development approval. Additional mitigation will be needed for Alt 4 in terms of a regional overview of possible impacts to land use related to shoreline development, wildlife habitat, and species recovery efforts.

6.4.1 Are there mitigation measures beyond regulations that reduce the potential for impacts?

Project specific mitigation measures would be imposed through SEPA/NEPA review that would reduce the potential for impacts.

Provisions for clustering under Alternatives 2 and 4 could help minimize the impacts from development pressure on natural and historic resources and incompatible land uses. Zoning code changes to allow lower minimum lot sizes under either Alternatives 2 or 4 could include requirements for cluster development when considering applications for subdivision. Siting clustered development can be done to minimize impacts to shorelines, floodplains, critical areas, and other resources. This mitigation measure could help reduce the effects of increased development on land and shoreline uses.

7.0 Transportation

The GMA requires that local comprehensive plans include a transportation element. The GMA further created a formal mechanism for local governments and the state to coordinate transportation planning for regional transportation facilities, and it authorized the creation of Regional Transportation Planning Organizations (RTPOs). The Southwest Washington Regional Transportation Council (RTC) is the RTPO for the three-county area of Clark, Skamania, and Klickitat Counties.

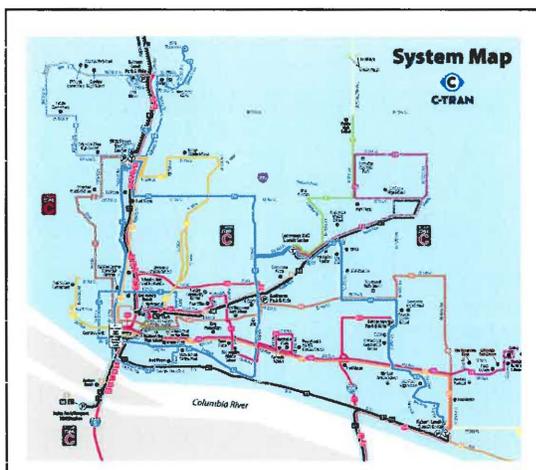
The Regional Transportation Plan (RTP) for Clark County is the region's principal transportation planning document. The 2014 RTP identifies future regional transportation system needs to the year 2035. It outlines strategies and improvements necessary to maintain adequate mobility within and throughout Clark County. The RTP must be consistent with the area's comprehensive long-range land use plans including the Clark County Community Framework Plan, urban development objectives, overall social economic and environmental system performance, and energy conservation goals and objectives. The RTP's complete and up-to-date description of transportation facilities and issues in the County, along with the analysis in the 2007 Comprehensive Plan EIS, provided the basis for Sections 7.1 and 7.2 of this chapter.

The transportation system in Clark County consists of five components, all of which are linked together to keep people and freight moving through-out the County: roadways for motorized vehicles (cars, trucks and other vehicles, and bus service); non-motorized facilities for pedestrians and bicycles; airports; rail lines; and marine ports. The system is described below, and in more detail in the 2007 Comprehensive Plan Transportation Element. This section is intended to update and supplement the analysis in the 2006 Comprehensive Plan FEIS.

7.1 Setting

7.1.1 Existing Roadway Network and Mass Transit

Clark County's Arterial Atlas defines the functional classifications of roadways and is intended to work in conjunction with the Comprehensive Plan. It is a graphic account of all the arterial roadways within the County and provides design guidelines for planning purposes. The major roadways in the County are shown on Figure 7-1.



It is worth noting that \$37 million worth of freight moves toward its destinations on Washington roadways every hour, including the roads of Clark County (SWRTC, 2014). One of the highlighted transportation issues in the RTP for Clark County is freight mobility. The RTP is written to work in conjunction with other regional and state plans concerning freight movements, such as the Washington State Freight Mobility Plan (WSDOT, 2014) and the Clark County Freight Mobility Study (SWRTC, 2010).

Local bus service is provided on area roadways by C-TRAN, a publicly funded transit agency. Its facilities and services are included as part of the designated regional transportation system. C-TRAN operates 16 local urban routes, 4 limited and 7 premium commuter routes and general purpose dial-a-ride and American with



Source: Clark County 2014; OSM 2014; ESA 2014

Figure 7-1: Existing Major and Arterial Roads

Disabilities Act (ADA)-compliant paratransit services for about 230,000 customers. C-TRAN also operates other bus transit services such as Connectors and the shopping shuttle. In 2013 C-TRAN provided 280,922 total vehicle hours and 254,632 revenue hours of fixed route service with ridership totaling 6.2M. C-TRAN service levels are dependent on sustaining funding sources with local sales tax being a significant revenue source for system operations (SWRTC, 2014).

Inter-city bus service to cities throughout the northwest and nation-wide, provided by Greyhound Bus Lines and Bolt Bus service is accessible at Portland, Oregon. C-TRAN provides opportunities to connect with TriMet for fixed route transit to Portland, Oregon, connection with Skamania and Cowlitz County service providers.

7.1.2 Existing Non-Motorized Facilities and Services

Pedestrian travel is accommodated and enhanced by sidewalks, shared use paths, crosswalks, curb ramps and other infrastructure that provides separated space and enhances visibility for pedestrians. Clark County has a large system of local and regional trails for non-motorized use.

The County's policy is to construct sidewalks on one side of most streets, although several main streets through areas with pedestrian destinations have sidewalks on both sides, such as NE 99th Street and SW Eaton Boulevard. In rural areas, pedestrians usually travel on the shoulder of the roadway, which is often unpaved. New development in rural centers is currently required to construct sidewalks as part of infrastructure improvements. The County also has a modest program to construct sidewalks in already developed areas. Bicycles are permitted on all roads in Clark County, with two exceptions through the Vancouver area: bicycles are not allowed on Interstate 5 (I-5) from the Columbia River to the junction with I-205 or on I-205 from state line to State Route (SR) 14 (Clark County, 2010).

7.1.3 Existing Airports, Rail & Marine Ports

Airports and Air Transportation

Clark County largely relies on the Portland International Airport (also known as PDX) located in Portland, Oregon to the southwest of the I-205 Glenn Jackson Bridge for air passenger transportation service. This is a regional airport with domestic and international passenger and freight service.

In addition, there are a number of air freight carriers serving Portland. PDX saw rapid growth in passenger numbers and freight in the 1990s and now consistently serves over 1 million passengers per month.

Within Clark County, general aviation airfields include Pearson Field and Grove Field. Pearson Field, located south of downtown Vancouver off SR-14, is operated by the City of Vancouver and covers 134 acres owned by the National Park Service. Pearson is designated as a part of the regional transportation system. Grove Field is a Basic Utility Stage I Airport operated by the Port of Camas/Washougal. Located in the Fern Prairie area 5 miles north of Camas, it has a 2,832 foot paved illuminated runway, an above-ground self-fueling station and hangar space for over 60 aircraft. Clark County is also home to a number of private airfields.



The Pearson Field Airpark circa 1930.
Source: Davis-Monthan Aviation Field Register
(http://www.dmairfield.org/people/bond_cf/index.html).

Rail

There are two mainline rail lines, both owned by Burlington Northern Santa Fe (BNSF), that run through Clark County. The mainlines carry both freight and passengers. The BNSF Seattle/Vancouver line running north/south has 70 to 80 trains operating in the corridor each day. The BNSF Vancouver/Eastern Washington line running east/west handles about 40 trains daily. Union Pacific Railroad operates some freight trains to Tacoma and Seattle on BNSF’s lines.

Twelve Amtrak trains serve Vancouver daily with approximately 807,349 riders in 2013. The Empire Builder travels between Seattle and Chicago via Portland, Oregon; the Coast Starlight travels between Seattle and Los Angeles via Portland, Oregon; and the Cascades travels between Vancouver, British Columbia, and Eugene, Oregon. An average of 5,274 passengers per month pass through the Clark County station.

Amtrak provides daily passenger service on the BNSF lines. The Chelatchie Prairie Railroad (Lewis and Clark Railroad) is a 33-mile short line railroad owned by Clark County. The operating and maintenance responsibilities for the line are leased out under long-term operating contracts to two different railroad operators. On the upper 19-mile line north of Heisson, the Battle Ground, Yacolt, and Chelatchie Prairie Railroad Association (BYCX), a volunteer group, operates a passenger excursion program originating in Yacolt. On the lower 14-mile line segment from Heisson to the south, the Portland Vancouver Junction Railroad (PVJR) is responsible for freight operations. It is anticipated that considerable

freight growth will continue through the freight operator to help support the economic development vision for Clark County.

Marine Ports and Transportation

The Columbia River provides a navigable waterway for the Clark County region as part of the Columbia/Snake River system. Clark County has three port districts; the Port of Vancouver USA, the Port of Camas-Washougal and the Port of Ridgefield though only the Port of Vancouver serves marine freight vessels. Barge traffic operates from the Portland-Vancouver metropolitan area to eastern Washington and Oregon. Ocean-going ships use the Port of Vancouver, USA.



7.2 How has the transportation system changed since 2007?

In general, there has been little change to the transportation system in the County since 2007. The national, state, and local economies have reduced investment in much of the system; in some parts of the system, service has been reduced. The conditions are beginning to reverse with a combination of increasing travel demand and a clear desire by the general population for improved services (SWRTC, 2014). Demand continues to trend toward single occupancy vehicles as seen in Table 7-1. Table 7-1 also shows how an increase in number of residents working from home affects travel patterns.

Table 7-1. Clark County Travel to Work Patterns

	1990	Percent	2000	Percent	2013	Percent
Commuters	108,945		161,471		192,379	
Drive Alone	87,748	80.5%	128,014	79.3%	152,952	79.5%
Carpool	12,017	11.0%	18,089	11.2%	16,410	8.5%
Transit	2,275	2.1%	4,228	2.6%	4,233	2.2%
Motorcycle					771	0.4%
Walked	2,091	1.9%	2,211	1.4%	3,488	1.8%
Bicycle					333	0.2%
Other	1,224	1.1%	1,788	1.1%	1,271	0.7%
Worked at Home	3,590	3.3%	7,141	4.4%	12,918	6.7%
Mean Travel Time to Work (those that work outside home)	21.2 min.		24.7 min.		25.5 min.	

Source: RTC, 2014 Table 2-1, based on U.S. Census Bureau (including 2013 American Community Survey, 1-year estimates)

7.2.1 Roadway Network

A review of traffic volumes at selected Clark County locations indicates continued annual growth of 3 to 5% on average between 1985 and today, with several locations, such as Padden Parkway, experiencing growth in the double digits. This overall growth rate reflects the fact that, even during the Great Recession years, traffic volumes continued to grow, although more slowly than in previous years (SWRTC, 2014).

There has also been growth in the number of registered passenger cars and total vehicles in Clark County. From 1980 to 2013 there was a 167% increase in passenger cars (from 106,889 to 284,969) and a 155% increase in total registered vehicles (from 171,474 to 437,840). Passenger cars represent 65% of total registered vehicles in 2013, up from 62% in 1980 (SWRTC, 2014).

Some of the major roadway construction projects completed since the 2007 include:

- Salmon Creek Interchange
- SR 502/219th Interchange
- NE 19th Street, from NE 72nd Avenue to NE 87th Avenue
- NW 179th Street, from I-5 to the Sherriff complex
- NE 88th Street, from Hwy 99 to St. Johns Road
- NE St. Johns Road, from NE 50th Avenue to NE 72nd Avenue

7.2.2 Transit

In 2014, C-TRAN operated 20 local urban bus routes, three more routes than in 2007, and 7 premium commuter routes, one less than in 2007. Between 2010 and 2014, minor transit service revisions were made, fare increases were implemented, and a new ridership counting method was initiated. With these changes, ridership decreased by 2.9% between 2010 and 2014 (SWRTC, 2015). General purpose dial-a-ride and ADA compliant paratransit services have also been reduced, although serving the same number of customers as it did in 2007. C-TRAN also operates other transit services such as Connectors and the shopping shuttle. These additional routes restored transit connection to smaller cities in C-TRAN’s service area. In early 2007, the Battle Ground Connector was replaced with Route #7 Battle Ground due to ridership demand. The Yacolt Connector was replaced by an extension of Route #47.

Inter-city bus service to cities throughout the northwest and nation-wide, provided by Greyhound Bus Lines, is no longer available from Vancouver. The Greyhound bus service stop in Vancouver, Washington closed on January 1, 2009. Access to Greyhound and Bolt Bus service is now only available in Portland, Oregon. Northwest Trailways, which had service in the region in 2007, no longer operates out of Washington or Oregon.

7.2.3 Non-motorized Facilities

Clark County's Bicycle and Pedestrian Plan is intended to make traveling by non-motorized methods safer and more convenient for people to get to major destinations (Clark County, 2010). The plan identifies ways to improve the transportation network by integrating existing sidewalks, bike lanes and trails. The Bicycle and Pedestrian Plan was approved by the Board of Clark County Commissioners at a public hearing on November 23, 2010.

7.2.4 Air Transportation

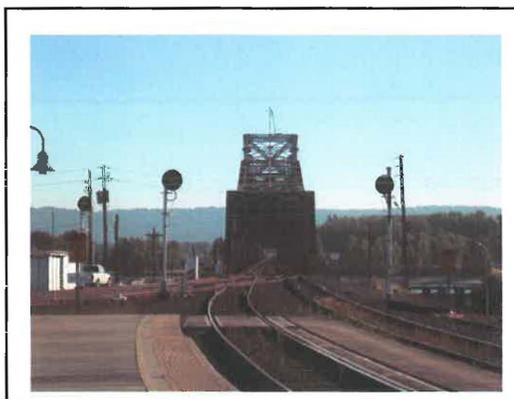
In 1998, the number of airline passengers travelling through PDX surpassed 13 million for the first time and grew to 14.7 million passengers a year in 2007 before the economic downturn which reduced passenger numbers to 12.9 million in 2009. Recovery from the Great Recession is now evident with PDX serving 15 million passengers in 2013.

The Washington State Department of Transportation's Aeronautics Division and the local pilots' association recommended that an additional airport be sited in Clark County. Federal and state agencies and local jurisdictions are continuing efforts to site such facilities so that local jurisdictions ensure that the land uses surrounding potential sites are compatible with aircraft operations.

7.2.5 Rail

During the 1990s Washington and Oregon began to invest transportation funds to improve local Amtrak service. In 1993, Amtrak offered a single local daily round-trip connecting Eugene and Seattle with ridership totaling 94,061 trips. By 2011, service has grown to four daily Amtrak Cascades roundtrips operating between Seattle and Portland, with two extending to Eugene and Vancouver BC, Canada. Between 1993 and 2013, ridership increased by 758% from 94,061 annual riders in 1993 to 807,349 riders in 2013.

The Pacific Northwest Rail Corridor is one of eleven designated high-speed corridors in the nation. Its designation pre-qualifies the region for federal high-speed rail funding. Construction of rail corridor improvements began in 1998. Custom-built trains are now in service on Amtrak's Pacific Northwest Rail Corridor service. The Vancouver Amtrak station facility was upgraded as part of the Eugene to Vancouver B.C. passenger rail service improvements. In the early 2010's, the Vancouver Rail Project improvements in the vicinity of the Vancouver Yard were made with the intent of increasing safety, reducing rail congestion, and improving on-time performance of Amtrak's passenger rail service. The project added a new rail bypass track and a grade-separated crossing of the rail lines for vehicles using west 39th Street in Vancouver was opened in 2010.



Under the 2007 Comprehensive Plan, the County designated an area for railroad industrial to enable the development of industry and growth for use of the Chelatchie Prairie RR. In 2007, the County was awarded \$1.1 million from the WSDOT Rail Emergent Fund for rehabilitation to the lower 14 miles of track and a new trans-load facility was created between 78th and 88th Streets. Clark County continues to pursue state and federal grants to upgrade the track for safer operation and increased freight on both the upper and lower lines.

7.3 Environmental Impacts

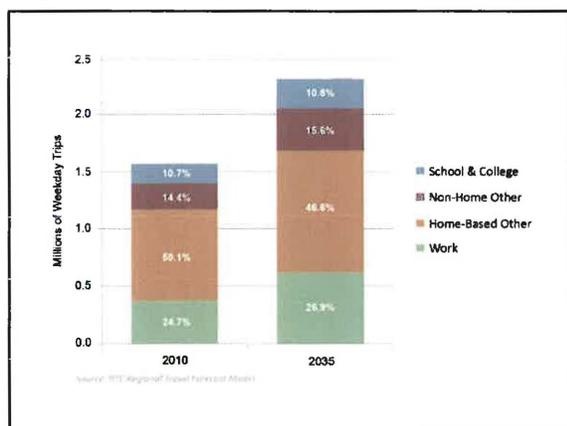
7.3.1 What methodology was used to analyze impacts to the transportation system from each of the alternatives?

Assessments of transportation impacts typically rely on population growth projections and regional transportation modeling information, such as travel demand, to confirm likely transportation system impacts and needs. The analysis of transportation impacts conducted for the 2007 Comprehensive Plan found that the Build Alternatives at the time would have resulted in a significant number of congested lane miles of roadway and freight mobility. C-TRAN service corridors would have experienced substantial delays, and reduced levels of service, and non-motorized facilities and services would have been similarly impacted. To address those impacts, in keeping with the concurrency requirements of the GMA, the Clark County 20-Year Transportation Capital Facility Plan included over \$950 million in improvements to the road network for the 2004-2024 timeframe. To prioritize those investments, the six-year Transportation Improvement Plan (TIP) identified \$260 million for the 2007-2012 time period. Due to the Great Recession, 8 of the 20 projects in the TIP were completed totaling approximately \$100 million, the Salmon Creek Interchange being one of the largest at nearly \$40 million (see also Section 7.2.1, above).

The current growth projections considered by the 2014 RTP and this SEIS are lower than those of the 2007 Comprehensive Plan, and the four current alternatives were qualitatively assessed to see how they would respond to and support the findings of the 2014 RTP considering these lower growth rates. The unique land use patterns of each alternative and where development would likely occur, likely traffic demand, trip distribution, and mode split were all assessed, using data from the 2014 RTP.

7.3.2 How will future growth impact the transportation system in 2035?

Between 2013 and 2035, the region's population is forecast to grow by 33% and the region's employment is forecast to grow by 75%. The regional travel forecast model, using a base year of 2010, projects a resulting increase in trips per day of 48% with a 5.5% increase in regional transportation

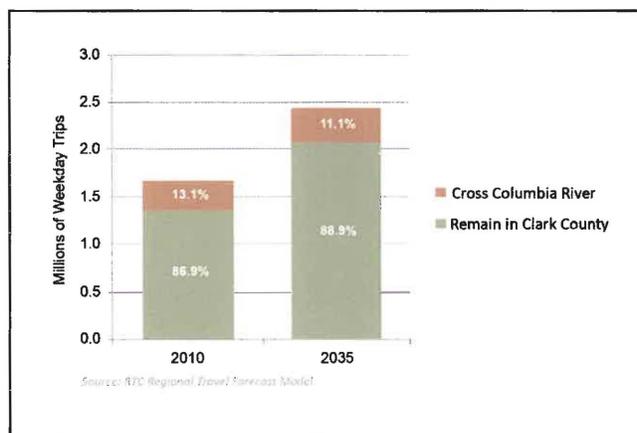


system highway lane miles and an 18% increase in fixed-route transit service hours (SWRTC, 2014).

In the regional transportation planning process the forecast growth in housing and employment for the year 2035 is converted into projections of future travel demand. For the purpose of analyzing future travel demand, a "Transportation Analysis Zone" (TAZ) System is used. The Portland metropolitan area is divided into TAZs; there are over 665 zones in Clark County. For each Clark County TAZ, the comprehensive plan land use designations and existing zoning are used as a basis for distributing

2035 forecasts for housing and employment (SWRTC, 2014). Clark County travel demand, i.e., the number of travel trips, is heavily home-based, rather than work-based. From 2010 to 2035 there is forecast to be a 48% increase in all-day person trips from around 1.56 million trips per day in 2010 to over 2.31 million trips in 2035.

Growth in population and jobs has resulted in an increase in travel demand to be met by Clark County's transportation system. Employment in Clark County has also changed over time, with a relative decline in traditional, blue-collar, industrial jobs and an increase in service sector employment. There has been growth in "high-tech" employment and a large increase in the retail sector in recent years. The number of jobs is increasing in suburban areas of Clark County and employment is dispersing throughout the region. Travel to work in Portland accounted for a little over 13% of weekday trips in 2010 and is projected to be an even smaller percentage in 2035; however, due to the overall increase in population, there will still be more people traveling to work in Portland in 2035 than there are today. The "new" suburban places of employment have tended to add to travel demand because jobs are distributed over a larger area compared to urban places where jobs are more concentrated. This design has catered to auto-commuters and is not as easily served by transit service.



The 1994 Comprehensive Plan forecasted significant development in three growth centers within the Vancouver UGA: Downtown Vancouver, Vancouver Mall and the Salmon Creek/Washington State University vicinity. More recent forecasts indicate significant growth for the smaller cities within Clark County. These smaller cities are planning for denser development both inside and outside their existing urban growth boundaries as they become the focus for growth outside of the core urban area of Vancouver (SWRTC, 2014). In 2010 87% of trips remained in Clark County with 13% going into Oregon. The projection for 2035 is similar with 89% of trips staying in Clark County and 11% traveling to Oregon (SWRTC, 2014).

In the modeling process, a base year of 2010 was used with forecasting travel demands to the year 2035. A needs analysis was then carried out to determine what impact the forecast growth in travel demand might have on the transportation system. In carrying out analysis of the existing and future transportation network, the regional travel forecasting model was used to identify needs. This included committed projects identified in the TIP as well as projects with a reasonable expectation that funding would be available within the twenty year planning horizon.

Development of land, growth in population and travel demand requires a combination of expansion of public facilities and service provision and a revision to land use plans to ensure there are mixed use developments and a better balance of jobs and housing throughout the region. One of the goals of the comprehensive plan for the Clark County region, developed under the GMA, is to slow the trend of increased dependence on the automobile. That trend has yet to materialize as evidenced in the information provided earlier in Table 7-1.

The GMA requires that transportation system improvements be put in place, concurrent with land development. An extensive list of capital improvements has been included in the 2014 RTP to address the wide array of transportation needs for the Clark County region as expressed through the comprehensive planning efforts of its jurisdictions. The projects include roadway improvements, traffic

signals, road widenings, overlays, intersection reconstruction, access ramps, bicycle lanes and sidewalks, school crossings, guard rails, culvert replacements, and storm drainage improvements. The total for the regional transportation infrastructure needed to accommodate growth over the next 20 years will require an investment of over \$1.8 billion (the approximate total cost of projects identified in the 2007 RTP was \$1.4 billion). The major capital projects for the 2035 regional transportation system are identified on Figure 7-2.

7.3.3 What are the impacts to the transportation system from each alternative?

Alternative 1 – No Action Alternative

Considering the lower population projections for 2035, the increases currently planned in fixed-route bus service, and progress made since 2007 on local roadway improvements under concurrency management, the likely impacts to the transportation system for Alternative 1 do not deviate widely from the 2007 Comprehensive Plan, so detailed transportation analysis was not conducted on this alternative. As demonstrated by the modeling conducted with the Regional Transportation Planning process, congestion is inevitable in various locations throughout the system, regardless of alternative chosen.

Alternative 2 – Countywide Modifications

The majority of changes proposed under this alternative are technical fixes to correct map inconsistencies, and a reduction in the number of comprehensive land use designations. There are minor adjustments within the UGAs of all the cities (except Camas and Yacolt). The other aspect of this alternative is the proposed reduction in minimum lot area for resource lands, which has the potential to create approximately 8,200 new parcels. This amount of new development would create a need for expanded transportation facilities in all areas of the county. As shown in Figure 1-2b, the parcels that could potentially be affected by this change are spread throughout the county.

A portion of the potential development would occur where at least some infrastructure currently exists; however, a majority of the potential new development would require road improvements and additional transit routes, and would result in longer commutes to employment centers. The majority of the planned roadway improvements shown in the RTP are located within and adjacent to the more urban areas (Figure 7-2). Infrastructure to support potential future development under Alternative 2 would be in the more rural portions of the county and is not included in the current TIP, the RTP, or the budget for C-TRAN. In addition, existing land uses (e.g., actively farmed areas) in the areas affected by the zoning changes could restrict the amount and placement of new roadways. The burden of constructing new transportation facilities or improving existing facilities to support allowed development would fall to the County, with partial recovery of costs through transportation impact fees.

Full development under this alternative would not happen quickly, but incrementally over the planning period. Individual projects would be required to undergo additional environmental analysis under SEPA; however, the cumulative impact of adding additional transportation facilities to support the development allowed under Alternative 2 could be significant. The infrastructure needed would change the character of rural Clark County.

Alternative 3 – City Expansion

The likely impacts to the transportation system for Alternative 3 do not deviate widely from the 2007 Comprehensive Plan, so detailed transportation analysis was not conducted on this alternative. All of the proposed UGA expansions under Alternative 3 would include more intensive development at full build-out than currently exists, resulting in increased traffic congestion in those areas. UGA expansions fall within the areas planned for future development and transportation network improvements. Increased demands on transportation are not expected to be significant for Alternative 3.

Alternative 4 – Rural, Agriculture, and Forest Changes

Alternative 4 has the potential to create the most impacts to transportation in Clark County due to the amount of development that could occur with the proposed reduction in minimum lot sizes. With the potential to create over 12,000 new lots over the majority of the county, it could significantly change transportation facilities and services in the rural county areas. This amount of new development would create a need for expanded transportation facilities in all areas of the county. As shown in Figure 1-4b, the parcels that could potentially be affected by this change are spread throughout the county.

A portion of the potential development would occur where at least some infrastructure currently exists; however, a majority of the potential new development would require road improvements and additional transit routes, and would result in longer commutes to employment centers. The majority of the planned roadway improvements shown in the RTP are located within and adjacent to the more urban areas (Figure 7-2). Infrastructure to support potential future development under Alternative 4 would be in the more rural portions of the county and is not included in the current TIP, the RTP, or the budget for C-TRAN. In addition, existing land uses (e.g., actively farmed areas) in the areas affected by the zoning changes could restrict the amount and placement of new roadways. The burden of constructing new transportation facilities or improving existing facilities to support allowed development would fall to the County, with partial recovery of costs through transportation impact fees.

Full development under this alternative would not happen quickly, but incrementally over the planning period. Individual projects would be required to undergo additional environmental analysis under SEPA; however, the cumulative impact of adding additional transportation facilities to support the development allowed under Alternative 4 could be significant. The infrastructure needed would change the character of rural Clark County. For these reasons, Alternative 4 would likely have significant impacts to transportation in Clark County.

How do the potential impacts between the alternatives compare?

Table 7-2 is a comparison of the impacts to transportation from the proposed alternatives.

Table 7-2. Impacts to Transportation from Proposed Alternatives

Alternative 1 – No Action Alternative	Alternative 2 – Countywide Modifications	Alternative 3 – City UGA Expansion	Alternative 4 – Rural, Agriculture, and Forest Changes
<p>Lowest potential for impacts of all alternatives. More intensive development could affect the levels of service provided in those areas.</p>	<p>Second highest potential for impacts of due to potential for more intensive development spread across a larger geography. Infrastructure costs could be prohibitive to the County.</p>	<p>Low potential for impacts to infrastructure and services. No expansion of service areas would be required.</p>	<p>Highest potential for impacts of due to the most potential for intensive development spread across a larger geography. Infrastructure costs could be prohibitive to the County.</p>

7.3.4 Are there adverse impacts that cannot be avoided?

Even with the level of infrastructure investment estimated in the draft MTP, increased congestion can be expected on Clark County’s transportation system by the year 2035. In many of the transportation corridors, further system expansion through widening of existing highways will not be feasible (SWRTC, 2014). Alternative 4 in particular, with extensive land use changes not accounted for in the 2014 Regional Transportation Plan, would create a substantial burden on the County to plan and pay for the necessary roadway network improvements.

In order for new development under Alternatives 2 or 4 to be serviced by C-TRAN, new routes would have to be established, new equipment (e.g., buses) purchased, and new employees hired for operation. Because rural development is likely to happen incrementally, over a longer period of time, it may be cost-prohibitive for C-TRAN to service the rural areas of Clark County until those full build-out conditions are reached, if at all.

7.4 Mitigation

7.4.1 Are there mitigation measures beyond regulations that reduce the potential for impacts?

The need for maintenance and preservation of the existing regional transportation system, safety for travelers, and expansion of the roadway network are needs faced by most communities around the nation. Consecutive federal Transportation Acts: ISTEA (1991), TEA-21 (1998), SAFETEA-LU (2005), and MAP-21 (2012) emphasized the need to develop alternative modes and increase capacity of the existing highway system through more efficient use by, for example, ridesharing, demand and system management, development of non-motorized modes (bicycle lanes and pedestrian paths), transit and high capacity transportation systems. These federal laws provided funding mechanisms to require that other alternatives be considered before highway capacity expansion is identified as the solution (SWRTC, 2014). In order to take advantage of federal assistance, Clark County and its cities could consider incorporating more transportation options and further encourage use of alternative transportation modes.

8.0 Public Facilities and Utilities

8.1 Overview

The GMA mandates that comprehensive plans include provisions for the designation of lands for public facilities and utilities. Future development is dependent upon the availability of these services. Clark County is served by a number of public facility and utility providers. The following briefly describes the services and providers that could be affected by growth in Clark County.

8.1.1 Fire Protection

Clark County Fire & Rescue (CCF&R) provides emergency services to the cities of Battle Ground, La Center, Ridgefield, Woodland and the portions of unincorporated Clark County surrounding these communities. Their service area encompasses 162 square miles. The cities of Camas, Vancouver and Washougal have municipal fire departments that provide emergency services within those incorporated areas. The Washington Department of Natural Resources (DNR) and the US Forest Service also provide services within their respective jurisdictions. Each provider or jurisdiction establishes levels of service for response times.



8.1.2 Police Protection

The cities of Battle Ground, Camas, La Center, Ridgefield, Vancouver and Washougal provide local law enforcement services through their local police departments. The Clark County Sheriff's Department provides services in those areas outside the city boundaries and in the Town of Yacolt. The USDA Forest Service Law Enforcement and Investigations division provides law enforcement within US Forest Service lands. The Washington State Patrol has police jurisdiction throughout the state. Facilities include the county jail, a leased office for the inter-jurisdictional Clark-Skamania Narcotics Task Force, the 911 Clark Regional Communication Agency, and the Child Abuse Intervention Center. Larch Corrections Center is the only State detention facility in Clark County. Service providers typically use ratios of staff to population and response time to measure level of service. Table 8-1 shows the current commissioned officer rates for each of the jurisdictions.

8.1.3 Public Schools

There are nine school districts within Clark County which include Green Mountain, La Center, Battle Ground, Ridgefield, Hockinson, Vancouver, Evergreen, Camas, and Washougal. Schools are not subject to the direct concurrency requirements of the GMA, but are required by existing state law to be adequately provided and available before land divisions can be approved. Planning for new school facilities within UGA's can be difficult due to the amount of land needed to meet minimum facility requirements. Some students attend schools in the City of Woodland.

Table 8-1. Number of Commissioned Law Enforcement Officers per 1,000 Population

Agency	Total Population in 2013	Total Commissioned Officers	Rate Per 1,000	Standard Officer per 1,000
Clark Co. Sheriff	209,325	131	0.63	1.3
Battle Ground P.D.	18,130	21	1.16	1.5
Camas P.D.	20,320	25	1.23	1.64
La Center P.D.	3,015	8	2.65	2
Ridgefield P.D.	5,545	8	1.44	1.6
Vancouver P.D.	16,5084	187	1.13	1.3
Washougal P.D.	14,580	18	1.23	1.52

Source: *The Crime in Washington 2013 Annual Report*, Washington Association of Sheriffs and Police Chiefs.

8.1.4 Parks and Recreation

The Clark County Parks Department was formed in January 2013 after dissolution of the joint Vancouver-Clark Regional Parks and Recreation Department. The Clark County Parks Department is currently working on an update to the 2007 Vancouver-Clark Parks & Recreation Comprehensive Parks, Recreation and Open Space Plan. The Plan establishes minimum standards for neighborhood, community, and regional parks and urban open space in order to maintain the quality of life and recreational opportunities desired by County residents. Each of the cities has their own parks and recreation facilities, though not all of them have adopted minimum standards for acreage and types of park land. Planning for growth must take into consideration space needed for recreational facilities as UGA’s are expanded and development occurs.

8.1.5 Libraries



Photo courtesy FVRLD

The Fort Vancouver Regional Library District (FVRLD) serves all of Clark, Skamania and Klickitat Counties and the City of Woodland in Cowlitz County. The FVRLD has 11 libraries within Clark County and Woodland, 2 bookmobiles, a Vancouver operations center, and an interlibrary online loaning system. In addition, the Camas public library contracts with FVRLD for services. The level of service standard used by FVRLD for planning purposes relates to collection size, rather than facility square footage. Based on projected populations, the FVRLD assumes the need for a collection size of 1.7 print/physical items per capita (FVRLD, 2013). Other library facilities in the County include the Clark

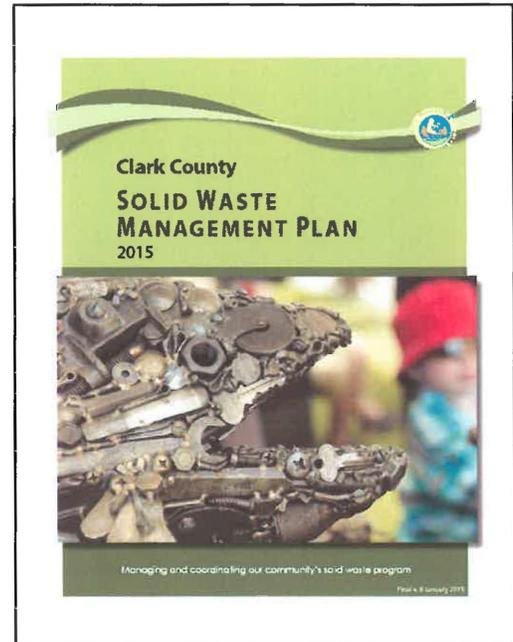
County Law Library in Vancouver, and the WSU-Vancouver campus library.

8.1.6 Solid Waste

The Clark County Public Works Department operates the Recycling/Solid Waste program. The County contracts with private companies for recycling and municipal solid waste (MSW) collection, sorting, processing and disposal services. Waste Connections provides garbage, recycling and yard waste collection services in the cities of Vancouver, Battle Ground, La Center and Washougal, the Town of

Yacolt, and unincorporated Clark County. The County does not have a licensed landfill within its boundaries. Clark County and the City of Vancouver contract with Waste Connections, Inc. to collect and process MSW, and then transport it to the Finley Buttes and Wasco County landfills in Oregon.

Waste Control, Inc. provides garbage and recycling collection services in the Woodland vicinity and transports those wastes to the Cowlitz County Landfill. The City of Camas provides collection services for its residents. There are also three transfer stations, one in Washougal and two in Vancouver, which accept solid waste. Some household hazardous wastes are collected with curbside services, with limitations. All three of the transfer stations also accept household hazardous wastes for recycling.



8.1.7 Water Systems

Clark Public Utilities (CPU), a customer-owned, municipal corporation provides domestic water service to customers in approximately 200 square miles, including the City of La Center, the Town of Yacolt, much of the unincorporated urban areas, and to 23 independent water systems. The Cities of Battle Ground, Camas, Ridgefield, Vancouver, and Washougal generally provide water service to their urban areas. In addition, there are approximately 917 independent water purveyors within the county (Ecology, 2011). The remainder of the county's population gets their water from private wells. The source for virtually all water in Clark County, public and private, is from groundwater aquifers.

8.1.8 Electrical Systems

CPU also supplies electrical service to all of Clark County with a system of 54 substations/switching stations and approximately 6,600 miles of transmission and distribution lines. The River Road Generating Plant creates approximately one-third of the power supplied by CPU with combined-cycle combustion turbines fueled by natural gas. The remainder of CPU's power supply is purchased from the Bonneville Power Administration (BPA).

8.1.9 Sanitary Sewer

The 2007 Comprehensive Plan identified the need for additional sanitary sewer services in Clark County to accommodate anticipated growth. As a result, 12 of the local sanitary sewer service providers in the county prepared a study to plan for growth and infrastructure needs. As a result, Clark County, Clark Regional Wastewater District, and the Cities of Battle Ground and Ridgefield are forming a new regional partnership, the Discovery Clean Water Alliance (DCWA). The remaining service providers continue to provide service for their respective areas as described in the 2007 Comprehensive Plan.

8.2 What has changed since 2007?

8.2.1 Fire Protection

Some changes have been made to the distribution of services within the fire districts since the 2007 Comprehensive Plan. In 2008, Clark County Fire Districts 11 and 12 combined to form Clark County Fire and Rescue. The emergency medical service and ambulance service response standards have not changed since the 2007 Comprehensive Plan. The Washington State Surveying and Rating Bureau

(WSRB) is an independent property insurance rating bureau for the state of Washington. As described in the 2007 Comprehensive Plan, the WSRB publishes standard response times by classification for fire protection services. The standards are shown in Table 8-2, below.

Table 8-2. Emergency Medical Service and Ambulance Service Response Standards

	Urgent/Priority	Not Urgent/Priority
First Response		
Urban	4.59 minutes	8.59 minutes
Suburban	5.59 minutes	12.59 minutes
Rural	10.59 minutes	20.59 minutes
Ambulance Response		
Urban	7.59 minutes	11.59 minutes
Suburban	10.59 minutes	17.59 minutes
Rural	17.59 minutes	29.59 minutes

Table 8-3 summarizes information about the service area, emergency response times, and WSRB rating for fire protection services. The WSRB ratings correspond to a Protection Class of 1 through 10, where 1 indicates excellent fire protection capabilities, and 10 indicates the capabilities, if any, are not considered adequate.

Table 8-3. Fire Protection Providers

District	Area (sq mi)	No. Stations	Avg. Response Time, 2012 (min)	WSRB Rating
Municipal				
Camas*	12	2	6	4 5
Vancouver	93	10	6:38 fire; 5:18 EMS	4
Washougal*	6	1	3-4	5
Fire Districts				
CCFD No. 2	35	1	8.5	8
CCFD No. 3	83	4	6	5
CCFD No. 5**	42	Combined with City of Vancouver		
CCFD No. 6	37	3 + 1 joint	3:41	3
CCFD No. 10	68	6	6.3	8
CCFD No. 13	36	2	6.3	8 – District 13 6 – Yacolt
Clark County Fire & Rescue	160	9 full time 2 volunteer	5.5 fire 4.5 EMS	4

CCFD = Clark County Fire District

*The Camas and Washougal Fire Departments have combined into one department since the 2012 WSRB Rating.

**CCFD No. 5 contracts with the City of Vancouver to provide service

8.2.2 Police Protection

As population and the economy change, so do the statistics for crime rates. In 2012, most Washington law enforcement agencies began reporting crime incidents via the National Incident-Based Reporting System (NIBRS) which groups offenses into different categories than had previously been reported. The 2006 Comprehensive Plan EIS listed the statistical data for Violent Crimes and Property Crimes. The NIBRS reports offenses as Group A or Group B offenses. Both violent and property crimes are included in Group A, while Group B includes offenses not previously recorded under those categories. For the purposes of this analysis however, the data reported in the 2006 Comprehensive Plan EIS is shown with the 2013 data for comparison. The following table summarizes the latest crime statistics for Clark County communities.

Table 8-4. Crime Statistics by Community

Agency	2004				2013			
	Violent Crimes		Property Crimes		Group A Offenses		Group B Offenses	
	Total	Rate Per 1,000	Total	Rate Per 1,000	Total	Rate Per 1,000	Total	Rate Per 1,000
Clark Co. Sheriff	271	1.5	5,372	28.9	6,202	29.6	4,064	19.4
Battle Ground P.D.	30	2.1	436	30.7	706	38.9	260	14.3
Camas P.D.	9	0.6	588	38.3	744	36.6	263	12.9
La Center P.D.	4	2	17	8.5	146	48.4	32	10.6
Ridgefield P.D.	2	0.9	104	47.4	139	25.1	38	6.9
Vancouver P.D.	642	4.2	8,455	55.3	11,005	66.7	2,614	15.8
Washougal P.D.	26	2.4	513	47.6	630	43.2	152	10.4

Source: *The Crime in Washington 2013 Annual Report*, Washington Association of Sheriffs and Police Chiefs.

8.2.3 Public Schools

Within the nine school districts serving Clark County, there have been minimal changes to the existing facilities. Table 8-5 summarizes the current facilities by school district.

Table 8-5. Current Clark County School District Facilities

School District	Number of Public Schools		
	Elementary	Middle School	High School
Battle Ground	6	6	2
Camas	6	2	2
Evergreen	21	6	5
Green Mountain	1	*	*
Hockinson	1	1	1
La Center	1	1	1
Ridgefield	2	1	1
Vancouver	21	6	5
Washougal	3	2	2

*The Green Mountain School is a Kindergarten through 8th grade program and is the only school in the District. High School Students attend La Center High School.

8.2.4 Parks and Recreation

Planning for Clark County parks has changed since the 2007 Comprehensive Plan. As described above, the Clark County Parks Department was formed in January 2013 after dissolution of the joint Vancouver-Clark Regional Parks and Recreation Department. As a result, the County created the Parks and Trails division of the Public Works Department. Parks and Trails is preparing a Draft Parks, Recreation & Open Space Plan Update that, at the time of this publication, is out for public review. This long-range plan is intended to guide the development of parks, trails, sports fields and other amenities through the year 2020. The plan is scheduled to be approved in September 2015.

Since the last Comprehensive Plan update, several parks and recreation projects have been completed. A summary of the existing Clark County park facility acreage is shown in Table 8-6.

Table 8-6. Existing Clark County Park Facilities

Park Type	Developed (acres)	Undeveloped (acres)
Neighborhood Parks	420	172
Community Parks	937	51
Regional Parks	5,060	550
Conservation and Greenway	1,114	1,811
Open Space	56	1,567
Regional Trails	60	n/a

Source: Clark County GIS, 2014.

8.2.5 Libraries

New library facilities completed since the 2007 Comprehensive Plan include:

- A new Battle Ground Community Library was completed in 2009, which replaced the old library on Main Street.
- A new Cascade Park library (Vancouver) was completed in 2009 to replace the old building.
- A new Vancouver Community Library is constructed in 2011 to replace the Mill Plain Blvd. building.
- The Mall Library Connection in Vancouver was remodeled in 2013.

In 2013, the FVRLD completed a Strategic Facilities Plan to determine what service improvements were needed. As a result of that study, new or enlarged library facilities are being planned for Washougal, Woodland and Ridgefield. They are currently soliciting public involvement in that planning process and preparing a pre-design study.

8.2.6 Solid Waste

Since the 2007 Comprehensive Plan, the County and Vancouver have continued to contract with CRC (now owned by Waste Connections, Inc.) to receive and process MSW. In addition to the Finley Buttes Landfill used previously, CRC now also transports MSW from the new Washougal Transfer Station (opened in 2009) to the Wasco County Landfill in Oregon. Yard waste service was expanded in some of the County's rural areas in 2007, and several sites for the E-Cycle Washington program were opened in 2009. The County also purchased the closed Leichner Landfill in 2012 and is now in the process of evaluating reuse options.

The Clark County Solid Waste Management Plan was recently updated, with adoption of the final plan in June 2015. Changes to the system in the Plan focus mainly on continuation, or adoption, of programs focused on waste reduction, recycling, and other management processes. The Plan sites the need for continued evaluation of waste disposal needs in the north county area due to increased development, although no new facilities are planned at this time. No new MSW landfills are planned to be sited in Clark County.

8.2.7 Water Systems

CPU has completed several major projects since the 2007 Comprehensive Plan which include:

- 2008 – Added a second water reservoir in La Center and upgraded aging and undersized water mains.
- 2010 – Completed the South Lake Well Field which added approximately 3.6 million gallons of water per day to the existing capacity.
- 2011 – Constructed a new 24-inch transmission line connecting the South Lake Water Facility with Hazel Dell, and a 16-inch line to connect to the Battle Ground system. CPU developed a new well field near Paradise Point to serve the northern area.
- 2012 – Obtained water right to tap the Carol J. Curtis Well Field to provide approximately 20,000 acre-feet, or double the capacity of the current supply.
- 2013 – Finished construction of a new reservoir providing an additional 500,000 gallons of water. A new transmission line serving La Center and the northern service area was also completed.

8.2.8 Electrical Systems

CPU has completed several major projects since the 2007 Comprehensive Plan which include:

- 2009 – Approved an agreement to purchase power from the new wind project in eastern Oregon.
- 2010 – Implemented the Project Energy Savings pilot program in south Hazel Dell, Rose Village and Fourth Plain Village neighborhoods for energy savings in 123 homes. CPU completed a LEED Gold certified office space expansion.
- 2011 – Replaced the turbine at the River Road Generating Plant resulting in improved performance. CPU executed a new contract with the Bonneville Power Administration to balance the power supply in Clark County by buying or selling electricity as needed. CPU installed the first public electric vehicle charging station in the County.
- 2012 – Completed “the largest energy efficiency project in utility history (CPU 2012 Annual Report)” to reduce energy use.

8.2.9 Sanitary Sewer

The Clark Regional Wastewater District is currently planning for or constructing several upgrades to their systems, including the Discovery Corridor Wastewater Transmission System. This project will convey wastewater from the Ridgefield UGA to the Salmon Creek Wastewater Management System and includes construction of new pump stations and conveyance lines. The St. Johns and Cougar Canyon Sewer Trunkline Restoration project was also recently completed. As stated in Section 8.1.9, the cities of Battle Ground and Ridgefield combined their wastewater systems with Clark County to form the Clark Regional Wastewater District. The Town of Yacolt developed a General Sewer Plan that has been approved by the Department of Ecology. The plan was adopted by the Town in 2012 and they are securing financing to implement the plan.

The City of Camas General Sewer and Wastewater Facility Plan was updated in 2010 to address the additions to the City’s UGA as well as new commercial development in the Grass Valley area. Some infrastructure upgrades resulting from that process have been completed while others are ongoing.

8.3 Environmental Impacts

8.3.1 What methodology was used to analyze impacts to public facilities and utilities from each of the alternatives?

The public service and utility providers within the County were contacted to provide input on existing levels of service, operational constraints, facility needs, and other factors used to determine whether the Comprehensive Plan Alternatives would impact their services. In addition, service statistical and annual reports, facilities plans and other planning documents were reviewed for service records and planned infrastructure changes.

8.3.2 What are the impacts to public facilities and utilities from each alternative?

Alternative 1 – No Action Alternative

As described in the 2007 FEIS, increased demand for public facilities and utilities is related to population and employment growth in Clark County. Under Alternative 1, there would be no expansion of UGA’s and development would continue under the current zoning and land use designations. Urban growth and development over the next 20 years would occur primarily within existing UGAs on land already

targeted for urban development. However, the current zoning does allow for some growth in the rural county areas. Approximately 7,000 new lots could be created under full build-out conditions of Alternative 1. Impacts from development under Alternative 1 would be the same as those identified in the 2007 FEIS.

Alternative 2 – Countywide Modifications

The zoning changes proposed in Alternative 2 would reduce minimum lot size requirements could result in increased development, up to 8,200 new parcels, in the areas zoned for rural, agriculture, and forest resources. Sewer and water services are generally not provided in rural resource areas and potential new development would be required to install water wells and septic systems (see also Chapter 3 Water for potential impacts to water quality from wells and septic systems). The potential for increased development could result in a need for more emergency services and school transportation. Development within rural areas would be spread out over a much larger area than within the incorporated areas and their UGAs. A portion of the potential development would occur where at least some infrastructure currently exists; however, most of this area is not served by public utilities. Public Service support for these areas is less efficient due to travel times (such as for emergency services) and the amount of infrastructure needed (such as for new transmission lines).

Full development under this alternative would not happen quickly, but incrementally over the planning period. Individual projects would be required to undergo additional environmental analysis under SEPA; however, the cumulative impact of adding additional public services and utilities to support the development allowed under Alternative 2 could be significant. The infrastructure needed, such as power lines, schools, and other support services, would change the character of rural Clark County.

Alternative 3 – City UGA Expansion

Expansion of the city growth boundaries in Alternative 3 would result in increased development in some presently undeveloped areas as well as areas that are partially developed. The proposed UGA expansions are already served by emergency services; however, more intense development could result in an increased number of service calls. Development would also result in the need for expansion of other public facilities and utilities. All new development would be required to provide adequate utility service prior to approval and individual projects would be required to undergo additional environmental analysis under SEPA. Alternative 3 is not expected to have any significant impacts on public facilities and utilities in Clark County.

Alternative 4 – Rural, Agriculture, and Forest Changes

Alternative 4 has the potential to create the most impacts to public facilities and utilities in Clark County due to the amount of development that could occur with the proposed reduction in minimum lot sizes. With the potential to create approximately 12,400 new lots over the majority of the county, it could significantly increase the demand for facilities and services in the rural county areas.

Sewer and water services are generally not provided in rural resource areas and potential new development would be required to install water wells and septic systems (see also Chapter 3 Water for potential impacts to water quality from wells and septic systems). The potential for increased development could result in a need for more emergency services and school transportation. Development within rural areas would be spread out over a much larger area than within the incorporated areas and their UGAs. A portion of the potential development would occur where at least some infrastructure currently exists; however, most of this area is not served by public utilities. Public

Service support for these areas is less efficient due to travel times (such as for emergency services) and the amount of infrastructure needed (such as for new transmission lines).

Full development under this alternative would not happen quickly, but incrementally over the planning period. Individual projects would be required to undergo additional environmental analysis under SEPA; however, the cumulative impact of adding additional public services and utilities to support the development allowed under Alternative 4 could be significant, mainly due to the costs of installing infrastructure. The infrastructure needed, such as power lines, schools, and other support services, would also change the character of rural Clark County.

For these reasons, Alternative 4 would likely have significant impacts to public facilities and utilities in Clark County.

How do the potential impacts between the alternatives compare?

Table 8-7 is a comparison of the impacts to public facilities and utilities from the proposed alternatives.

Table 8-7. Impacts to Public Facilities and Utilities from Proposed Alternatives

Alternative 1 – No Action Alternative	Alternative 2 – Countywide Modifications	Alternative 3 – City UGA Expansion	Alternative 4 – Rural, Agriculture, and Forest Changes
<p>Lowest potential for impacts of all alternatives. More intensive development could affect the levels of service provided in those areas.</p>	<p>Second highest potential for impacts of due to potential for more intensive development spread across a larger geography. Development allowed under the new zoning could be delayed until services can be made available.</p>	<p>Low potential for impacts to infrastructure and services. No expansion of service areas would be required.</p>	<p>Highest potential for impacts of due to the most potential for intensive development spread across a larger geography. Development allowed under the new zoning could be delayed until services can be made available.</p>

8.3.3 Are there adverse impacts that cannot be avoided?

Inevitably, population and employment growth would result in an increased need for all public facilities and utilities. Unavoidable adverse impacts are related to the expenditure of resources to serve that growth. Unavoidable adverse impacts would result only if the revenue was not available to expand public facilities and utilities to the required levels of service.

8.4 Mitigation

8.4.1 Are there mitigation measures beyond regulations that reduce the potential for impacts?

Some form of phased development could be mandated in new expansion areas until public services and utilities meet adopted standards. Additional mitigation measures identified in the 2007 FEIS that are applicable to the 2016 Comprehensive Plan Update include:

- Increase communication and coordination among service providers during subarea planning processes to improve service delivery and ensure adequate access to public facilities;

- Improve development regulations to facilitate siting of public facilities and utilities and to improve public safety;
- Explore use of GMA concurrency approaches to help finance school, fire, and park facilities;
- Examine opportunities to co-locate facilities;
- Engage the community in creative funding for schools and libraries; create programs to improve public safety; and encourage conservation of water and energy resources.

9.0 References

- Clark County. 2006. Draft Environmental Impact Statement for the Comprehensive Growth Management Plan of Clark County, Battle Ground, Camas, La Center, Ridgefield, Vancouver, Washougal, and Yacolt. August 25, 2006.
- Clark County. 2007. Final Environmental Impact Statement for the Comprehensive Growth Management Plans of Clark County, Battle Ground, Camas, La Center, Ridgefield, Vancouver, Washougal, and Yacolt. May 4, 2007.
- Clark County. 2008. Highway 99 Sub-Area Plan. December 16, 2008.
- Clark County. 2010. Clark County, Washington Bicycle and Pedestrian Master Plan. October 2010. Accessed July 2015 at <http://www.clark.wa.gov/planning/bikeandped/docs.html>.
- Clark County. 2012. Clark County Rural Lands Study. May 15, 2012.
- Clark County. 2012. Clark County 20-Year Comprehensive Growth Management Plan 2004-2024. Adopted September 2007, last updated December 2012.
- Clark County. 2012. Clark County Shoreline Master Program 2012 Update. Approved August 29, 2012.
- Clark County. 2013. Arterial Atlas. May 2013. Accessed July 2015 at <http://www.clark.wa.gov/planning/Transportation/transportation.html>
- Clark County. 2014. Clark County Conservation Areas Acquisition Plan. Legacy Lands Program. Environmental Services Department. March, 2014
- Clark County. 2014. 2015 – 2020 Transportation Improvement Program (TIP). Clark County Public Works. November 2014. Access at http://www.clark.wa.gov/publicworks/construction/documents/TIP_adopted.pdf.
- Clark County. 2015. Solid Waste Management Plan. May 2015.
- Clark County. 2015. Clark County Municipal Code. Current through July 21, 2015.
- Clark County. 2015. Vacant Buildable Lands Model Maps and GIS data. July 2015.
- C-TRAN. 2010. C-TRAN 20 Year Transit Development Plan. Adopted June 8, 2010.
- Fort Vancouver Regional Library District. 2013. Strategic Facilities Plan Final Report. December 2013.
- NOAA Fisheries. 2012. Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead. Available: http://www.westcoast.fisheries.noaa.gov/publications/protected_species/salmon_steelhead/status_of_esa_salmon_listings_and_ch_designations_map.pdf. Accessed December 2014.
- Natural Resources Conservation Service (NRCS). 1972. Soil Survey of Clark County, Washington. November 1972. Available at http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/washington/WA011/0/wa011_text.pdf.
- Southwest Washington Regional Transportation Council (RTC). 2015. Congestion Management Process, 2014 Monitoring Report. July 2015.

- Southwest Washington Regional Transportation Council (RTC). 2014. Regional Transportation Plan for Clark County, 2014 Update. Adopted December 2, 2014. Accessed at <http://www.rtc.wa.gov/reports/rtp/Rtp2014Clark.pdf>.
- US Census Bureau. 2015. U.S, Census Bureau State and County QuickFacts. Accessed June 2015 at <http://quickfacts.census.gov/qfd/index.html>.
- USFWS. 2014. Trust resources list. Information, Planning, and Conservation System (IPAC). Available: <http://ecos.fws.gov/ipac/>. Accessed December 2014.
- WDFW. 2008. Priority Habitats and Species List. Available: <http://wdfw.wa.gov/conservation/phs/list/>. Accessed December 2014.
- WDFW. 2013. PHS Statewide List and Distribution by County (Excel spreadsheet). Available: <http://wdfw.wa.gov/conservation/phs/list/>. Accessed December 2014.
- WDFW. 2014a. Washington State Species of Concern List. Available: <http://wdfw.wa.gov/conservation/endangered/All/>. Accessed December 2014.
- WDFW. 2014b. Salmonscape online mapping. Available: <http://apps.wdfw.wa.gov/salmonscape/map.html>. Accessed December 2014.
- Washington State Department of Transportation (WSDOT). 2014. Washington State Freight Mobility Plan. October 2014. Available: <http://www.wsdot.wa.gov/Freight/freightmobilityplan>.
- Washington Natural Heritage Program (WNHP). 2014a. Washington Natural Heritage Information System List of Known Occurrences of Rare Plants in Washington, September 2014, Clark County. Available: <http://www1.dnr.wa.gov/nhp/refdesk/lists/plantsxco/clark.html>. Accessed December 2014.
- Washington Natural Heritage Program (WNHP). 2014b. Known High-Quality or Rare Plant Communities and Wetland Ecosystems of Washington, Clark County. September 2014. Available: <http://www1.dnr.wa.gov/nhp/refdesk/lists/communitiesxco/clark.html>. Accessed December 2014.
- Washington State Department of Health (DOH). 2010. Source Water Protection information website. Accessed June 2015 at <http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/SourceWater/SourceWaterProtection>.
- Washington State Office of Financial Management (OFM). 2015. April 1 official population estimates. Accessed July 2015 at <http://www.ofm.wa.gov/pop/april1/>.
- Yacolt. 2013. Town of Yacolt Comprehensive Growth Management Plan. July 2013.

Appendix A. 303(d) Surface Waters in Clark County

Appendix A. 303(d) Surface Waters in Clark County

Water Body	Parameter	Change
Big Tree Creek	Temperature, Bacteria	Stream not previously identified on 2004 303(d) list for Clark County
Breeze Creek	Temperature, Bacteria	Temperature added to previously identified impairment
Burnt Bridge Creek	Bacteria, pH, Dissolved Oxygen, Temperature	pH added to previously identified impairments
Cedar Creek	Bacteria	Stream not previously identified on 2004 303(d) list for Clark County
China Ditch	Dissolved Oxygen, Temperature	No change
China Ditch Lateral	Dissolved Oxygen, Temperature	No change
Columbia River	Temperature, Bacteria, Dissolved Oxygen	Dissolved Oxygen added to previously identified impairments; TMDL developed for previously identified impairments including Dioxin and Total Dissolved Gas; No current listing for Dioxin or PCB
Curtin Creek	Dissolved Oxygen, pH	No change
Dean Creek	Temperature	Stream not previously identified on 2004 303(d) list for Clark County
Dwyer Creek	Dissolved Oxygen	No change
Fifth Plain Creek	Dissolved Oxygen, Temperature	No change
Gee Creek	Bacteria	No change
Jenny Creek	Bacteria, Temperature	Stream not previously identified on 2004 303(d) list for Clark County
King Creek	Temperature	Stream not previously identified on 2004 303(d) list for Clark County
Lacamas Creek	Dissolved Oxygen, Temperature, Bacteria, pH	No change
Lacamas Lake	Total Phosphorous	No change
Lake River	Temperature; Bacteria; 2,3,7,8-TCDD; 4,4-DDE; Dieldrin; PCB	2,3,7,8-TCDD; 4,4-DDE, Dieldrin, and PCB added to previously identified impairments
Lewis River	Total Dissolved Gas	Temperature no longer identified on the 303(d) for the Lewis River
Lewis River – East Fork	Temperature, Bacteria	No change
Lockwood Creek	Bacteria, Temperature	Temperature added to previously identified impairments
Mason Creek	Bacteria, Temperature	Stream not previously identified on 2004 303(d) list for Clark County
Matney Creek	Bacteria, Temperature, Dissolved Oxygen	No change

Water Body	Parameter	Change
McCormick Creek	Bacteria	No change
Merwin Lake	PCB	Lake not previously identified on 303(d) list
Peterson Ditch	Bacteria, Temperature	Stream not previously identified on 2004 303(d) list for Clark County
Riley Creek	Bacteria	Stream not previously identified on 2004 303(d) list for Clark County
Rock Creek	Bacteria, Temperature	Temperature added to previously identified impairments
Round Lake	pH, Dissolved Oxygen	No change
Salmon Creek	pH, Dissolved Oxygen	TMDL approved and Implementation Plan in place for Bacteria, Temperature, and Turbidity, which were previously identified parameters.
Shanghai Creek	Temperature, Dissolved Oxygen, pH	No change
Unnamed tributary to Brezee Creek	Bacteria	Stream not previously identified on 2004 303(d) list for Clark County
Vancouver Lake	Total Phosphorous; Bacteria; Toxaphene; 2,3,7,8-TCDD; Dieldrin; PCB	2,3,7,8-TCDD; Toxaphene, and Dieldrin added to previously identified impairments
Weaver Creek	pH	No change
Whipple Creek	Bacteria	No change
Yacolt Creek	Bacteria	Stream not previously identified on 2004 303(d) list for Clark County

Source: 2012 Washington State 303(d) list of impaired water bodies.

Appendix B. Fish and Wildlife Tables

APPENDIX B

Table 1. Definitions of WDFW Priority Upland Habitat Types Found in Clark County

Priority Habitat	Description
Aspen Stands	Pure or mixed stands of aspen greater than 0.4 ha (1 acre).
Biodiversity Areas and Corridors	<p>Biodiversity Area: An area identified as biologically diverse through a scientifically based assessment conducted over a landscape scale; or area is within a city or an urban growth area (UGA) and contains habitat that is valuable to fish or wildlife and is mostly comprised of native vegetation.</p> <p>Biodiversity Corridor: A relatively undisturbed, unbroken tract of vegetation connecting fish and wildlife habitat conservation areas, priority habitats, areas identified as biologically diverse or valuable habitats within a city or UGA.</p>
Herbaceous Balds	Variable-sized patches of grass and forb vegetation located on shallow soils over bedrock, commonly fringed by forest or woodland. Typically consists of low-growing vegetation adapted for survival on shallow soils amid seasonally dry conditions, often on steep slopes.
Old-growth/Mature Forest	<p>Old-growth west of Cascade crest: Stands > 3 ha (7.5 acres) having at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) that are >81 cm (32 in) dbh or > 200 years of age; and > 10 snags/ha (4 snags/acre) over 51 cm (20 in) diameter and 4.6 m (15 ft) tall; with numerous downed logs, including 10 logs/ha (4 logs/acre) that are > 61 cm (24 in) diameter and > 15 m (50 ft) long. High elevation stands (> 762m [2500ft]) may have lesser dbh [> 76 cm (30 in)], fewer snags [> 0.6/ha (1.5/acre)], and fewer large downed logs [0.8 logs/ha (2 logs/acre) that are > 61 cm (24 in) diameter and > 15 m (50 ft) long].</p> <p>Mature forests: Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.</p>
Oregon White Oak Woodlands	Stands of oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%; or where total canopy coverage of the stand is <25%, but oak accounts for at least 50% of the canopy coverage. The latter is often referred to as oak savanna. In non-urbanized areas west of the Cascades, priority oak habitat consists of stands > 0.4 ha (1.0 ac) in size. In urban or urbanizing areas, single oaks or stands < 0.4 ha (1 ac) may also be considered a priority when found to be particularly valuable to fish and wildlife.
West Side Prairie	Herbaceous, non-forested (< 60% forest canopy cover) plant communities that can either take the form of a dry prairie where soils are well-drained or a wet prairie. Typically occurs on soil types known to be associated with prairie. The presence of certain diagnostic plants is required to establish an occurrence of prairie, although invasive plants are often dominant.

Priority Habitat	Description
Caves	A naturally occurring cavity, recess, void, or system of interconnected passages (including associated dendritic tubes, cracks, and fissures) which occurs under the earth in soils, rock, ice, or other geological formations, and is large enough to contain a human. Mine shafts (a human-made excavation in the earth usually used to extract minerals) may mimic caves, and abandoned mine shafts with actual or suspected occurrences of priority species should be treated in a manner similar to caves.
Cliffs	Greater than 7.6 meters (25 feet) high and occurring below 1524 meters (5000 feet).
Snags and Logs	Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. Priority snag and log habitat includes individual snags and/or logs, or groups of snags and/or logs of exceptional value to wildlife due to their scarcity or location in a particular landscape. Areas with abundant, well-distributed snags and logs are also considered priority snag and log habitat. Examples include large, sturdy snags adjacent to open water, remnant snags in developed or urbanized settings, and areas with a relatively high density of snags.
Talus	Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

Sources: WDFW 2008, 2013

APPENDIX B

Table 2. Washington State Priority Species Known to Occur in Clark County

Common Name	Scientific Name	State Status
Plants		
Oregon bolandra	<i>Bolandra oregano</i>	Sensitive
Dense sedge	<i>Carex densa</i>	Threatened
Few-flowered collinsia	<i>Collinsia sparsiflora</i> var. <i>bruceae</i>	Sensitive
Oregon coyote-thistle	<i>Eryngium petiolatum</i>	Threatened
Western wahoo	<i>Euonymus occidentalis</i> var. <i>occidentalis</i>	Sensitive
Western sweetvetchh	<i>Hedysarum occidentale</i> var. <i>occidentale</i>	Sensitive
Nuttall's quillwort	<i>Isoetes nuttallii</i>	Sensitive
Smooth goldfields	<i>Lasthenia glaberrima</i>	Endangered
Branching montia	<i>Montia diffusa</i>	Sensitive
California broomrape	<i>Orobanche California</i> ssp. <i>Grayana</i>	Endangered
Western yellow oxalis	<i>Oxalis suksdorfii</i>	Threatened
Oregon yampah	<i>Perideridia oregano</i>	Sensitive
Western false dragonhead	<i>Physostegia parviflora</i>	Review group 1
Wheeler's bluegrass	<i>Poa nervosa</i>	Sensitive
Great polemonium	<i>Polemonium carneum</i>	Threatened
Idaho gooseberry	<i>Ribes oxycanthoides</i> var. <i>irriguum</i>	Threatened
Soft-leaved willow	<i>Salix sessilifolia</i>	Sensitive
Hairy-stemmed checker-mallow	<i>Sidalcea hirtipes</i>	Threatened
Western ladies' tresses	<i>Spiranthes porrifolia</i>	Sensitive
Hall's aster	<i>Symphyotrichum hallii</i>	Threatened
Small-flowered trillium	<i>Trillium parviflorum</i>	Sensitive
Columbia water-meal	<i>Wolffia Columbiana</i>	Review group 1
California compassplant	<i>Wyethia angustifolia</i>	Sensitive
Fish		
Leopard dace	<i>Rhinichthys falcatus</i>	Candidate
Mountain sucker	<i>Catostomus platyrhynchus</i>	Candidate

Common Name	Scientific Name	State Status
White sturgeon	<i>Acipenser transmontanus</i>	Vulnerable aggregations; Species of recreational, commercial, or tribal importance
Kokanee	<i>Oncorhynchus nerka</i>	Species of recreational, commercial, or tribal importance
Pink salmon	<i>Oncorhynchus gorbuscha</i>	Vulnerable aggregations; Species of recreational, commercial, or tribal importance
Wildlife		
Cascade torrent salamander	<i>Rhyacotriton cascadae</i>	Candidate
Western grebe	<i>Aechmophorus occidentalis</i>	Candidate
Golden eagle	<i>Aquila chrysaetos</i>	Candidate
Sandhill crane	<i>Grus Canadensis</i>	Endangered
Vaux's swift	<i>Chaetura vauxi</i>	Candidate
Pileated woodpecker	<i>Dryocopus pileatus</i>	Candidate
Purple martin	<i>Progne subis</i>	Candidate
Gray-tailed vole	<i>Microtus canicaudus</i>	Candidate
Great blue heron	<i>Ardea Herodias</i>	Vulnerable aggregations
Cavity-nesting ducks	<i>Wood Duck (Aix sponsa), Barrow's Goldeneye (Bucephala islandica), Common Goldeneye (Bucephala clangula), Bufflehead (Bucephala albeola), Hooded Merganser (Lophodytes cucullatus)</i>	Species of recreational, commercial, or tribal importance
Non-breeding concentrations of Barrow's goldeneye, common goldeneye, bufflehead	<i>Barrow's Goldeneye (Bucephala islandica), Common Goldeneye (Bucephala clangula), Bufflehead (Bucephala albeola)</i>	Vulnerable aggregations; Species of recreational, commercial, or tribal importance
Trumpeter swan	<i>Cygnus buccinators</i>	Vulnerable aggregations; Species of recreational, commercial, or tribal importance
Tundra swan	<i>Cygnus columbianus</i>	Vulnerable aggregations; Species of recreational, commercial, or tribal importance
Waterfowl concentrations	Anatidae excluding Canada Geese in urban areas	Vulnerable aggregations; Species of recreational, commercial, or tribal importance
Mountain quail	<i>Oreortyx pictus</i>	Species of recreational, commercial, or tribal importance

Common Name	Scientific Name	State Status
Sooty grouse	<i>Dendragapus fuliginosus</i>	Species of recreational, commercial, or tribal importance
Non-breeding concentrations of shorebirds	Charadriidae Scolopacidae Phalaropodidae	Vulnerable aggregations
Band-tailed pigeon	<i>Columba fasciata</i>	Species of recreational, commercial, or tribal importance
Roosting concentrations of big brown bat, Myotis bats, pallid bat	<i>Big-brown Bat (Eptesicus fuscus), Myotis bats (Myotis spp.), Pallid Bat (Antrozous pallidus)</i>	Vulnerable aggregations
Marten	<i>Martes Americana</i>	Species of recreational, commercial, or tribal importance
Columbia black-tailed deer	<i>Odocoileus hemionus columbianus</i>	Species of recreational, commercial, or tribal importance
Elk	<i>Cervus elaphus</i>	Species of recreational, commercial, or tribal importance
California sea lion	<i>Zalophus californianus</i>	Vulnerable aggregations
Harbor seal	<i>Phoca vitulina</i>	Vulnerable aggregations
Steller sea lion	<i>Eumetopias jubatus</i>	Threatened

Sources: WDFW 2008, 2013, 2014

APPENDIX B

Table 3. Federally Listed Threatened & Endangered Species and Critical Habitat Found in Clark County

Common Name	Scientific Name	Federal Status	State Status	Habitat
Plants				
Bradshaw's desert parsley	<i>Lomatium bradshawii</i>	Endangered	Endangered	Low-elevation grasslands and prairies; seasonally flooded areas near streams.
Golden paintbrush	<i>Castilleja levisecta</i>	Threatened	Endangered	Open grasslands, prairies.
Water howellia	<i>Howellia aquatilis</i>	Threatened	Threatened	Low-elevation wetlands, vernal pools.
Fish				
Columbia River chum	<i>Oncorhynchus keta</i>	Threatened	Candidate	Spawn in fresh water, mature in salt water.
Lower Columbia River coho	<i>Oncorhynchus kisutch</i>	Threatened	None	Spawn in fresh water, mature in salt water.
Chinook (Lower Columbia River, Snake River Fall, Snake River Spring/Summer, Upper Columbia River Spring, Upper Willametter River)	<i>Oncorhynchus tshawytscha</i>	Threatened (Lower Columbia, Snake River, Upper Willamette River) Endangered (Upper Columbia River)	Candidate	Spawn in fresh water, mature in salt water.
Steelhead (Lower Columbia River, Upper Columbia River, Snake River Basin, Middle Columbia River, Upper Willamette River)	<i>Oncorhynchus mykiss</i>	Threatened	Candidate	Spawn in fresh water, mature in salt water.
Sockeye (Snake River Basin)	<i>Oncorhynchus nerka</i>	Endangered	Candidate	Spawn in fresh water, mature in salt water.
Pacific eulachon	<i>Thaleichthys pacificus</i>	Threatened	Candidate	Spawn in fresh water, mature in salt water.
Green sturgeon southern DPS	<i>Acipenser medirostris</i>	Threatened	None	Spawn in fresh water, mature in salt water.
Bull trout	<i>Salvelinus confluentus</i>	Threatened	Candidate	Typically fresh water, rarely migrating in salt water.

Common Name	Scientific Name	Federal Status	State Status	Habitat
Wildlife				
Oregon spotted frog	<i>Rana pretiosa</i>	Threatened	Endangered	Perennial water bodies, especially large marshes.
Northern spotted owl	<i>Strix occidentalis caurina</i>	Threatened	Endangered	Old-growth forest.
Streaked horned lark	<i>Eremophila alpestris strigata</i>	Threatened	Endangered	Wide open areas with sparse vegetation; airports; dredge spoil piles.
Yellow billed cuckoo	<i>Coccyzus americanus</i>	Threatened	Candidate	Forested riparian areas.
Gray wolf	<i>Canis lupus</i>	Endangered	Endangered	Range of habitats, from grasslands to forest.
Fisher	<i>Martes pennant</i>	Proposed Threatened	Endangered	Middle to lower elevation forests with large trees, snags, logs.

Sources: NOAA Fisheries 2012, USFWS 2014, WDFW 2008, 2013, 2014, WNHP 2014, WNHP rare plant online information (<http://www1.dnr.wa.gov/nhp/refdesk>), USFWS species profiles (<http://ecos.fws.gov/speciesProfile>), USFWS critical habitat portal mapper (<http://crithab.fws.gov/crithab>).

APPENDIX B

Table 4. Federal Species of Concern in Clark County

Common Name	Scientific Name	Federal Status	State Status
Plants			
Tall bugbane	<i>Cimicifuga elata</i>	Species of Concern	Sensitive
Clackamas corydalis	<i>Corydalis aquae-gelidae</i>	Species of Concern	Sensitive
Torrey's peavine	<i>Lathyrus torreyi</i>	Species of Concern	Threatened
Fish			
Pacific lamprey	<i>Entosphenus tridentata</i>	Species of Concern	None
River lamprey	<i>Lampetra ayresi</i>	Species of Concern	Candidate
Coastal resident/Sea-run cutthroat	<i>Oncorhynchus clarki clarki</i>	Species of Concern	None
Wildlife			
Larch Mountain salamander	<i>Plethodon larselli</i>	Species of Concern	Sensitive
Western toad	<i>Anaxyrus boreas</i>	Species of Concern	Candidate
Pacific pond turtle	<i>Actinemys marmorata</i>	Species of Concern	Endangered
Bald eagle	<i>Haliaeetus leucocephalus</i>	Species of Concern	Sensitive
Northern goshawk	<i>Accipiter gentilis</i>	Species of Concern	Candidate
Peregrine falcon	<i>Falco peregrinus</i>	Species of Concern	Sensitive
Slender-billed white-breasted nuthatch	<i>Sitta carolinensis aculeate</i>	Species of Concern	Candidate
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Species of Concern	Candidate

Sources: WDFW, 2008, 2013, 2014, WNHP 2014.

APPENDIX B

Table 5. Migratory Birds of Concern in Clark County

Common Name	Scientific Name	Seasonal Occurrence
Bald eagle	<i>Haliaeetus leucocephalus</i>	Year-round
Brewer's sparrow	<i>Spizella breweri</i>	Breeding
Calliope hummingbird	<i>Stellula calliope</i>	Breeding
Caspian tern	<i>Hydroprogne caspia</i>	Breeding
Cassin's finch	<i>Carpodacus cassinii</i>	Year-round
Ferruginous hawk	<i>Buteo regalis</i>	Breeding
Flammulated owl	<i>Otus flammeolus</i>	Breeding
Fox sparrow	<i>Passerella liaca</i>	Breeding, wintering
Long-billed curlew	<i>Numenius americanus</i>	Breeding
Olive-sided flycatcher	<i>Contopus cooperi</i>	Breeding
Peregrine falcon	<i>Falco peregrines</i>	Breeding
Purple finch	<i>Carpodacus purpureus</i>	Year-round
Rufous hummingbird	<i>Selasphorus rufus</i>	Breeding
Sage thrasher	<i>Oreoscoptes montanus</i>	Breeding
Short-eared owl	<i>Asio flammeus</i>	Year-round
Tricolored blackbird	<i>Agelaius tricolor</i>	Breeding
Vesper sparrow	<i>Pooecetes gramineus ssp. Affinis</i>	Breeding
Willow flycatcher	<i>Empidonax traillii</i>	Breeding

Source: USFWS 2014